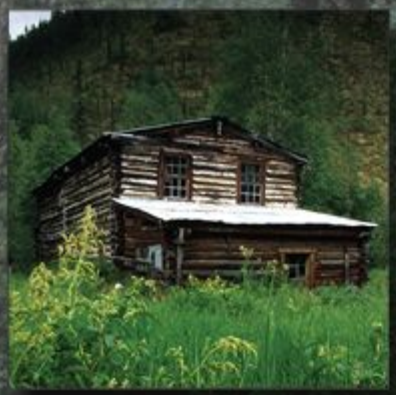
U.S. Department of the Interior
Bureau of Land Management

Eastern Interior

July 2016

Proposed Resource Management Plan and Final Environmental Impact Statement

Volumes 1-4







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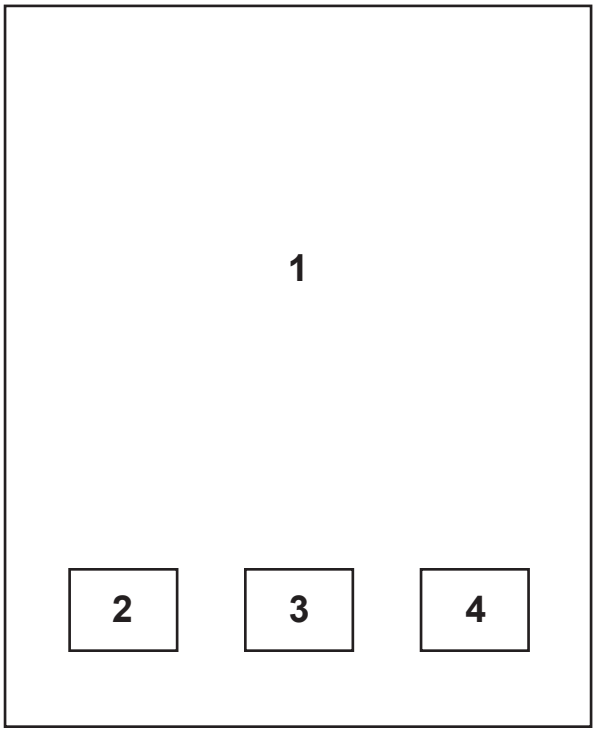
Our Vision

To enhance the quality of life for all citizens through the balanced stewardship of America's public lands and resources.

Our Mission

To sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/AK/PL-16/006+1610+F0200



BLM Cover Photos:

1. Alpenglow on the White Mountains, Beaver Creek Wild and Scenic River, Alaska.
2. Steele Creek Roadhouse, Fortymile Wild and Scenic River, Alaska.
3. Dall Sheep at mineral lick near Lime Peak, White Mountains National Recreation Area, Alaska.
4. Mining operation on Walker Fork in Fortymile mining district, Alaska.

Eastern Interior

Proposed Resource Management Plan and Final Environmental Impact Statement

Prepared by the

U.S. Department of the Interior
Bureau of Land Management-Alaska
Eastern Interior Field Office

July 2016

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Alaska State Office
222 West Seventh Avenue, #13
Anchorage, Alaska 99513-7504
http://www.blm.gov/ak

In reply refer to:
1610 (AK020)

MAY 23 2016

Dear Reader:

Enclosed is the Proposed Resource Management Plan (PRMP) and Final Environmental Impact Statement (FEIS) for the Eastern Interior RMP. The Bureau of Land Management (BLM) prepared the PRMP/FEIS in consultation with cooperating agencies, taking into account public comments received during this planning effort. The PRMP provides a framework for the future management direction and appropriate use of the Eastern Interior Planning Area, located in Interior Alaska. The document contains both land use planning decisions and implementation decisions to guide the BLM's management of the four planning subunits in the Eastern Interior Planning Area: Fortymile, Steese, Upper Black River (Draanjik), and White Mountains subunits.

This PRMP and FEIS have been developed in accordance with the National Environmental Policy Act of 1969, as amended, and the Federal Land Policy and Management Act of 1976, as amended. The PRMP (Alternative E) is largely based on alternatives B and C of the Draft Resource Management Plan/Environmental Impact Statement (DRMP/DEIS), which was released on February 24, 2012. The PRMP/FEIS contains the Proposed Plan, a summary of changes made between the DRMP/DEIS and PRMP/FEIS, impacts of the Proposed Plan, a summary of the written and verbal comments received during the public review period for the DRMP/DEIS, and responses to the comments.

Pursuant to BLM's planning regulations at 43 CFR 1610.5-2, any person who participated in the planning process for this PRMP and has an interest which is or may be adversely affected by the planning decisions may protest approval of the planning decisions within 30 days from date the Environmental Protection Agency (EPA) publishes the Notice of Availability in the Federal Register. For further information on filing a protest, please see the accompanying protest regulations in the pages that follow (labeled as Attachment # 1). The regulations specify the required elements of your protest. Take care to document all relevant facts. As much as possible, reference or cite the planning documents or available planning records (e.g., meeting minutes or summaries, correspondence, etc.).

Emailed protests will not be accepted as valid protests unless the protesting party also provides the original letter by either regular mail or overnight delivery postmarked by the close of the protest period. Under these conditions, the BLM will consider the emailed protest as an advance copy and will afford it full consideration. If you wish to provide the BLM with such advance notification, please direct emailed protests to: protest@blm.gov.

All protests must be in writing and mailed to one of the following addresses:

Regular Mail:	Overnight Delivery:
Director (210)	Director (210)
Attn: Protest Coordinator	Attn: Protest Coordinator
P.O. Box 71383	20 M Street SE, Room 2134LM
Washington, D.C. 20024-1383	Washington, D.C. 20003

Before including your address, phone number, email address, or other personal identifying information in your protest, be advised that your entire protest – including your personal identifying information – may be made publicly available at any time. While you can ask us in your protest to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

The BLM Director will make every attempt to promptly render a decision on each protest. The decision will be in writing and will be sent to the protesting party by certified mail, return receipt requested. The decision of the BLM Director shall be the final decision of the Department of the Interior on each protest. Responses to protest issues will be compiled and formalized in a Director's Protest Resolution Report made available following issuance of the decisions.

Upon resolution of all land use plan protests, the BLM will issue four Approved RMPs and Records of Decision (RODs), one for each planning subunit. The Approved RMPs and RODs will be mailed or made available electronically to all who participated in the planning process and will be available on the BLM website at *www.blm.gov/ak/eirmp*.

Unlike land use planning decisions, implementation decisions included in this PRMP/FEIS are not subject to protest under the BLM planning regulations, but are subject to an administrative review process, through appeals to the Office of Hearings and Appeals (OHA), Interior Board of Land Appeals (IBLA) pursuant to 43 CFR, Part 4 Subpart E. Implementation decisions generally constitute the BLM's final approval allowing on-the-ground actions to proceed.

Where implementation decisions are made as part of the land use planning process, they are still subject to the appeals process or other administrative review as prescribed by specific resource program regulations once the BLM resolves the protests to land use planning decisions and issues an Approved RMP and ROD. The Approved RMPs and RODs will therefore identify the implementation decisions made in the plan that may be appealed to the Office of Hearing and Appeals.

If you would like additional information or clarification, please contact Jeanie Cole, Planning and Environmental Coordinator or Lenore Heppler, Eastern Interior Field Manager at (907) 474-2200.

Sincerely,

Bud C. Cribley
State Director

Enclosure(s)
Attachment 1: Protest Regulations

Attachment 1

Protest Regulations

[CITE: 43CFR1610.5-2]

TITLE 43--PUBLIC LANDS: INTERIOR
CHAPTER II--BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR
PART 1600--PLANNING, PROGRAMMING, BUDGETING--Table of Contents
Subpart 1610--Resource Management Planning
Sec. 1610.5-2 Protest procedures.

(a) Any person who participated in the planning process and has an interest which is or may be adversely affected by the approval or amendment of a resource management plan may protest such approval or amendment. A protest may raise only those issues which were submitted for the record during the planning process.

(1) The protest shall be in writing and shall be filed with the Director. The protest shall be filed within 30 days of the date the Environmental Protection Agency published the notice of receipt of the final environmental impact statement containing the plan or amendment in the Federal Register. For an amendment not requiring the preparation of an environmental impact statement, the protest shall be filed within 30 days of the publication of the notice of its effective date.

(2) The protest shall contain:

(i) The name, mailing address, telephone number and interest of the person filing the protest;
(ii) A statement of the issue or issues being protested;
(iii) A statement of the part or parts of the plan or amendment being protested;
(iv) A copy of all documents addressing the issue or issues that were submitted during the planning process by the protesting party or an indication of the date the issue or issues were discussed for the record; and
(v) A concise statement explaining why the State Director's decision is believed to be wrong.

(3) The Director shall promptly render a decision on the protest.

(b) The decision shall be in writing and shall set forth the reasons for the decision. The decision shall be sent to the protesting party by certified mail, return receipt requested. The decision of the Director shall be the final decision of the Department of the Interior.

Abstract

Lead Agency: U.S. Department of the Interior, Bureau of Land Management-Alaska

Proposed Action: Eastern Interior Proposed Resource Management Plan/Final Environmental Impact Statement (Proposed RMP/Final EIS)

Type of Action: Administrative Final

Abstract: This Proposed RMP/Final EIS is based on information provided by BLM personnel, other agencies and organizations, and the public. This plan describes and analyzes five alternatives. Alternative A is the No Action Alternative; Alternatives B, C, D, and E propose varying levels of resource use and conservation. Alternative E is the BLM's Proposed RMP.

Major issues and management concerns analyzed included: Minerals management, travel management, wilderness characteristics, special designations, subsistence, recreation, and wildlife.

Protests: Protests on the Eastern Interior Proposed RMP/Final EIS must be received within 30 days from publication of the Environmental Protection Agency's Notice of Availability in the *Federal Register*. The close of the protest period will be announced in news releases and on the RMP website (below).

Further Information:

Jeanie Cole, Team Lead
(907) 474-2340

Lenore Heppler, Field Manager
(907) 474-2320

Bureau of Land Management
Fairbanks District Office
Attn: Eastern Interior Draft RMP/EIS
1150 University Avenue
Fairbanks, AK 99709

EasternInterior@blm.gov

www.blm.gov/ak/eirmp

Executive Summary

Introduction

The Bureau of Land Management (BLM) in Alaska is engaged in a planning process to update management direction for lands administered by the Fairbanks District Office, Eastern Interior Field Office. The Eastern Interior Planning Area includes approximately 30 million acres of public, State, and private lands, of which approximately 6.5 million acres are managed by the BLM. Decisions in this RMP apply only to BLM-managed lands. Where the RMP refers to allocation decisions or impacts as percentages, these percentages are based on the 6.5 million acres managed by the BLM. The planning area is divided into four planning subunits (Map 1).

BLM-managed lands include 2.3 million acres of lands selected by the State of Alaska or Alaska Native corporations. The BLM has responsibility to manage these selected lands until they are either conveyed or selections removed. Management measures described in this Proposed RMP apply only to BLM-managed lands in the planning area; no measures have been developed for private, State, or other federally managed lands.

The BLM administers public lands under the Federal Land Policy and Management Act of 1976 (FLPMA), and other applicable laws. The BLM land use planning regulations, 43 Code of Federal Regulations (CFR) 1600, set forth procedures for preparing land use plans and making planning decisions in accordance with FLPMA. These land use plans provide the basis for every on-the-ground action the BLM approves or undertakes. To ensure that management of public lands is consistent with FLPMA and other applicable laws, the BLM prepares and periodically updates its resource management plans (RMPs).

The Eastern Interior Field office is preparing the Eastern Interior Proposed Resource Management Plan and Final Environmental Impact Statement (Proposed RMP/Final EIS) to provide direction for managing public lands within the planning area and to analyze environmental effects that would potentially result from implementing the five alternatives presented in the Proposed RMP/Final EIS. The Eastern Interior RMP will replace current management guidance under existing land use plans implemented from 1980 through 1986.

Purpose and Need

The purpose of the Eastern Interior Proposed RMP is to provide a comprehensive framework to guide management of public lands and interests within the Eastern Interior Planning Area. The Proposed RMP incorporates new data, addresses land use issues and conflicts, and specifies where and under what circumstances particular activities will be allowed on BLM-managed public lands. The RMP is needed to update existing planning documents, including the Steese RMP (BLM 1986a), the White Mountains RMP (BLM 1986b), and the Fortymile Management Framework Plan (BLM 1980), to address current issues and to meet the requirements of BLM's Land Use Planning Handbook 16021-1. An RMP is also needed for lands in the upper Black River watershed in the northeastern portion of the planning area and scattered parcels east of Fairbanks which are not covered by the existing land use plans.

Issues

A planning issue is an area of controversy or concern regarding management of resources or uses on BLM-managed lands within the planning area. Issues for the Eastern Interior RMP were initially identified in house and were refined by public scoping, public comment on the Draft RMP/EIS, and resource management concerns of BLM, the State, and other federal agencies. These issues drove the formulation of the plan alternatives, and addressing them has resulted in the range of alternatives presented in the Proposed RMP/Final EIS. Additional discussion on each issue can be found in the Scoping and Issues section in Chapter 1.

Scoping and comments on the Draft RMP/EIS identified the following Issues.

1. How will the Eastern Interior RMP address the impacts of climate change and the development of land management strategies that reduce impacts, incorporate appropriate monitoring, and allow for adaptive management to respond to changes over time?
2. How will the Eastern Interior RMP protect existing water quality if existing mineral withdrawals are removed and improve water quality in areas that are degraded from past or ongoing mining activities?
3. How will the BLM maintain aquatic habitats that support fish populations that are important for subsistence, recreational, and commercial uses, and to fulfill international treaty obligations? If mineral withdrawals are removed, how can placer mining be managed to minimize impacts on fish and aquatic habitats and to provide for the rehabilitation of aquatic habitats in the shortest amount of time possible?
4. How will the BLM manage habitats that support wildlife populations important for subsistence and recreational use?
5. How will the BLM manage public lands to provide continual access to subsistence resources, protect subsistence resources, and support subsistence-based economies in the planning area?
6. Which lands currently withdrawn from mineral entry, location, and leasing should be opened to entry, location, and leasing?
7. How should the BLM manage travel to provide access for recreation, commercial uses, and general enjoyment of public lands while protecting natural and cultural resources?
8. What range of recreational opportunities should be provided to meet the wide variety of public demand?
9. How will the BLM provide for access and effective transportation planning?
10. How will the BLM manage wilderness characteristics in the planning area?

The character of the comments under each of the ten issues listed above varied considerably. Some favored extensive closures to mineral location and entry while others supported making all BLM-managed lands available for mining. Some favored designation of Areas of Critical Environmental Concern (ACEC) or other special designations, while others were opposed to any type of special designation. Some parties favored more liberal access to public lands, including increased access by off-highway vehicles, while others expressed concerns that increasing motorized access threatens sustainable management of biological resources.

Alternatives

Alternatives must meet the purpose and need; be reasonable; provide a mix of resource protection, use, and development; be responsive to the issues; and meet the established planning criteria. Each alternative constitutes a complete RMP that provides a framework for multiple use management of the full spectrum of resources, resource uses, and programs present in the

planning area. Under all alternatives the BLM would manage their lands in accordance with all applicable laws, regulations, and BLM policies and guidance.

This Proposed RMP/Final EIS describes and analyzes five alternatives. Alternative A (No Action Alternative) represents the continuation of current management practices. Alternatives B, C, D, and E propose changes to current management. These alternatives were developed with input collected from the public during scoping, internal BLM sources, tribal consultation, public comments on the Draft RMP/EIS, and collaboration with the State of Alaska, US Fish and Wildlife Service, Chalkyitsik Village, and Gwichyaa Zhee Gwich'in Tribal government. The alternatives provide a range of choices to meet the BLM's planning and program management requirements and to resolve planning issues. Alternatives B, C, and D were considered in the Draft RMP/EIS. Alternative E was developed after analysis of public comments and is the BLM's Proposed RMP.

All action alternatives recommend changes in which lands are open or closed to mining. All lands within the planning area are currently closed to new mining claims (location) by withdrawals enacted in the early 1970s. Changing the status of these withdrawals can only be done by the Secretary of the Interior and in the case of new withdrawals over 5,000 acres approval by Congress is also needed. More information on withdrawals can be found in section 3.3.8 and Appendix G.

Alternative A

Alternative A continues present management practices and present levels of resource use based on the existing Fortymile Management Framework Plan (MFP) (BLM 1980), the Steese RMP (BLM 1986a), the White Mountains RMP (BLM 1986b), the Fortymile River Management Plan (BLM 1983a), the Birch Creek River Management Plan (BLM 1983b), the Beaver Creek River Management Plan (BLM 1983c), and other management decision documents. Other management decision documents include special rules published in the *Federal Register* (for off-highway vehicle and recreational use) and existing public land orders (PLOs), including ANCSA 17(d)(1) withdrawals. The Upper Black River Subunit would continue to be managed without the benefit of a land use plan.

Mineral leasing and new mining claims would be precluded by public land orders (PLOs) issued under Section 17(d)(1) of ANCSA. Land disposal actions would not occur due to the lack of decisions identifying lands for disposal in the existing land use plans.

Four existing Research Natural Areas (RNAs)and three Special Recreation Management Areas would remain in place. No new special designations, such as Areas of Critical Environmental Concern (ACECs) would be considered. There would be no suitability determinations made for wild and scenic rivers. There would be no decisions to manage certain lands to maintain wilderness characteristics, although existing management would preserve these characteristics in many areas.

There would be no off-highway vehicle (OHV) designations in place for the majority of the Fortymile Subunit (outside of the Wild and Scenic River Corridor) or the Upper Black River Subunit. The current Limited OHV designations would remain in place in the White Mountains NRA and Steese National Conservation Area, including seasonal restrictions on summer motorized use in some areas.

Alternative B

Alternative B emphasizes protection of resource values such as wildlife, fish, and vegetation. Production of minerals and services would be more constrained than in Alternatives A, C, D, and E. In many areas, uses are excluded to protect sensitive resources.

Alternative B recommends approximately 87 percent of BLM-managed lands remain closed to mineral leasing and mineral entry, including the Steese National Conservation Area, the White Mountains NRA, the Upper Black River Subunit, the Fortymile ACEC, and the three wild and scenic river corridors. The plan recommends opening the remaining 13 percent to new mining claims and mineral leasing by partial revocation of PLOs. Unlike Alternative A, this alternative identifies lands suitable for acquisition, disposal, or retention. Scattered parcels identified in Appendix G are available for disposal. Wild and scenic rivers and ACECs are identified as right-of-way avoidance areas.

The four existing RNAs in the Steese National Conservation Area and White Mountains NRA are maintained with current management. Alternative B designates four new ACECs and identifies specific measures proposed to protect or enhance wildlife values within these areas. The Steese, White Mountains, and Fortymile ACECs protect caribou range and Dall sheep habitat. The Salmon Fork ACEC protects anadromous fish habitat, bald eagle nesting, and rare plant habitats. Five eligible river segments (109 miles) are recommended suitable for designation under the Wild and Scenic Rivers Act (WSR Act). Lands possessing wilderness characteristics are identified and 78 percent these lands are managed to maintain these wilderness characteristics.

OHV area designations are identified in all planning subunits. Some areas are limited to existing or designated trails. Restrictions on summer motorized use are more extensive than under Alternative A.

Standard Operating Procedures outlined in Appendix A.2 apply to permitted activities.

Alternative C

Alternative C analyzes a moderate level of protection, use, and enhancement of resources and services. Production of minerals and services is less constrained than in Alternatives A, B, and E, but more constrained than in Alternative D. In some areas, uses are excluded to protect sensitive resources. Constraints to protect resources are less restrictive than under Alternative B, but more so than Alternative D.

Alternative C recommends 34 percent of BLM-managed lands remain closed to mineral leasing and 40 percent to mineral entry and location, including the White Mountains NRA, 81 percent of the Steese National Conservation Area, and the three wild and scenic river corridors. Some ACECs are recommended closed to mineral entry and location, and leasing. Partial revocation of PLOs are recommended to open 60 percent of BLM-managed lands to mineral location and 66 percent to mineral leasing. Same as Alternative B, lands are identified as suitable for acquisition, disposal or retention.

Similar to Alternative B, existing RNAs are maintained. Only three ACECs are designated and they are smaller and/or subject to fewer restrictions than in Alternative B. The White Mountains ACEC is not designated under this alternative, although management similar to that prescribed in other ACECs would apply to crucial caribou and Dall sheep habitat in the White Mountains. The

Salmon Fork ACEC protects anadromous fish habitat, bald eagle nesting, and rare plant habitats. The Steese and Fortymile ACECs protect caribou range and Dall sheep habitat. No rivers are recommended as suitable for designation under the WSR Act. Fewer acres (32 percent) are managed to maintain wilderness characteristics.

As is in Alternative B, OHV designations are put in place in all planning subunits. Some areas are limited to existing or designated trails. Summer motorized use is precluded in some areas. Restrictions on summer motorized use are more extensive than under Alternatives A or D, but less than under Alternative B.

Standard Operating Procedures outlined in Appendix A.2 apply to permitted activities.

Alternative D as Modified by the Supplement to the Draft RMP

Alternative D emphasizes management to facilitate resource development. Production of minerals and services are less constrained than in Alternatives B, C and E. In some areas uses are excluded to protect sensitive resources. Constraints to protect resources will implemented, but are less restrictive than under Alternatives C and E.

Alternative D recommends 20 percent of BLM-managed lands remain closed to mineral leasing (oil, gas, and other leasable minerals) and 27 percent to mineral entry and location (mining claims). Partial revocation of PLOs are recommended to open 73 percent of BLM-managed lands to mineral location and 80 percent to mineral leasing. The White Mountains NRA, the Birch Creek and Beaver Creek WSR corridors, the "wild" and "recreational" segments of the Fortymile WSR, and 46 percent of the Steese National Conservation Area remain closed to new mining claims. Approximately 451,000 acres in the White Mountains are recommended open for leasing of hard rock minerals including gold and rare earth elements (Section 2.10.2.4). The "scenic" segments of the Fortymile WSR Corridor are recommended opened to mineral entry. The Steese ACEC will remain closed to mineral entry and location. In other ACECs the plan recommends opening lands to new mining claims. As in Alternative B, scattered parcels are available for disposal.

Similar to Alternatives B and C, existing RNAs are maintained. Similar to Alternative C, three ACECs are designated. These ACECs are generally smaller or are subject to fewer restrictions than in alternatives B, C, and E. The Steese and Fortymile ACECs protect current caribou range in the Steese National Conservation Area and Fortymile Subunit. The Salmon Fork ACEC protects anadromous fish habitat, bald eagle nesting, and rare plant habitats.

No rivers are recommended as suitable for designation under the WSR Act. The BLM would manage only 11 percent of the acres possessing wilderness characteristics to maintain these characteristics.

OHV designations are put into place in all planning subunits. Generally, travel and trail restrictions are less than Alternatives B and C, but more than Alternative A. Some areas or uses are limited to existing trails. Some areas are limited to no summer motorized use.

Standard Operating Procedures outlined in Appendix A.2 and A.3 apply to permitted activities.

Alternative E (Proposed RMP)

The Proposed RMP, also referred to as Alternative E, was created based on examination of public and cooperator comments on the Draft RMP/EIS,consultation with tribal governments, and a review of BLM policies. Alternative E represents the mix and variety of actions that the BLM believes best resolves the issues and management concerns in consideration of all values and programs, and is thus considered BLM's Proposed RMP. Alternative E is a minor variation of the alternatives analyzed in the Draft RMP/EIS and is qualitatively within the spectrum of alternatives analyzed in the Draft. Production of minerals and services are slightly less constrained than in Alternative B.

Alternative E recommends 74 percent of BLM-managed lands remain closed to both mineral leasing and mineral location (staking of mining claims). Partial revocation of PLOs are recommended to open 26 percent of BLM-managed lands to mineral location and mineral leasing. The White Mountains NRA remains closed to new mining claims, mineral leasing, and leasing of hardrock minerals. The Steese National Conservation Area and Birch Creek, Beaver Creek, and Fortymile WSR Corridors remain closed to both mineral entry and mineral leasing. All ACECs and RNAs are recommended closed to mineral entry and mineral leasing, as are riparian conservation areas, restoration watersheds, and the Black River watershed. As in Alternatives B, C, and D scattered parcels of unmanageable lands are available for disposal.

The four existing RNAs are maintained. Management within RNAs would be the same as Alternative C, except the OHV area designation changes from Closed to Limited allowing for winter use of snowmobiles.

Three ACECs are designated. The Fortymile ACEC is smaller and Salmon Fork ACEC is slightly larger than in Alternative C. About 37,000 acres in Mosquito Flats is designated as an ACEC. Additionally crucial caribou and Dall sheep habitat is delineated in the White Mountains and Steese subunits (Map 67). Management of these crucial habitat areas and the Fortymile ACECs protect Fortymile Herd caribou range and Dall sheep habitat. The Salmon Fork ACEC protects anadromous fish habitat, bald eagle nesting, and rare plant habitats. The Mosquito Flats ACEC protects wetlands and moose calving habitat. No rivers are recommended suitable for designation under the WSR Act.

Approximately 53 percent of BLM-managed lands are managed to minimize impacts to wilderness characteristics while allowing for other multiple uses. These areas include crucial caribou and Dall sheep habitat, ACECs, RNAs, riparian conservation areas, and Primitive, Semi-Primitive, and some Backcountry recreation management zones. Management proposed to maintain ACEC and RCA values will also indirectly preserve wilderness characteristics of naturalness, opportunities for solitude and opportunities for primitive and unconfined recreation.

A Limited OHV area designation is put into place in all planning subunits. More detailed travel decisions for the Fortymile, Steese, and White Mountain subunits are deferred to travel management plans to be completed within five years of the record of decision. The Travel Management Plan for the Upper Black River Subunit is defined in this RMP. These decisions are implementation decisions subject to appeal. Interim travel management for areas deferred are the same as Alternative A with minor changes affecting the RNAs, and White Mountains, Steese, and Fortymile subunits. These changes include allowing snowmobile use in RNAs and removing prohibitions on the use of hovercraft and airboats.

Standard Operating Procedures outlined in Appendix A.4 apply to permitted activities.

Summary of Alternatives Table

Table 1. Summary of Allocation Decisions all Subunits

Resource or Resource Use	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Visual Resource Management (VRM) Class I (acres)	138,000	346,000	343,000	317,000	343,000
VRM Class II (acres)	583,000	4,951,000	1,876,000	546,000	3,383,000
VRM Class III (acres)	1,494,000	371,000	267,000	421,000	11,000
VRM Class IV (acres)	0	855,000	4,037,000	5,239,000	2,787,000
VRM Class unassigned (acres)	4,308,000	None			
Personal use of timber allowed (acres)	6,523,000	4,027,000	6,219,000	6,523,000	Same as A
Commercial timber salvage sales allowed (acres)	4,310,000	4,027,000	6,523,000		
Commercial timber sales allowed (acres)	4,310,000	1,667,000	5,499,000	6,120,000	4,556,000
Commercial use forest products allowed (acres)	4,310,000	4,027,000	6,357,000	6,502,000	6,523,000
Open to mineral leasing[a]	0	834,000	3,266,000	5,204,000	1,713,000
Closed to mineral leasing[a]	6,523,000	5,689,000	3,257,000	1,319,000	4,811,000
Open to locatable minerals[a]	0	834,000	3,887,000	4,755,000	1,713,000
Closed to locatable minerals[a]	6,523,000	5,689,000	2,636,000	1,768,000	4,811,000
Open to mineral materials disposal (acres)	6,523,000	3,772,000	6,134,000	6,378,000	6,134,000
Closed to mineral materials disposal (acres)	0	2,751,000	389,000	145,000	389,000
Closed OHV area designation (acres)	16,000				0
Limited OHV area designation (acres)	2,213,000	6,507,000			6,523,000
No OHV area designation established (acres)	4,294,000	0			
Steese National Conservation Area opened to mining[a] (acres)	0	0	241,000	646,000	0
White Mountains NRA opened to leasing of locatable minerals[a] (acres)	0	0	0	160,000	0
Recommend new FLPMA withdrawals from mineral location and entry[a] (acres)	0	3,362,000	541,000	83,000	2,500,000
Research natural areas (acres)	16,000				

Areas of critical environmental concern (acres)	0	2,811,000	1,632,000	1,368,000	1,022,000
Suitable wild and scenic rivers (# river segments)	0	5	0	0	0

[a]Recommendation. Action required by Secretary of the Interior to implement in all alternatives

Environmental Consequences

Selection of Alternative A, the No Action Alternative, would maintain the current rate of progress in protecting resource values and in resource development. It would allow for use levels to mostly continue at current levels within the same places in the planning area, with adjustments required in order to mitigate resource concerns in compliance with laws and regulations. Mining exploration and development would be limited to valid existing mining claims. Limitations on OHV use would remain the same, resulting in the continued proliferation of user-created trails and resource degradation in certain areas.

Alternative B would have the least potential to impact physical and biological resources from BLM actions. Levels of mineral exploration and development would be slightly higher than Alternative A but many areas would remain closed to protect sensitive resources. OHV use would be more restricted, reducing resource damage and user-created trails. This more restrictive OHV designation would reduce access to BLM-managed lands. Designation of ACECs and wild and scenic rivers, and management of riparian conservation areas would provide additional protection to wildlife, fish, vegetation, and other natural resources, but could also slightly restrict recreation management. Five river segments would be determined suitable for designation as wild under the Wild and Scenic Rivers Act, affording these areas slightly more protection. There would be greater emphasis on managing for a Primitive, Semi-Primitive, or Backcountry recreation setting.

Alternative C would allow for increased use levels while providing for site-specific protection of resources. There would be a higher potential for resource impacts than under Alternatives A, B, and E, but less than under Alternative D. Levels of mineral exploration would be slightly higher than Alternatives B and E but many areas would remain closed to protect sensitive resources. OHV use would be less restricted than in Alternative B but more than Alternative A. Resource damage and proliferation of user-created trails would be reduced compared to Alternative A, but would still occur in some areas. This more restrictive OHV designation would somewhat reduce access to BLM-managed lands. The designation of ACECs and management as riparian conservation areas would provide additional protection to wildlife, fish, vegetation, and other natural resources, but on fewer acres than in Alternative B. Less of the planning area would be managed for a Primitive, Semi-Primitive, or Backcountry recreation setting.

Alternative D would allow for the most resource development with the fewest constraints and would result in greater impacts on the physical and biological environment than would implementation of Alternative C or D. It offers the greatest potential for mineral development and could result in small economic benefits to local economies. OHV use would be less restricted than in Alternatives B and C, but slightly more limited than in Alternative A. Proliferation of user-created trails and resource degradation would continue in certain areas. Access to BLM-managed lands would be similar to Alternative A. Fewer acres would be designated as ACECs or managed as riparian conservation areas, providing slightly less protection to wildlife, fish, vegetation, and other natural resources. Less of the planning area would be managed for a Primitive, Semi-Primitive, or Backcountry recreation setting than in alternatives B and C.

The Proposed RMP, Alternative E is a minor variation of the alternatives analyzed in the Draft RMP/EIS and is qualitatively within the spectrum of alternatives analyzed in the Draft, falling between Alternative B and C. Production of minerals and services are slightly less constrained than in Alternative B. Initially, OHV and motorboat use would be slightly less constrained (White Mountains and Steese subunits) or slightly more constrained (Fortymile Subunit) than Alternative A as detailed decisions are deferred to future travel management plans. Proliferation of user-created trails and resource degradation would continue in certain areas. Access to BLM-managed lands would be similar to Alternatives A and D. Proposed management of crucial caribou and Dall sheep habitats, designated ACECs, and riparian conservation areas, provides protection to wildlife, fish, vegetation, and other natural resources. Acres managed for Primitive, Semi-Primitive, and Backcountry recreation settings would be similar to Alternative C.

Public Involvement

The BLM initiated scoping for the Eastern Interior Draft RMP/EIS by publishing a Notice of Intent in the *Federal Register* on February 29, 2008. Scoping is a process conducted early in the planning effort that seeks input from agencies and the public on planning issues. The opportunity to comment was also publicized through news releases, a newsletter, flyers, advertisements, and other methods. The BLM held eight public scoping meetings. Agencies and the public were encouraged to submit oral and/or written comments regarding management of public lands in the planning area. The BLM received approximately 600 comments during the scoping period. The scoping report is available online at: www.blm.gov/ak/eirmp.

Early in the process, the BLM invited federally recognized tribes and agencies to be cooperating agencies. The State of Alaska, Chalkyitsik Village, and the Gwichyaa Zhee Gwich'in are cooperating agencies. In recognition of the government-to-government relationship between tribes and the federal government, the BLM contacted 12 federally recognized tribes in 2008 to inform them of planning process and to initiate government-to-government consultation. The BLM notified Alaska Native corporations with lands within the planning area of the planning process and included them in mailings regarding the RMP/EIS. Several corporations participated in the process by submitting comments during public comment periods or consulting with the BLM.

Public comment on the Eastern Interior Draft RMP/EIS was initiated on March 2, 2012, when the Notice of Availability published in the *Federal Register*. The notice announced the availability of the Draft RMP/EIS for public review and comment. The initial public review period was later extended pending release of a supplement to the Draft RMP/EIS. The public comment period on the Draft RMP remained open until April 11, 2013. Upon publication of the Notice of Availability, the BLM made the Draft RMP/EIS available on the Eastern Interior website, on CD, and in printed form. The BLM publicized the opportunity to comment through news releases, a newsletter, flyers, advertisements, and other means. BLM staff also presented information on the Draft RMP/EIS to various groups. The Eastern Interior Field Office hosted 13 public meetings for the Draft RMP/EIS. Agencies and the public were encouraged to submit oral and/or written comments regarding management of public lands in the planning area.

The BLM initiated public comment on the Hardrock Mineral Leasing in the White Mountains National Recreation Area, Supplement to the Eastern Interior Draft RMP/EIS (Supplement) with a Notice of Availability published in the *Federal Register* on January 11, 2013. This notice announced the availability of the Supplement for public review and comment. The public comment period on the Supplement closed April 11, 2013. Upon publication of the Notice of Availability, the BLM made the Supplement available on the BLM Eastern Interior RMP

website, on CD and in printed form. The BLM publicized the opportunity to comment through news releases, a newsletter, flyers, advertisements, and other means. BLM staff also presented information on the Supplement to various groups. The Eastern Interior Field Office hosted six additional public meetings for the Supplement. Agencies and the public were encouraged to submit oral and/or written comments regarding management of public lands in the planning area.

Based on public comment on the Draft RMP/EIS, the BLM considered changing the boundary of the proposed Fortymile ACEC and designating a new ACEC on the Mosquito Flats, also in the Fortymile region. These specific proposed ACEC boundaries were not considered in the Draft RMP/EIS. Thus, the BLM published an additional notice in the *Federal Register* on January 2, 2015, to provide a 60-day public comment period for these proposed ACECs. The BLM posted a summary document describing the two ACECs on the project website. The BLM publicized the opportunity to comment through news releases, direct mailings, and other means.

The BLM received more than 540 comment submissions, containing approximately 1,500 individual comments, from organizations, government agencies, tribes, and individuals during the multiple comment periods on the Draft RMP/EIS. Additionally, the BLM received approximately 22,400 form letters submitted by email. Because of the duplicative nature of these form letter submissions, each of the six unique form letters represent only one comment submission.

Summary of Changes from Draft to Final

Changes to Agency Preferred Alternative

A fifth alternative, Alternative E was created based on examination of public comments on the Draft RMP/EIS and a review of BLM policies. Alternative E incorporates many of the decisions in Alternative C, but also adopts some management prescriptions from Alternative B. Additional analysis of Alternative E was added to Chapter 4 and the summary of the impacts tables in Chapter 2. Major differences between the Draft and Proposed RMP are discussed below. Alternative E is the BLM's Proposed RMP and the Agency Preferred Alternative (40 CFR 1502.4(e)).

Fish and Aquatic Species

- Three additional restoration watersheds are identified: Sumner Creek-Nome Creek (White Mountains Subunit), Steele Creek-Fortymile River (Fortymile Subunit), and Volcano Creek-Clums Fork (Steese Subunit). The BLM reevaluated its restoration watershed inventory between the Draft RMP and Proposed RMP because errors were found in the original inventory. Three additional watersheds were added to the list and one was removed.

- The number of Riparian Conservation Areas increases from 45 in Alternative C to 73 in Alternative E. Alternative E adopts Riparian Conservation Areas from Alternative B for all subunits (Maps 6, 8, and 11). The BLM made this change in the Upper Black River, Steese, and White Mountain subunits based on comments from tribes, USFWS, and Yukon Flats residents who expressed strong concerns about protecting the Black River watershed, water quality on the Yukon Flats, and important subsistence resources. The BLM made this change in the Fortymile based concern for protecting high value watersheds. We received comments both in support of and against Riparian Conservation Areas. After weighing the comments and resource protection concerns, we adopted Alternative B for all subunits.

Visual Resources

The BLM increased the number of acres managed for visual resource management class II from 1.9 million acres in Alternative C to 3.4 million acres in Alternative E. The number of acres managed for visual resource management classes III and IV were reduced from 267,000 and 4 million acres in Alternative C to 11,000 and 2.8 million acres in Alternative E respectively (Table 1). In the Proposed RMP, visual resource management classes are generally linked to management of recreation setting character, lands with wilderness characteristics, and lands available for mining. Because Alternative E has fewer acres overall open to mining compared to Alternative C, the acres of VRM Class II increased and VRM Class IV acres decreased.

Wilderness Characteristics

The number of acres and areas where impacts to wilderness characteristics from other uses would be mitigated increased from 2.1 million acres in Alternative C to 3.5 million acres in Alternative E. These changes are realized through other management prescriptions such as crucial wildlife habitat, ACECs, RNAs, Riparian Conservation Areas, and Primitive, Semi-Primitive, and Backcountry recreation management zones. In the Proposed RMP, lands with wilderness character are linked to other management decisions described above. Because Alternative E has more acres overall under management consistent with maintaining wilderness characteristics compared to Alternative C, the acres where impacts to wilderness characteristics would be mitigated has increased.

If recommendations to modify existing mineral withdrawals are implemented, locatable mineral exploration or development would be possible on approximately 3.9 million acres in Alternative C compared to 2.4 million acres in Alternative E. However the reasonably foreseeable development scenario does not suggest a high percentage of development during the life of the plan. If all forecasted development is realized wilderness characteristics would be affected on less than one percent of all available acres.

- Fortymile Subunit: Management of the Fortymile and Mosquito Flats ACECs, and Semi-Primitive and Backcountry recreation management zones (556,000 acres) is consistent with maintaining wilderness characteristics (Map 73).
- Steese Subunit: Management of crucial caribou and Dall sheep habitat, Mount Prindle and Big Windy Hot Springs RNAs, select Riparian Conservation Areas, and Primitive, Semi-Primitive and Backcountry recreation management zones (1 million acres) is consistent with maintaining wilderness characteristics (Map 77).
- Upper Black River Subunit: Management of the Salmon Fork ACEC and Riparian Conservation Areas (1.1 million acres) is consistent with maintaining wilderness characteristics (Map 81).
- White Mountains Subunit: Management of crucial caribou and Dall sheep habitat, three RNAs, select Riparian Conservation Areas, and Primitive, Semi-Primitive and Backcountry recreation management zones (777,000 acres) is consistent with maintaining wilderness characteristics (Map 77).

Forest and Woodland Products

Personal use of timber would be considered on all BLM-managed lands in the planning area, an increase of approximately 300,000 acres compared to Alternative C. The BLM made this change based on comments from the State of Alaska and tribes, and to ensure consistency with ANILCA Title VIII which allows for subsistence use of timber. Less land (1.2 million acres) would be available for commercial, non-salvage timber sales in all subunits due to the exclusion of this activity in ACECs and crucial caribou and Dall sheep habitat under Alternative E. The BLM made this change to protect ACEC values and wildlife values. We received comments both

in support of and in opposition to commercial timber sales in these areas. After weighing the comments and resource protection concerns, we adopted a prohibition on non-salvage timber sales in these areas. Allowance for salvage sales would provide opportunities for harvest after wildfire or permitted surface disturbing activities.

Locatable Minerals

The RMP recommends changes in which lands are open or closed to mining. Most lands within the planning area are currently closed to new mining claims (location) by withdrawals (PLOs) established in the early 1970s. A change the status of these withdrawals can only be executed by the Secretary of the Interior or the Assistant Secretary for Land and Minerals Management, and in the case of new withdrawals of more than 5,000 acres, Congressional approval is also required. Additionally, State- and Native-selected lands are segregated (or closed) to staking of new mining claims. These segregations remain in place until the lands are conveyed or the selections removed. Additional action by the Secretary of the Interior is needed to implement recommendations thus these recommendations will not be effectuated immediately upon approval of the Record of Decision and Approved RMP.

The number of acres recommended closed to locatable minerals (such as gold) increased from 2.6 million acres in Alternative C to 4.8 million acres in Alternative E as described below. The BLM made these changes based on public and internal comment, government-to-government consultation with tribal governments, and policy. We made changes in the Upper Black River subunit after extensive consultation with tribal governments. We received many comments both in support of and in opposition to opening lands to new mineral entry. After weighing comments and resource protection concerns, we recommended the following.

- Fortymile Subunit: Alternative E recommends keeping the Fortymile ACEC closed, but the size of the ACEC is decreased compared to Alternative C. The Mosquito Flats ACEC and Riparian Conservation Areas are added to the list of areas recommended closed. This increases the area recommended closed by approximately 122,000 acres compared to Alternative C (Map 31).
- Steese Subunit: Alternative E recommends keeping 100 percent of the Steese National Conservation Area closed, while Alternative C recommended only 80 percent closed. The area within one-half mile of Birch Creek WSR is closed by Congress. Retaining existing ANILCA closures in the Steese National Conservation Area and closing Riparian Conservation Areas increases the area recommended closed by approximately 244,000 acres compared to Alternative C (Map 38).
- Upper Black River Subunit: Alternative E recommends closure of the Salmon Fork ACEC, Riparian Conservation Areas, and the Black River watershed an increase of 2.2 million acres compared to Alternative C (Map 43).

The BLM analyzed leasing for hardrock minerals in the White Mountains in a Supplement to the Draft RMP/EIS that modified Alternative D. Hardrock mineral leasing in the White Mountains is not permitted in Alternative E. Section 1312 of ANILCA (16 U.S.C. 460mm-4) allows the Secretary to "permit the removal of the non-leasable minerals" from these lands, provided the Secretary makes a finding that such disposition would not have significant adverse effects on the administration of the national recreation area. The BLM based this decision on findings in the Supplemental EIS that leasing would result in cumulative adverse effects on the administration of the national recreation area.

For the planning area, the number of acres recommended to be opened to locatable minerals decreased from 3.9 million acres in Alternative C to 1.7 million acres in Alternative E (Table 1).

Leasable Minerals

Alternative E increases the number of acres closed to leasable minerals (both fluid and solid) to 4.8 million acres compared to 3.3 million acres in Alternative C. In Alternative E, all areas discussed above under Locatable Minerals would also be closed to mineral leasing. As discussed above, the Secretary of the Interior or Assistant Secretary of Lands and Minerals would need to take action to partially revoke the existing withdrawals from mineral leasing before the recommendations in the RMP could take effect. The BLM made these changes based on public and internal comment, government-to-government consultation with tribal governments, and policy. We received many comments both in support of and in opposition to opening lands to mineral leasing. After weighing comments and resource protection concerns we recommend keeping ACECs, Riparian Conservation Areas, the Black River watershed, Steese NCA and White Mountains NRA closed to mineral leasing.

Recreation

Alternatives C and E designate three Special Recreation Management Areas (SRMAs), but in Alternatives E recreation management zones and recreation setting prescriptions change in the Steese and Fortymile subunits compared to Alternative C:

- Alternative E combines several recreation management zones in the Fortymile SRMA, reducing the total number of zones from seven to five: Logging Cabin Creek and O'Brien Creek zones are combined; Wade Creek and Chicken zones are combined; Fortymile and West Fork zones are combined; and Middle Fork and Mosquito Fork zones are combined. The setting prescriptions for these combined zones remain the same as Alternate C (Map 47). The BLM combined zones with the same recreation setting character and objectives. This change simplifies the management of the recreation management area and reduces confusion.

- Alternative E combines the Rocky Mountain, Rock Creek, and Preacher Creek zones in the North Steese SRMA into one zone called Preacher Creek with a Backcountry setting prescription. A new zone, Bachelor Creek, with a Middlecountry setting prescription is added. The Wolf Creek zone in the South Steese with a Semi-Primitive setting increases in size by 80,000 acres. These actions decrease Middlecountry from 452,000 in Alternative C to 120,000 acres in Alternative E and increase Backcountry acreage from 154,000 to 488,000 acres (Map 52). The BLM made these changes based on public comments concerning reduction in the amount of Semi-primitive management zones compared to the No Action Alternative. The Bachelor Creek Middlecountry zone recognizes the proximity of this area to the Steese Highway and road access. The change from Middlecountry to Backcountry in the North Steese Unit is more appropriate giving the distance of these lands from the highway, the limited road access, and is more consistent with management of the adjacent Yukon Flats National Wildlife Refuge.

Travel Management

Alternative E designates RNAs in the Steese and White Mountains subunits as Limited. These RNAs are designated as Closed to off-highway vehicles in Alternatives B, C, and D. The remainder of the planning area would be designated as Limited, as proposed in Alternative C. The Closed area designation is reduced from 16,000 acres in Alternative C to 0 acres in Alternative E, allowing for snowmobile use in RNAs. The BLM made these changes in response to comments from the State of Alaska regarding ANILCA protections for use of snowmobiles for subsistence use.

The comprehensive travel management plan proposed in the Draft RMP/EIS for the White Mountains would be deferred until implementation of the Approved RMP. Alternatives B–D state that a comprehensive travel management plan would be developed for the Fortymile and Steese subunits, but in the interim travel would be limited to existing trails. These travel management plans would be completed within five years of the ROD for the RMP. The BLM made these changes in response to multiple commenters expressing concern about the need for additional data and more public input on travel management decisions. Additionally recent changes in BLM policy recommend developing travel management plans through a process separate from the RMP.

The travel management plan for the Upper Black River Subunit will be concurrent with the signing of the ROD as proposed in the Draft RMP/EIS. The BLM made this decision based on the lack of both trails and travel management issues in the Upper Black River Subunit and internal workload concerns. We determined that including the travel management plan as part of the RMP is appropriate. We will implement the travel management plan through the Supplemental Rule process, which includes additional public outreach.

In the Proposed RMP the interim management in place until travel management plans can be completed is the current management described in Alternative A, with the addition of the changes described below. These implementation level decisions will be accomplished through the Supplemental Rule process with additional hearings to meet the requirements of ANILCA titles VIII and XI. The BLM made these changes based on comments from the State and to ensure consistency with ANILCA while still addressing immediate resource concerns in the interim between the RMP and travel management plans.

Fortymile Subunit Interim Management – Alternative E

- Implement a 1,000 pound curb weight and 50 inch width limitation for snowmobiles to replace 1,500 pound GVWR limitation within the Fortymile Wild and Scenic River Corridor and the 6,000 pound GVWR on remaining lands.
- Implement 1,500 pound curb weight and 64 inch width limitation for summer OHVs to replace 1,500 pound GVWR limitation within the Fortymile Wild and Scenic River Corridor.
- Implement a 1,500 pound curb weight limitation for summer OHVs to replace the 6,000 pound GVWR limitation on remaining lands.
- Implement a seasonal restriction on summer use of OHVs in the Mosquito Flats ACEC.
- Remove prohibition on motorboat use on the non-navigable, “wild” segments of the Fortymile WSR: North Fork above the Kink, Champion Creek, Middle Fork, Joseph Creek, and Mosquito Fork above Ingle Creek.

Steese and White Mountains Subunits Interim Management – Alternative E

- Implement a 1,000 pound curb weight and 50 inch width limitation for snowmobiles to replace 1,500 pound GVWR limitation.
- Implement a 1,000 pound curb weight and 50 inch width limitation for summer OHVs to replace 1,500 pound GVWR limitation.
- Set weight and width limitations for utility terrain vehicles (UTVs) in the White Mountains: 64 inch width and less, and 1,500 pounds curb weight or less.

- Designate 27 miles of trail and the Nome Creek tailings area in the White Mountains for UTV use.
- Remove prohibition on the use of airboats and hovercraft within the Steese National Conservation Area and White Mountains NRA.
- Remove prohibition on snowmobile use in RNAs.

Alternative E interim management differs substantially from Alternative C. The area seasonally limited (no summer OHV use) would be reduced from 1.2 million acres to 758,000 acres. The area where OHV use would be limited to either designated or existing trails would be reduced from 2.7 million acres in the Fortymile, Steese, and White Mountains Subunits to the 248,000 acres identified in Alternative A in the Fortymile WSR. The BLM will consider these types of limitations during travel management planning and decisions implemented through travel management planning will likely vary substantially from interim management. We will conduct additional NEPA analysis on travel management plans.

Areas of Critical Environmental Concern

The boundary of the Fortymile ACEC was adjusted to encompass only core caribou calving/postcalving habitat. The proposed Fortymile ACEC decreased from 554,000 acres in Alternative C to 362,000 acres in Alternative E. The ACEC is recommended closed to both locatable and leasable minerals. This change was in response to input from the State of Alaska and the Alaska Congressional Delegation that BLM could protect caribou habitat through other means (Map 63).

A proposed Mosquito Flats ACEC (37,000 acres) is added to Alternative E. The ACEC would be recommended closed to both locatable and leasable minerals. The ACEC would be designated to protect unique wetlands and high-density moose calving habitat. This ACEC was recommended based on resource concerns and strong support from the general public for designation.

The Salmon Fork ACEC (623,000 acres) would be recommended closed to both locatable and leasable minerals (Map 69). In Alternative C the ACEC was closed to leasable minerals, but recommended open to locatable minerals. The BLM made this change based on comments from the USFWS, Yukon Flats residents, and tribes who expressed strong concerns about protecting the Black River watershed and important subsistence resources.

Alternative E does not designate the Steese ACEC as proposed in Alternative C. This change was based on input from the State of Alaska. The current designation of the Steese National Conservation Area is sufficient to protect caribou and Dall sheep habitat. Duplicative designations are not needed.

Other Changes Requiring Addition of Supplementary Information

Summary of Alternatives tables 2.10, 2.17, 2.18, and 2.25 were edited to add Alternative A (No Action) and Alternative E (Proposed RMP). The BLM made this change in response to public comments requesting more clarity in differences between alternatives.

The standard operating procedures in Appendix A were reviewed and revised. Section A.2 lists the SOPs considered in the Draft RMP/EIS. Section A.3 lists additional SOPs considered

in the Supplement to the Draft RMP, and section A.4 lists the SOPs considered in the Proposed RMP/Final EIS. The BLM made this change in response to numerous public, internal, and cooperator comments recommending changes to SOPs, expressing concern about effects of SOPs, or proposing additional SOPs.

The Supplement to the Draft RMP for leasing of hardrock minerals in the White Mountains was added as Appendix M. Additionally the proposed management decisions in the Supplement were added to Alternative D in Chapter 2 of this document. The BLM added this information to merge the findings of the Supplemental EIS with the Final EIS.

Section 2.4 was added describing BLM's responsibilities in complying with Title VIII and XI of ANILCA. The BLM made this change in response to comments from the State and the public requesting more clarity on how we will comply with these sections of ANILCA when implementing decisions in the Approved RMP.

Appendix G was updated to describe withdrawals and the process to modify, revoke, or replace withdrawals. The BLM made this change in response to comments from the State and the public requesting more clarity on withdrawal recommendations and the process for changing withdrawals.

A summary of estimated GHG emissions for communities within the planning area as well as a summary analysis of seasonal GHG emissions associated with placer-mining operations was added to section 3.2.1. Placer- mining is the single largest BLM-authorized industrial activity in the planning area. The BLM made this change in response to public and internal comments, and policy.

The BLM Greenhouse Gas & Climate Change NEPA (GHGCC-NEPA) toolkit spreadsheets were used to quantitatively estimate GHG emissions associated with projected placer mine activities by alternative for each subunit in the planning area (section 4.3.1.1.1.2.1). The BLM made this change in response to public and internal comments, and policy.

The Section 810 Analysis in Appendix J was reviewed and updated based on public comments and tribal consultation. An analysis of Alternative E was added. The BLM made this change in response to public and tribal comments, and internal policy on how to comply with Section 810 of ANILCA. As discussed in section J.4, the Proposed RMP (Alternative E) was found through the ANILCA Sec. 810(a) process to have no significant restriction on subsistence uses nor with the cumulative case. Therefore the determination process as described in ANILCA Sec. 810(a)(3)(A), (B), and (C) was not required.

Minor Changes

The BLM made the following changes based on a variety of public and internal comments.

- Required operating procedures (ROPs) from Appendix A of the Draft RMP/EIS were renamed as standard operating procedures (SOPs) and are referred to as such throughout the Proposed RMP/Final EIS.
- Numerous editorial changes were made to the text and maps.
- Legends on maps were clarified and made more consistent.

- Land status data used for maps and acreage calculations was updated to 2015.
- Additional subsistence use areas were added to maps based on public comments and more recent data.
- Maps were consolidated where possible and renumbered to incorporate Alternative E maps.
- Additional analysis was added to all alternatives.
- Activities considered in the cumulative impact analysis were reviewed and updated.
- On April 30, 2014 the U.S. Board on Geographic Names officially changed the name of the Black River to Draanjik River. Draanjik is the traditional Gwich'in name for the river and translates as "caches along the river." The local Gwich'in people are called the Draanjik Gwich'in. In order to avoid confusion, this Proposed RMP/Final EIS continues to use the name "Black River". In the Approved RMP and Record of Decision, the BLM will change the name of the "Upper Black River Subunit" to the "Draanjik Subunit", change all references to the mainstem Black River to Draanjik River, and update maps to show the new name.

Summary of Additional Maps, Tables, and Figures

The BLM made the following changes based on a variety of public and internal comments.

- Maps for Alternative E were added.
- A summary of alternatives table for the entire planning area was added to section 2.2.6 and in the Executive Summary.
- Additional tables summarizing climate and GHG emissions for the planning area were added to section 3.2.1.1.

Chapter 1. Introduction

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1.1. How to Read This Chapter

This chapter describes the purpose and need for the Eastern Interior Resource Management Plan (RMP) (section 1.3) and provides a general description of the planning area (section 1.4). It describes how the RMP addresses the issues raised during scoping (section 1.5). Additionally, the chapter outlines the planning criteria (section 1.6) and the relationship between the RMP and other BLM plans (section 1.7).

1.2. Background

On February 29, 2008, the *Federal Register* published the Bureau of Land Management (BLM) Notice of Intent to prepare a resource management plan and associated environmental impact statement (RMP/EIS) for the Eastern Interior Planning Area (planning area). The publication on March 2, 2012, of the Notice of Availability for the Draft RMP/EIS in the *Federal Register* initiated the public comment period. The BLM also published Hardrock Mineral Leasing in the White Mountains National Recreation Area, Supplement to the Eastern Interior Draft RMP/EIS (Supplement) during the Draft RMP/EIS public comment period. The Notice of Availability published in the *Federal Register* on January 11, 2013, and initiated the public comment period on the Supplement. The public comment periods on both the Draft RMP/EIS and Supplement remained open until April 11, 2013.

The BLM reviewed and considered all public comments when preparing the Proposed RMP/Final EIS. Appendix L summarizes and responds to public comments on both the Draft RMP/EIS and the Supplement.

When approved, the RMP will provide direction for managing public lands under the jurisdiction of the BLM Eastern Interior Field Office and Central Yukon Field Office in Interior Alaska. The Final EIS analyzes the environmental effects that could result from implementing the alternatives addressed in the Proposed RMP. The affected lands are currently managed in accordance with the Fortymile Management Framework Plan (MFP), Record of Decision (ROD) and RMP for the Steese National Conservation Area, and ROD and RMP for the White Mountains National Recreation Area; or are managed without the benefit of a land use plan.

The Proposed RMP incorporates new information and regulatory guidance that have come about since developing the MFP and original RMPs. The Proposed RMP focuses on providing management direction where it may be lacking, or requires clarification, to resolve land use issues or conflicts.

The Proposed RMP/Final EIS was prepared using BLM's planning regulations and guidance issued under the authority of the Federal Land Policy and Management Act (FLPMA) of 1976 (43 USC 1701 et seq.) and BLM's Land Use Planning Handbook, H-1601-1 (BLM 2005a). An EIS is incorporated into this document to meet the requirements of the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 CFR 1500-1508) (CEQ 1978), the U.S. Department of the Interior NEPA regulations (43 CFR 46), and requirements of BLM's NEPA Handbook, H-1790-1 (BLM 2008g).

1.3. Purpose and Need for the Plan

The purpose of the Eastern Interior Proposed RMP is to provide a comprehensive framework to guide management of public lands and interests within the Eastern Interior Planning Area. The Proposed RMP incorporates new data, addresses land use issues and conflicts, and specifies where and under what circumstances particular activities will be allowed on BLM-managed public lands. The objectives, land use allocations, and management decisions on these public lands will be based on multiple use and sustained yield, except where a tract of such public land has been dedicated to specific uses according to any other provisions of law, it will be managed in accordance with such law, in accordance with Section 103 of FLPMA.

Evaluations of the Steese and White Mountains RMPs and the Fortymile MFP showed that the current plans are not responsive to issues in the planning area; major programs that need updating to respond to current issues include fisheries, wildlife, travel management, recreation, withdrawals, and minerals. The evaluations also found that current plans do not reflect the entire suite of decisions to include in land use plans per BLM's Land Use Planning Handbook (H-1601-1); decisions missing include air quality, non-native invasive plants, and wilderness characteristics.

Additionally, an RMP is needed to cover lands in the upper Black River watershed in the northeastern portion of the planning area and also scattered parcels east of Fairbanks, which are not covered by an existing land use plan.

To respond to current issues, the Proposed RMP addresses major resources and resource use needs:

- Fisheries: Additional protections for fish populations and habitats to: comply with international treaties and sustain subsistence resources.
- Mineral Withdrawals: Withdrawal review to identify which lands should be opened to mineral entry and leasing.
- Recreation management: An outcome-based approach to address recreation changes resulting from increased populations, increased recreation use, and changes in type of recreation.
- Travel management: Address resource impacts from off-highway vehicles and ensure travel management decisions are consistent with recreation management decisions.
- Wildlife: Additional protections for wildlife populations and habitats to sustain subsistence resources (primarily caribou).

In addition to responding to current issues, the Proposed RMP makes the required decisions as outlined in BLM's Land Use Planning Handbook (H-1601-1).

1.4. Planning Area Description

The planning area includes some land within the northeastern portion of the Fairbanks North Star Borough, but otherwise, the lands are unincorporated. Twelve communities are wholly within the planning area: Birch Creek, Circle, Central, Chalkyitsik, Chicken, Dot Lake, Healy Lake, Eagle Village, Eagle, Northway, Tetlin, and Tanacross. Several other communities are adjacent or partially within the planning area, including: Beaver, Big Delta, Delta Junction, Ester, Fairbanks, Fort Yukon, Fox, Livengood, North Pole, Tok, and Stevens Village, are adjacent to or partially within the planning area.

The majority of the planning area is roadless, although the Elliott and Dalton highways bound the planning area on the west, the Alaska Highway on the south, and the Steese and Taylor Highways are within its boundaries.

The planning area includes four distinct geographic and management subunits (See Map 1 and section 1.4). The Proposed RMP and associated EIS evaluate and propose land use decisions for each subunit. The BLM will develop four RODs, one for each subunit.

These subunits are described in more detail in the following sections. Of the approximately 31 million acres within the planning area, decisions in the RMP/EIS will apply to approximately 6.5 million acres, as described below and shown in Table 1.1 *Surface Management Responsibilities and Status*. Where the RMP refers to allocation decisions or impacts as percentages, these percentages are based on the 6.5 million acres managed by the BLM. The decision space in the RMP is the BLM-managed lands.

Land conveyances to the State of Alaska and Native corporations are ongoing. The figures in Table 1.1 are based on land status data as of January 2014 and may have changed for state, Native corporation, and unencumbered BLM lands. The Fort Wainwright Yukon Maneuver Area and the Gerstle Training Area (Map 1) are excluded from the planning area. In some cases, the BLM may have an interest in non BLM-managed lands within the planning area, such as rights-of-way, leases, or easements. Examples could be: trail rights-of-way across State land to the White Mountains and a Fire Facility lease on state lands on Fort Yukon Airport. The impact analysis in the Final EIS addresses these additional BLM interests for the purpose of NEPA compliance.

BLM (unencumbered): These are lands that will be retained in long-term federal ownership. These lands, which constitute approximately 13 percent of the planning area, are not selected by the State of Alaska or by Native corporations.

State-selected: These are public lands that are selected by the State of Alaska as part of the Alaska Statehood Act of 1958 and Alaska National Interest Lands Conservation Act (ANILCA) of 1980. Until conveyance, State-selected lands outside of National Park system lands or National Wildlife Refuges are managed by the BLM. ANILCA (Section 906 (f)) allows for overselection by the State up to 25 percent of the entitlement. Some State-selected lands will eventually be retained in long-term federal ownership. State-selected lands constitute approximately 5 percent of the planning area. Until these lands are either conveyed to the State or the selections removed, the lands are segregated from mineral entry (closed to staking of new federal mining claims).

Native-selected: The Alaska Native Claims Settlement Act (ANCSA) of 1971 gave Alaska Natives an entitlement of 44 million acres to be selected from public lands defined and withdrawn by ANCSA. Some ANCSA corporations filed selections in excess of their entitlement and some of the Native-selected lands will be retained in federal ownership. Native-selected lands constitute approximately 4 percent of the planning area. Until these lands are either conveyed to the Native corporation or the selections removed, the lands are segregated from mineral entry (closed to staking of new federal mining claims).

Mineral split-estate: Federal split-estate lands are those on which the surface of the land has been patented, that is, transferred to private ownership, while the mineral interests are retained by the United States. The rights of a surface owner generally do not include ownership of mineral resources such as oil, natural gas, or coal. Under the appropriate provisions and authorities of the Mineral Leasing Act of 1920, individuals and companies can prospect for and develop coal, petroleum, natural gas and other minerals reserved by the federal government. All subsurface

mineral estate lying beneath BLM lands is managed by the BLM. State and Native selections segregate the land and keep it closed to mineral entry, except for pre-existing, valid federal mining claims (locatable minerals) and issuance of mineral material permits with the concurrence of the selecting entity (salable minerals). Conveyances made under ANCSA and the Statehood Act include the mineral estate. Conveyances made under other land disposal laws, such as the Recreation and Public Purpose Act, do not include the mineral estate. Within the planning area, the BLM manages an estimated 27,000 acres of subsurface mineral estate beneath private surface.

There are lands within the planning area that will not be covered by the RMP/EIS. These lands are described below:

State of Alaska lands: State lands constitute approximately 37 percent of the planning area. This includes approximately 15,000 acres of inholdings within the Steese National Conservation Area and state-owned lands under navigable waters.

National Park Service lands: Lands within the Yukon-Charley Rivers National Preserve constitute approximately 8 percent of the planning area.

U.S. Fish and Wildlife Service lands: Lands within the Yukon Flats, Arctic, and Tetlin National Wildlife Refuges constitute approximately 24 percent of the planning area.

Military and other federal lands: These lands have been withdrawn and set aside for use by the military or other purposes. These lands are unlikely to be returned to the public domain or be managed by the U.S. Department of the Interior. These lands constitute less than 1 percent of the planning area.

Private lands: These lands include Native corporation lands and other private lands. Private lands constitute approximately 10 percent of the planning area.

Table 1.1. Surface Management Responsibilities and Status

Surface Management Responsibility/Status[a]	Acres	Percent of Planning Area
BLM-managed public lands (unencumbered)	4,181,000	14
State-selected lands (BLM)[b]	1,558,000	5
ANCSA-selected lands (BLM)	783,000	3
Total BLM-Managed Surface Estate	**6,523,000**	**21**
BLM subsurface mineral estate (under private surface)[c]	27,000	<1
Total BLM-Managed Surface Estate and Split-Estate	**6,550,000**	**21**
National Park Service lands	2,518,000	8
Military lands	22,000	<1
U.S. Fish and Wildlife Service lands	7,374,000	24
Other federal lands	19,000	<1
State of Alaska lands	11,362,000	37
Private (including Native lands)	3,121,000	9
Water	12,000	<1
Total Lands Within Planning Area	**30,951,000**	

[a]Land Status as of April 2015

[b]Total State-selected lands, regardless of priority

[c]Estimated based on acres of Native allotments and subsurface notations on Master Title Plats

1.4.1. Fortymile Subunit

The Fortymile Subunit is bounded on the north by the Upper Black River Subunit, on the east by the U.S.-Canadian border, on the south by BLM Glennallen Field Office boundary and the Alaska (Richardson) Highway, and on the west by the Alaska and Elliott highways (Map 2). Within the subunit, BLM-managed lands consist of the Fortymile Wild and Scenic River (WSR), relatively large blocks of BLM-managed land within the Fortymile watershed, and scattered parcels along the Alaska Highway. Other federally managed lands within the subunit include the Yukon-Charley Rivers National Preserve and Tetlin National Wildlife Refuge (NWR). Much of the subunit is State of Alaska lands. Private lands are located around several communities including Fairbanks, Fox, Delta Junction, Dot Lake, Tanacross, Tok, Tetlin, Northway, Chicken, and Eagle. Doyon, Limited, a regional Native corporation, also owns large blocks of land within the subunit. The Alaska, Taylor, and Top of the World highways cross the planning area. Other than some sections of the Fortymile River, there is little BLM-managed land near the highways.

The entire subunit encompasses 15.8 million acres, with approximately 1.8 million acres currently managed by the BLM. Approximately 1.4 million acres within the subunit are either State- or Native-selected lands. Of the 1.4 million acres, approximately 261,000 acres are under a decision for interim conveyance to Doyon, Limited, meaning these acres will be conveyed in the near future. Doyon, Limited, has identified 214,000 acres as high-priority selections. State-selected lands in the subunit encompass 698,000 acres. Until these lands are either conveyed or the selections removed, these lands are closed to staking of new federal mining claims.

1.4.2. Steese Subunit

The Steese Subunit (Map 3) is bounded on the north and east by the Yukon River, on the south by the Yukon-Charley Rivers National Preserve and the Fairbanks North Star Borough, and on the west by the Fairbanks North Star Borough, the White Mountains NRA, and Beaver Creek. Within the subunit, BLM-managed lands consist of the Steese National Conservation Area, Birch Creek WSR, federal mining claims along the Steese Highway, and scattered townships around the Village of Circle. The Pinnell Mountain National Recreation Trail is within the subunit. Other federal lands include part of the Yukon Flats NWR. A large block of State land is located along the Steese Highway, between the north and south units of the Steese National Conservation Area. Private lands are found around Central, Circle, Beaver, and Birch Creek, the four communities within the subunit. Roads are limited to the Steese Highway, Circle Hot Springs Road, local village roads, and several mining roads.

The Steese Subunit encompasses 4.2 million acres, with approximately 1.3 million acres currently managed by the BLM. Approximately 43,000 acres within the subunit are either State- or Native-selected lands. Of the selected acreage, approximately 8,000 acres are selected by the Danzhit Hanlaii Corporation (Native corporation for Circle) and 35,000 are State-selected. Until these lands are either conveyed or the selections removed, the lands are closed to staking of new federal mining claims.

1.4.3. Upper Black River Subunit

The Upper Black River Subunit is bounded on the north by the Porcupine River, on the east by the U.S.-Canadian border, on the south an arbitrary line through the Yukon-Charley Rivers National Preserve, and on the west by the Yukon River (Map 4). Within the subunit, BLM-managed lands

consist of a large block of land bounded by the Yukon Flats and Arctic NWRs, Yukon-Charley Rivers National Preserve, State lands, and Native corporation (private) lands. BLM lands are relatively contiguous except around the village of Circle, where land ownership is scattered. There are no BLM special designations within the subunit and no federal mining claims on BLM-managed lands. The villages of Fort Yukon and Chalkyitsik are located within the subunit, but are within the Yukon Flats NWR. Other than roads within the villages, the subunit is roadless.

This subunit encompasses 7.8 million acres with approximately 2.4 million acres currently managed by the BLM. There are 812,000 acres of State-selected land within the subunit. Due to its low selection priority, however, it is anticipated that the BLM will retain most, if not all, of these lands. Approximately 20,000 acres is selected by Doyon, Limited, or is Village-selected. Approximately 1,400 acres of the Doyon, Limited, land selections are high-priority. Danzhit Hanlaii Corporation has approximately 7,400 acres of selected lands. Most of these lands will likely remain under BLM management because the corporation has received most of their entitlement. Until these lands are either conveyed or the selections removed, the lands are closed to staking of new federal mining claims.

On April 30, 2014 the U.S. Board on Geographic Names officially changed the name of the Black River to Draanjik River. The proposed name change was submitted by the Second Chief and Gwich'in Language Coordinator of the Fort Yukon Native Village. Draanjik is the traditional Gwich'in name for the river and translates as "caches along the river." The local Gwich'in people are called the Draanjik Gwich'in. The Board did not change the name of the Little Black River. In order to avoid confusion, this Proposed RMP/Final EIS continues to use the name "Black River". In the Approved RMP and Record of Decision, the BLM will change the name of the "Upper Black River Subunit" to the "Draanjik Subunit", change all references to the mainstem Black River to Draanjik River, and update maps to show the new name.

1.4.4. White Mountains Subunit

The White Mountains Subunit is bounded on the north by the Yukon River, on the east by Beaver Creek and the Steese National Conservation Area, on the south by the Chatanika River, and on the west by the Elliott and Dalton highways (Map 5). Within the subunit, BLM-managed lands consist of the one-million-acre White Mountains NRA and associated lands (Wickersham Dome and three recreation withdrawals), Beaver Creek WSR, and federal mining claims around Livengood. The remainder of the subunit consists of part of the Yukon Flats NWR, large blocks of State land, and small parcels of private land. The Steese Highway crosses the southern part of the subunit and the Elliott and Dalton highways bound the subunit. Other roads include the Livengood, U.S. Creek, and Nome Creek roads. The communities of Livengood and Stevens Village are within or immediately adjacent to the subunit.

The BLM currently manages approximately one million acres of the 3.1 million acres in the subunit. Approximately 13,000 acres are high-priority State-selections and there are no Native-selected lands. Approximately 4,000 acres of federal mining claims are within the subunit. Until these lands are either conveyed or the selections removed, the lands are closed to staking of new federal mining claims.

1.5. Scoping Issues

Scoping describes the early and open process for determining the extent or "scope" of issues to address during the planning process. Public scoping is required by NEPA (40 CFR 1501.7) and BLM planning regulations (43 CFR 1610.2 and 43 CFR 1610.4–1). Scoping's purpose is to identify important issues for the future management of public lands and resources. These issues guide development of alternatives that will be evaluated in the EIS. The BLM conducted scoping for the Eastern Interior RMP from Feburary 29 to August 15 in 2008. A scoping report summarizes this process (BLM 2008b) and is available online at http://www.blm.gov/ak/eirmp.

1.5.1. Issues Addressed

Scoping identified the following issues addressed in the Draft RMP/EIS.

1.5.1.1. Climate Change

The Council on Environmental Quality (CEQ) released draft guidance on December 18, 2014 that describes how federal departments and agencies should consider the effects of greenhouse gas (GHG) emissions and climate change in their NEPA reviews. This guidance explains that agencies should consider 2 issues, both (1) the potential effects of a proposed action on climate change, as indicated by its estimated greenhouse gas emissions, and (2) the environmental effects of climate change on their proposed actions. Based on the CEQ guidance climate change will be addressed and discussed throughout this document within the CEQ two issue framework.

Issue Statement: (1) How will current and future BLM-authorized actions potentially affect climate change, as indicated by GHG emissions, and where a proposed action is anticipated to emit GHG to the atmosphere in quantities that BLM finds meaningful, how will BLM quantify and disclose its estimate of the expected GHG emissions in the environmental documentation for the proposed action.

The BLM Greenhouse Gas and Climate Change 2015 NEPA Toolkit (http://ghgtoolkit.blm.gov/) is the primary tool used in analyzing current and projected GHG emissions from BLM-authorized actions in the planning area where a proposed action is anticipated to emit GHGs to the atmosphere in quantities that BLM finds meaningful. The toolkit is a comprehensive tool and resource designed for use by BLM resource specialists to estimate total annual greenhouse gas emissions and output summary reports for documentation of reference data and computations. The estimate level of GHG emissions serve as a reasonable proxy for assessing potential climate change impacts, and provide decision makers and the public with useful information for a reasoned choice among alternatives.

Issue Statement: (2) How will current and future projected climate change due to regional and global conditions impact current and future BLM-authorized actions in the context of the reasonably foreseeable future condition of the affected environment.

The BLM contracted with the University of Alaska, Scenarios Network for Alaska Planning to develop a climate change scenario for the planning area (Rupp and Springsteen, 2009b). The results of this work are summarized in a report available online at http://www.snap.uaf.edu/. The outcomes from this report were used during the development of the Draft EIS, to help describe the existing environment and to analyze impacts of the alternatives. These predictions were also used

to help develop Standard Operating Procedures (SOPs) and Fluid Mineral Leasing Stipulations that would be adaptable over time (Appendix A).

1.5.1.2. Soil Resources

Issue Statement: (1) How will the Eastern Interior RMP protect existing soil resources in newly disturbed areas and areas that are degraded from past or other ongoing activities?

The RMP includes goals and decisions relative to soil resources in Alternatives B, C, D, and E. Additionally, Appendix A Standard Operating Procedures and Fluid Mineral Leasing Stipulations includes SOPs that help protect soil resources, directly and indirectly by protection of water and vegetative resources.

Issue Statement: (2) How will the Eastern Interior RMP minimize soil erosion and sedimentation associated with storm water discharge from disturbed sites, particularly where soils and overburden are stripped and stockpiled for an extended period.

The RMP includes decisions to mitigate erosion and sedimentation (non-point source pollution) through the Alaska Pollutant Discharge Elimination System (APDES) permit for Storm Water discharge and implementing Best Management Practices included in the required Storm Water Pollution Prevention Plan prior to undertaking surface disturbing activities equal to or greater than one acre.

1.5.1.3. Water Quality

Issue Statement: How will the Eastern Interior RMP protect existing water quality if existing mineral withdrawals are removed and improve water quality in areas that are degraded from past or ongoing mining activities?

The RMP includes goals and decisions relative to water quality in Alternatives B, C, D, and E, consistent with State of Alaska Water Quality Standards. Additionally, Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations* includes SOPs that protect water quality, directly and indirectly by protection of soil and vegetative resources.

Under the Antidegradation Policy of the Alaska Water Quality Standards (18 AAC 70.015) those segments of Birch Creek, Beaver Creek, and the Fortymile River Wild and Scenic Rivers, congressionally designated as “wild” or “scenic”, are nominated as Tier 3 waters. The highest level of protection is reserved for tier 3 waters, which are also referred to as Outstanding National Resource Waters (ONRW). See 18 AAC 70.015(a)(3).

The RMP includes decisions to ensure permittees obtain a State of Alaska permit for storm water discharge prior to undertaking surface disturbing activities of one acre or more. The Alaska Pollution Discharge Elimination System (APDES) storm water permits require operators of permitted activities or systems to use best management practices designed to effectively protect water quality for their particular site conditions and activity.

1.5.1.4. Fisheries Management

Issue Statement: How will the BLM maintain aquatic habitats that support fish populations (both salmonid and non-salmonid) that are important for subsistence, recreational, and commercial

uses, and to fulfill international treaty obligations? If mineral withdrawals are removed, how can placer mining be managed to minimize impacts on fish and aquatic habitats and to provide for the rehabilitation of aquatic habitats in the shortest amount of time possible?

Within the planning area, watersheds were evaluated and prioritized based on ten factors considering fisheries science and BLM policy (Appendix I *Fisheries and Aquatic Resources*).

The RMP provides a range of alternatives identifying high-priority Conservation and Restoration Watersheds. Decisions under section 2.6.2.3 Fish and Aquatic Species describe how these areas will be managed. Additionally, the Salmon Fork of the Black River was proposed for designation as an Area of Critical Environmental Concern (ACEC) in all action alternatives.

1.5.1.5. Wildlife Management

Issue Statement: How will the BLM manage habitats that support wildlife populations which are important for subsistence and recreational use?

The RMP proposes management for priority wildlife species and habitat. Some alternatives designate ACECs for Dall sheep and caribou calving/postcalving habitats, others prescribe management for priority habitats. Priority species include those species important for subsistence and recreational use. Additionally, Standard Operating Procedures (Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) were developed to protect certain habitats and priority species (e.g., caribou calving and postcalving habitat, raptor nesting areas, Dall sheep habitat).

1.5.1.6. Subsistence

Issue Statement: How will the BLM manage public lands to provide continued access to subsistence resources, protect subsistence resources, and support subsistence-based economies in local communities?

The RMP includes specific goals and decisions to ensure that public lands continue to provide access to subsistence resources. The RMP highlights protection of significant subsistence resources, including Fortymile caribou and salmon. Additionally, the RMP identifies high-priority Conservation Watersheds, which would be managed to protect the riparian and aquatic habitats. Species important for subsistence are designated as priority fish and wildlife species. Standard Operating Procedures (Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) provide protection for habitats supporting subsistence species.

1.5.1.7. Minerals Management

Issue Statement: Which lands currently withdrawn from mineral entry, location, and leasing should be opened to entry, location, and leasing?

The RMP makes recommendations for the location and number of acres available for mineral leasing, locatable mineral entry, use of salable minerals, and provides Standard Operating Procedures, Fluid Mineral Leasing Stipulations, and guidelines for these activities (Chapter 2 and Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*). The RMP provides a wide range of alternatives for the number of acres recommended open to mineral entry and/or leasing. Decisions to open or close lands to mineral entry would not take effect on

approval of the RMP. Instead, follow-up action by the Secretary of the Interior or the Assistant Secretary of Lands and Minerals is required to implement these recommendations.

1.5.1.8. Travel Management

Issue Statement: How should the BLM manage travel to provide access for recreation, commercial uses, and general enjoyment of public lands while protecting natural and cultural resources?

The RMP includes a range of alternatives that propose various off-highway vehicle designations and Travel Management Areas (Chapter 2). Acceptable modes of access and travel are identified for each Travel Management Area.

1.5.1.9. Recreation and Visitor Services

Issue Statement: What range of recreational opportunities should be provided to meet the wide variety of public demand?

The RMP describes and assigns Recreation Opportunity Spectrum (ROS) classes (Table 2.5, "Recreation Setting Character Matrix for the Eastern Interior Planning Area"). Special Recreation Management Areas are identified to further define specific recreation characteristics and actions for some areas of high recreation use (Appendix H, *Recreation Management Zones*). The RMP provides a wide range of alternatives for recreation management (Chapter 2).

1.5.1.10. Rights-of-Way Management

Issue Statement: How will the BLM provide for access and effective transportation planning?

The RMP provides a range of alternatives on how rights-of-way would be managed (Chapter 2). Alternative B designates right-of-way avoidance areas. Some alternatives designate transportation corridors in the White Mountains NRA and Steese National Conservation Area. The RMP addresses access requirements under ANILCA.

1.5.1.11. Wilderness Characteristics

Issue Statement: How will the BLM manage wilderness characteristics in the planning area?

As part of this planning process, the BLM conducted an inventory to determine which lands have wilderness characteristics (Appendix F, *Wilderness Characteristics Inventory*). The RMP proposes a range of alternatives for maintaining wilderness characteristics.

1.5.2. Issues Considered, But Not Analyzed Further

During scoping, the BLM received many comments addressing issues outside of the scope of the RMP (e.g., reservation of 17(b) easements, State of Alaska hunting regulations, law enforcement, and predator control). These issues are beyond the scope of the RMP either because they involve decisions the BLM does not have authority to make, or the issues are not a required land use planning decision. These issues are discussed in more detail in the Scoping Report (BLM 2008b).

Regarding predator control, BLM's guiding legislation and policies recognize the primary authority of the States in wildlife management and say that predator control activities by the State of Alaska may take place on BLM lands, as long as they do not conflict with ongoing or anticipated BLM-authorized actions. Appendix C of BLM Land Use Planning Handbook does not list predator control as a required land use planning decision. Because the RMP is not addressing predator control, the ANILCA section 810 evaluation (Appendix J) does not address the effects of predator control on subsistence.

Issue Statement: How would access issues involving a Victoria Creek road and/or pipeline be managed?

The BLM received many comments on the proposed Yukon Flats National Wildlife Refuge Land Exchange and a possible right-of-way through Victoria Creek. In April 2010, the USFWS issued a Record of Decision to adopt the "No Land Exchange Alternative" (USFWS 2010b). In January 2012, the BLM held a pre-application meeting with Birch Creek and Stevens Village regarding a possible road right-of-way through Victoria Creek, however, the proponents never submitted an application. Since the land exchange will not occur and no applications for rights-of-way have been submitted, the BLM does not anticipate the construction of a road or pipeline through Victoria Creek and this was not considered as a reasonably foreseeable future action during impact analysis.

1.6. Planning Criteria

Planning criteria are standards, rules, and guidelines that help guide data collection, alternative formulation, and alternative selection during the planning process. In conjunction with planning issues, criteria assure that the planning process is focused. The criteria also help guide the final plan selection and provide a basis for judging the responsiveness of the planning options. The following planning criteria were developed by the BLM, reviewed by the public as part of scoping, and revised by the BLM in response to scoping comments.

1. Opportunities for public participation by interested groups and individuals will be encouraged throughout the RMP/EIS process.
2. Valid existing rights will be recognized and protected.
3. Subsistence uses will be considered and adverse impacts minimized in accordance with Section 810 of ANILCA.
4. The BLM will work cooperatively with state and federal agencies, Native corporations, federally recognized tribes, and Municipal governments.
5. Wildlife habitat management will be consistent with Alaska Department of Fish and Game (ADF&G) objectives and the Federal Subsistence Board requirements and mandates.
6. RMPs prepared by the BLM will conform to the BLM H-1601-1 Land Use Planning Handbook, Appendix C, and supplemental program guidance and manuals.
7. The RMP will be consistent with the standards and guidance set forth in the FLPMA, NEPA, National Historic Preservation Act, Wild and Scenic Rivers Act, Migratory Bird Treaty Act, ANILCA, and other relevant federal laws, regulations, and policies as required.
8. The RMP will be consistent with BLM Alaska Land Health Standards.
9. Designations for off-highway vehicles for all public lands within the planning area will be completed according to the regulations found in 43 CFR 8342.
10. Areas of proposed ACEC designation will meet the criteria found in 43 CFR 1610.7–2.
11. The RMP will address all of the lands within the planning area which are managed by the BLM.

12. Review and classification of waterways as eligible for inclusion in the National Wild and Scenic River System will follow the guidance found in BLM's 6400 Manual.
13. The Economic Profile System (EPS) developed for the BLM by the Sonoran Institute, or equivalent, will be used to characterize baseline social and economic conditions.
14. The BLM will incorporate Environmental Justice considerations in land use planning alternatives to respond to issues facing minority populations, low-income communities, and federally recognized tribes living near public lands and using public land resources.
15. The analysis will employ guidance provided in H–1601–1, Appendix D, Social Science Considerations in Land Use Planning Decisions.
16. All BLM lands in the planning area, including selected lands, will be assessed for wilderness characteristics using criteria established by BLM Instruction Memorandum 2011-154.
17. Recommendations to Congress for Wilderness designation will not be considered in this plan.
18. The management intent for high-priority State-selected lands will be as consistent as possible with State management intent.
19. Title XI of ANILCA requires that rights-of-way for Transportation or Utility Systems will be considered throughout the Conservation Systems Units (Birch Creek, Beaver Creek, and Fortymile WSRs), Steese National Conservation Area and White Mountains NRA. Any approval or disapproval of these rights-of-way will be consistent with the provisions of ANILCA. Regardless of other decisions in the RMP, ANILCA would take priority.

1.7. Relationship to BLM Policies, Plans, and Programs

The BLM plans and special rules listed below relate to or otherwise govern current management of BLM lands in the planning area.

The Eastern Interior RMP and associated Records of Decision will supersede the following land use plans.

- Fortymile Management Framework Plan (BLM 1980)
- Record of Decision and RMP for the Steese National Conservation Area (BLM 1986a)
- Record of Decision and RMP for the White Mountains NRA (BLM 1986b)

The Eastern Interior RMP and associated RODs will amend the following river management plans.

- Beaver Creek River Management Plan (BLM 1983b)
- Birch Creek River Management Plan (BLM 1983c)
- Fortymile River Management Plan (BLM 1983a)

The Eastern Interior RMP and associated Records of Decision will require development of new rules to modify or supersede these existing supplemental and special rules. These rules will be developed following the process outlined in section 2.5.

- Designation of Off Road Vehicle Use Areas for the Steese National Conservation Area (FR 1988b)
- Designation of Off Road Vehicle Use Areas for the White Mountains NRA and Associated Lands (FR 1988c)
- Designation of Off Road Vehicle Use Areas in the White Mountains National Recreation Area (FR 1998)
- Modification of Designated Off Road Vehicle Use Areas for the White Mountains National Recreation Area and Associated Lands (FR 1992)
- Notice of Special Rules and Regulations for the White Mountains NRA and Associated Facilities (FR 1997)

- Special Rules for the Fortymile Wild and Scenic River.

1.8. Collaboration

A variety of strategies have been implemented to foster a collaborative approach, improve communication, and develop understanding of the issues and the process in development of the Proposed RMP/Final EIS. These strategies are described more fully in Chapter 5, Consultation and Coordination. The BLM has sought involvement in the planning process by a variety of stakeholders outside of government and agency groups. The BLM received scoping comments from several individuals and organizations representing a range of interests, including environmental concerns, mineral exploration and development, subsistence harvest, wildlife management, fisheries, and commercial ventures. The BLM kept stakeholders informed of progress on the RMP through a semi-annual newsletter, the Eastern Interior RMP/EIS website, and opportunistically at meetings held by various groups such as the Eastern Interior Subsistence Resource Advisory Council, Fortymile Miners Association, and the Citizens Advisory Committee on Federal Areas.

Initial coordination with the State occurred under an Interagency Agreement. In March 2014 the agencies developed a memorandum of understanding, identifying the State as a cooperating agency. The Alaska Department of Natural Resources (ADNR) acts as a state clearinghouse for the BLM by soliciting and coordinating planning input from 15 state agencies. In addition, the ADNR provides technical and consistency reviews of draft documents.

The BLM initially invited all federally recognized tribes in the planning area to become cooperating agencies when initiating government-to-government consultation early in the planning process. The Gwichyaa Zhee Gwich'in and Chalkyitsik Village Tribal governments followed up to develop memorandums of understanding with the BLM to be cooperating agencies. The BLM continues to consult with other villages within the planning area.

1.9. Related Plans

Plans formulated by federal, state, local, and tribal governments that relate to the management of lands and resources were reviewed and considered during development of the Proposed RMP/Final EIS. BLM planning regulations require that BLM plans be consistent with officially adopted and approved resource related plans of other federal, state, local, and tribal governments to the extent that those plans are consistent with federal laws and regulations applicable to public lands (43 CFR 1610.3–1). During the formulation of alternative management scenarios and land use allocations, the RMP considered management of federal and state lands immediately adjacent to BLM-managed public lands and consistent management decisions to the extent possible.

1.10. Policy and Legislation

The following policies, regulations, and legislation may influence decisions, constrain alternatives, or affect implementation of the Approved RMP.

The Federal Land Policy and Management Act of 1976 (FLPMA) is the primary authority for the BLM's management of public lands. It provides overarching policy by which public lands will be managed and establishes provisions for land use planning, land acquisition and disposition, administration, rights-of-way, and designated management areas. NEPA requires

the consideration and public disclosure of the environmental impacts of major federal actions that significantly affect the quality of the human environment.

In Alaska, public land management is further directed by ANILCA, ANCSA, and the Alaska Statehood Act, particularly in regard to land and realty issues, as well as access and subsistence.

Under the Alaska Statehood Act, the State of Alaska was allowed to select 104 million acres of federal land. Approximately 24 percent of BLM-managed land in the planning area is State-selected. ANCSA requires the transfer of 44 million acres of public land to Alaska Native corporations. Approximately 12 percent of BLM-managed land in the planning area is Native-selected. Conveyance of State- and Native-selected lands are ongoing. The BLM makes land use decisions on State-selected lands with section 906k concurrence and is required to consult with corporations and consider their comments on Native-selected lands.

Section 17(b) of ANCSA provides for the reservation of easements across village and regional Native corporation lands to provide access to publicly owned lands (including waters) for the purpose of recreation, hunting, transportation, utilities, docks, and other similar uses. The BLM is responsible for identifying and reserving these easements during the conveyance process. Terms of each specific easement identifies allowable uses of the easement by the public. Travel management planning may be constrained by existing or future easements.

Title XI of ANILCA requires that rights-of-way for Transportation or Utility Systems will be considered throughout the wild and scenic rivers, the Steese National Conservation Area and the White Mountains NRA. Any approval or disapproval of these rights-of-way will be consistent with the provisions of ANILCA. Regardless of other decisions in the RMP, ANILCA would take priority. This could result in the need for future amendment of the RMP if the BLM-authorized a right-of-way application meeting the Title XI criteria.

Additionally Section 1323(b)of ANILCA protects access to non-federal land surrounded by federally managed public lands. As with Title XI, approval or disapproval of rights-of-way will be consistent with this provision of ANILCA and subject to reasonable terms and conditions to protect resources.

ANILCA protects access for subsistence (Title VIII); and access for traditional activities, travel to and from villages and homesites and a right of access to inholdings within conservation system units, national conservation areas, and national recreation areas (Title XI). Because of these special access provisions in ANILCA, some alternatives in the RMP include an allowance for the use of motorized vehicles for ANILCA-protected uses by permit in areas that are otherwise closed to off-highway vehicle use. If the ROD results in closures to aircraft, snowmachines, motorboats, or nonmotorized surface transportation, the closure procedures described in 43 CFR 36.11(h) would be followed (see section 2.5 of this document).

The Steese National Conservation Area was established by Congress by ANILCA, which provides for a program of multiple use and sustained yield and for the maintenance of environmental quality within the Conservation Area. Pursuant to ANILCA, special values to be considered in planning and management of the National Conservation Area are Birch Creek and the caribou range.

Specific authorization for the White Mountain NRA also comes from ANILCA. The Act directs that the NRA shall be administered to provide for public outdoor recreational use and for the conservation of scenic, historic, scientific, fish and wildlife, and other values contributing to the public enjoyment of the area, and for other uses if they are compatible with, or do not

significantly impair, the values. Section 1312(b) of ANILCA withdraws the White Mountains NRA from location, entry, and patent under the mining laws. Opening the White Mountains to mineral location and entry is outside of the scope of this RMP.

ANILCA established Beaver Creek, Birch Creek, and the Fortymile River as components of the National Wild and Scenic Rivers System (WSR). The Wild and Scenic Rivers Act (P.L. 90–542) declared it a policy of the United States that "selected rivers... shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations". Specifically, Section 10(a) of the Wild and Scenic Rivers Act states that: Each component of the National Wild and Scenic Rivers System shall be administered in such a manner as to protect and enhance the values which caused it to be included in said system without, insofar as it is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values (16 USC 1281).

Additionally, Section 606(a) of ANILCA amended the Wild and Scenic Rivers Act to withdraw lands within one-half mile of the bank of designated "wild" rivers from mineral location and entry. Opening "wild" segments of designated rivers to mineral location and entry is beyond the scope of this RMP.

The U.S. Department of the Interior's Fish and Wildlife Policy clarifies the Department's relationship with state fish and wildlife management agencies (43 CFR 24). Additionally, the BLM has a Master Memorandum of Understanding with Alaska Department of Fish and Game which recognizes the Department as the primary agency responsible for management of use and conservation of fish and wildlife resources on BLM-managed lands.

Under the Submerged Lands Act of 1953 and the Alaska Statehood Act, the State of Alaska received title to unreserved beds of navigable waters at the time of statehood. Navigable waters are those waters used, or susceptible to use, for travel, trade, and commerce at the time of statehood (1959). Ordinarily, the courts decide disputes over the navigability of waterbodies; however, the BLM may make administrative determinations in order to identify public lands. Until such time a determination is made, the BLM presumes federal ownership of submerged lands.

Under Revised Statute (R.S.) 2477, Congress granted a right-of-way for the construction of highways over unreserved public land. Under Alaska law, the grant could be accepted by either a positive act by the appropriate public authorities or by public use. "Highways" under Alaska law include roads, trails, paths, and other common routes open to the public. Although R.S. 2477 was repealed in 1976, a savings clause preserved any existing R.S. 2477 rights-of-way. The State of Alaska claims numerous rights-of-way across federal land under R.S. 2477, including those identified in AS 19.30.400. The validity of State-identified R.S. 2477 rights-of-way will be determined on a case-by-case basis and outside of this planning process.

Chapter 2. Alternatives

2.1. How to Read This Chapter

This chapter presents the management alternatives considered and analyzed in this Resource Management Plan/Environmental Impact Statement. Section 2.2 provides a brief summary of the basic "theme" of each alternative and a summary table for the entire planning area. Section 2.3 provides a description of alternatives considered but not analyzed in detail. Section 2.6 provides the detailed description of management common to all planning subunits and action alternatives (Alternatives B – E). Alternative E is the Proposed RMP. Sections 2.7 through 2.10 provide a detailed description of management specific to each planning subunit and management decisions that vary by alternative. Consistent with the rest of the document, these sections are organized by program area. Section 2.11 provides a comparison table of the impacts for each alternative. All acres are approximate and have been rounded to the nearest 1,000 acres. Conveyance of lands to Native corporations and the State of Alaska are ongoing as are corrections to the GIS database. Acres and figures in this document reflect best known land status as of 2015.

2.2. General Description of Alternatives

The following sections provide a brief summary of each alternative. The alternatives are summarized in a comparative table format in section 2.2.6.

2.2.1. Alternative A - No Action Alternative

Alternative A continues present management practices and present levels of resource use based on the existing Fortymile Management Framework Plan (MFP) (BLM 1980), the Steese RMP (BLM 1986a), the White Mountains RMP (BLM 1986b), the Fortymile River Management Plan (BLM 1983a), the Birch Creek River Management Plan (BLM 1983b), the Beaver Creek River Management Plan (BLM 1983c), and other management decision documents. Other management decision documents include special rules published in the *Federal Register* (for off-highway vehicle and recreational use) and existing public land orders (PLOs), including ANCSA 17(d)(1) withdrawals. Wildland fire is managed consistent with the Alaska Land Use Plan Amendment for Wildland Fire and Fuels Management (BLM 2004b, 2005c), which is incorporated by reference.

Mineral leasing and new mining claims are precluded by public land orders (PLOs) issued under Section 17(d)(1) of ANCSA. Land disposal actions cannot occur due to current segregations for selection and the lack of decisions identifying lands for disposal in the existing land use plans. Six transportation corridors are designated: two in the White Mountains NRA and four in the Steese National Conservation Area. Two existing special recreation management areas (SRMAs), the White Mountains NRA and Steese National Conservation Area will continue under current management with recreation settings of Primitive, Semi-Primitive motorized, Research Natural Area, and Wild and Scenic River. The Fortymile WSR corridor will continue to be managed similar to a SRMA, but is not designated as such and there are no recreation settings prescribed.

Four existing Research Natural Areas (RNAs)and three Special Recreation Management Areas will remain in place. No new special designations, such as Areas of Critical Environmental Concern (ACECs) are considered. There will no suitability determinations made for wild and scenic rivers. There will be no decisions made to manage certain lands to maintain wilderness characteristics, although existing management would preserve these characteristics in many areas. There will be no off-highway vehicle (OHV) designations for the majority of the Fortymile Subunit (outside of the Wild and Scenic River Corridor) or the Upper Black River Subunit.

The current Limited OHV designations will remain in place in the White Mountains NRA and Steese National Conservation Area, including seasonal restrictions on summer motorized use in some areas.

Direction contained in existing laws, regulation, and policy will continue to be implemented, sometimes superseding provisions in the existing land use plans. The current levels, methods, and mix of multiple-use management of public land in the planning area will continue, and resource values will receive attention at present levels. In general, most activities will be analyzed on a case-by-case basis when applications are received. Few uses, other than new mining claims and mineral leasing, are limited or excluded as long as they were consistent with state and federal laws, and existing land use plans.

The existing plans do not identify a set of standard operating procedures or fluid mineral leasing stipulations. These are developed on a case-by-case basis as applications for permits are received.

2.2.2. Alternative B

Alternative B emphasizes protection of resource values such as wildlife, fish, and vegetation. Production of minerals and services are more constrained than in Alternatives A, C, D, and E. In many areas, uses are excluded to protect sensitive resources.

Alternative B recommends approximately 87 percent of the planning area remain closed to mineral leasing and mineral entry, including the Steese National Conservation Area, the White Mountains NRA, the Upper Black River Subunit, the Fortymile ACEC, and the three wild and scenic river corridors. The plan recommends opening the remaining 13 percent to new mining claims and mineral leasing through partial revocation of PLOs. All ACECs are recommended closed to new mineral entry and location, and mineral leasing. Unlike Alternative A, this alternative identifies lands suitable for acquisition, disposal, or retention. Scattered parcels identified in Appendix G are available for disposal. Wild and scenic rivers and areas of critical environmental concern are identified as right-of-way avoidance areas. Four transportation corridors are retained from Alternative A; two in the White Mountains NRA and two in the Steese National Conservation Area.

Special Recreation Area (SRMA) boundaries and management are adjusted from Alternative A. Terminology is updated to match current policy. Three SRMAs are designated: White Mountains, Steese, and Fortymile. Recreation setting prescriptions are assigned to each SRMA. These settings include Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, and Rural settings as defined in Table 2.5, "Recreation Setting Character Matrix for the Eastern Interior Planning Area". There are more acres assigned to the Primitive, Semi-Primitive, and Backcountry settings under Alternative B than under Alternatives A, C, D, or E. These three settings are similar to the Primitive setting under Alternative A.

The four existing RNAs in the Steese National Conservation Area and White Mountains NRA are maintained with current management. Alternative B designates four new ACECs and identifies specific measures proposed to protect or enhance wildlife values within these areas. The Steese, White Mountains, and Fortymile ACECs protect caribou range and Dall sheep habitat. The Salmon Fork ACEC protects anadromous fish habitat, bald eagle nesting, and rare plant habitats. Five eligible river segments (109 miles) are recommended suitable for designation under the Wild and Scenic Rivers Act (WSR Act). Lands possessing wilderness characteristics are identified and 78 percent these lands are managed to maintain these wilderness characteristics.

OHV area designations are identified in all subunits. In Alternative A, OHV designations do not exist for more than half of the planning area. Some areas are limited to existing or designated trails. Restrictions on summer motorized use are more extensive than under Alternative A.

Standard Operating Procedures outlined in section A.2 of Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations* apply.

2.2.3. Alternative C

Alternative C analyzes a moderate level of protection, use, and enhancement of resources and services. Production of minerals and services is less constrained than in Alternatives A, B, and E, but more constrained than in Alternative D. In some areas, uses are excluded to protect sensitive resources. Constraints to protect resources are less restrictive than under Alternative B, but more so than Alternatives D and E.

Alternative C recommends 34 percent of the planning area remain closed to mineral leasing and 40 percent to mineral entry and location, including the White Mountains NRA, 81 percent of the Steese National Conservation Area, and the three wild and scenic river corridors. Some ACECs are recommended closed to mineral entry and location, and leasing. Partial revocation of PLOs are recommended to open 60 percent of the planning area to mineral location and 66 percent to mineral leasing. Same as Alternative B, lands are identified as suitable for acquisition, disposal or retention. Alternative B retains two transportation corridors in the Steese National Conservation Area. The other transportation corridors from Alternative A are dropped.

Setting prescriptions for SRMAs include fewer acres in Primitive, Semi-Primitive and Backcountry settings and more acres in Middlecountry and Frontcountry prescriptions than in Alternative B. There is a greater emphasis on developed recreational facilities compared to Alternative B.

Similar to Alternative B, existing RNAs are maintained and three SRMAs are identified. The Fortymile SRMA is smaller than in Alternative B, limited to the WSR Corridor, Eagle area, and Davis Dome. Only three ACECs are designated and they are smaller and/or subject to fewer restrictions than in Alternative B. The White Mountains ACEC is not designated under this alternative, although management similar to that prescribed in other ACECs would apply to caribou and Dall sheep habitat in the White Mountains. The Salmon Fork ACEC protects anadromous fish habitat, bald eagle nesting, and rare plant habitats. The Steese and Fortymile ACECs protect caribou range both inside and outside of the Steese National Conservation Area.

No rivers are recommended as suitable for designation under the WSR Act. Fewer acres (32 percent) are managed to maintain wilderness characteristics. Although, wilderness characteristics will likely remain on a much larger acreage.

As is in Alternative B, OHV designations are put in place in all planning subunits. Some areas are limited to existing or designated trails. Summer motorized use is precluded in some areas. Restrictions on summer motorized use are more extensive than under Alternatives A or D, but less than under Alternative B.

Standard Operating Procedures outlined in section A.2 Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations* apply.

2.2.4. Alternative D

Alternative D emphasizes management to facilitate resource development. Production of minerals and services are less constrained than in Alternatives B, C and E. In some areas uses are excluded to protect sensitive resources. Constraints to protect resources will be implemented, but are less restrictive than under Alternatives C and E.

Alternative D recommends 20 percent of the planning area remain closed to mineral leasing (oil, gas, and other leasable minerals) and 27 percent to mineral entry and location (mining claims). Partial revocation of PLOs are recommended to open 80 percent to mineral leasing and 73 percent of the planning area to mineral location. The White Mountains NRA, the Birch Creek and Beaver Creek WSR corridors, the "wild" and "recreational" segments of the Fortymile WSR, and 46 percent of the Steese National Conservation Area remain closed to new mining claims. Approximately 451,000 acres in the White Mountains are recommended open for leasing of hard rock minerals including gold and rare earth elements (Section 2.10.2.4). The "scenic" segments of the Fortymile WSR Corridor are recommended opened to mineral entry. The Steese ACEC will remain closed to mineral entry and location. The other ACECs are recommended open to new mining claims. As in Alternative B, scattered parcels are available for disposal. None of the existing transportation corridors are retained and no new transportation corridors are designated.

Setting prescriptions for SRMAs would include fewer acres in Semi-Primitive and Backcountry settings and more acres in Middlecountry and Frontcountry prescriptions than in Alternatives B, C, and E. There is a greater emphasis on developed recreational facilities than under Alternatives A, B, C, and E.

Similar to Alternatives B and C, existing RNAs are maintained and three SRMAs are designated. Similar to Alternative C, three ACECs are designated. These are generally smaller or are subject to fewer restrictions than in alternatives B, C, and E. The Steese and Fortymile ACECs protect current caribou range in the Steese National Conservation Area and Fortymile Subunit. The Salmon Fork ACEC protects anadromous fish habitat, bald eagle nesting, and rare plant habitats.

No rivers are recommended as suitable for designation under the WSR Act. Only 11 percent of the acres possessing wilderness characteristics are managed to maintain these characteristics. Wilderness characteristics will likely remain on a much larger acreage.

OHV designations are put into place in all planning subunits. Generally, travel and trail restrictions are less than Alternatives B and C, but more than Alternative A. Some areas or uses are limited to existing trails. Some areas are limited to no summer motorized use.

Standard Operating Procedures outlined in sections A.2 and A.3 of Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations* would apply.

2.2.5. Alternative E (Proposed RMP)

Alternative E represents the mix and variety of actions that the BLM believes best resolves the issues and management concerns in consideration of all values and programs, and is the BLM' Proposed RMP and Preferred Alternative. Alternative E a minor variation of the alternatives analyzed in the Draft RMP/EIS and is qualitatively within the spectrum of alternatives analyzed in the Draft. Production of minerals and services are slightly less constrained than in Alternative B.

Alternative E recommends 74 percent of the planning area remain closed to both mineral leasing and mineral location (staking of mining claims). Partial revocation of PLOs are recommended to open 26 percent of the planning area to mineral location and mineral leasing. The White Mountains NRA remains closed to new mining claims, mineral leasing, and leasing of hardrock minerals. The Steese National Conservation Area and Birch Creek, Beaver Creek, and Fortymile WSR corridors remain closed to both mineral entry and mineral leasing. All ACECs, riparian conservation areas, restoration watersheds, and the Black River watershed are recommended closed to mineral entry and mineral leasing to protect fish and aquatic resources, subsistence resources and other values raised in government-to-government consultation. As in Alternatives B, C, and D scattered parcels of unmanageable lands are available for disposal. None of the existing transportation corridors designated under Alternative A are retained and no new corridors are designated.

Three SRMAs are designated: the Fortymile, Steese, and White Mountains SRMAs. Recreation setting prescriptions in the Fortymile and White Mountains SRMAs are the same as Alternative C. In the Steese, some areas identified as Middlecountry in Alternative C change to Backcountry and Semi-Primitive.

The four existing RNAs are maintained. Management within RNAs would be the same as Alternative C, except the OHV area designation changes from Closed to Limited allowing for winter use of snowmobiles.

Three ACECs are designated. The Fortymile ACEC is smaller and Salmon Fork ACEC is slightly larger than in Alternative C. About 37,000 acres in Mosquito Flats is designated as an ACEC. Additionally crucial caribou and Dall sheep habitat is identified in the White Mountains, Steese, and Fortymile subunits (Maps 67 and 103). Management of these crucial habitat areas and the Fortymile ACEC protect Fortymile Herd caribou range and Dall sheep habitat. The Salmon Fork ACEC protects anadromous fish habitat, bald eagle nesting, and rare plant habitats. The Mosquito Flats ACEC protects wetlands and moose calving habitat. No rivers are recommended suitable for designation under the WSR Act.

Approximately 53 percent of the planning area is managed to minimize impacts to wilderness characteristics while emphasizing other multiple uses and resources. These areas include crucial caribou and Dall sheep habitat, ACECs, RNAs, riparian conservation areas, and Primitive, Semi-Primitive, and some Backcountry recreation management zones. Management proposed to maintain ACEC and RCA values will also indirectly preserve wilderness characteristics of naturalness, opportunities for solitude and opportunities for primitive and unconfined recreation.

A Limited OHV area designation is put into place in all planning subunits. More detailed travel decisions for the Fortymile, Steese, and White Mountain subunits are deferred to travel management plans to be completed within five years of the record of decision. The Travel Management Plan for the Upper Black River Subunit is defined in this RMP. These decisions are implementation decisions subject to appeal. Interim travel management for areas deferred are the same as Alternative A with minor changes affecting the RNAs, and White Mountains, Steese, and Fortymile subunits. These changes include allowing snowmobile use in RNAs and removing prohibitions on the use of hovercraft and airboats.

Standard Operating Procedures for the Proposed RMP outlined in section A.4 of Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations* apply.

2.2.6. Summary of Alternatives Table

The table below provides a summary comparison of all alternatives based on the entire planning area. Similar tables are provided for each subunit in sections 2.7.3, 2.8.3, 2.9.3, and 2.10.3. Actions that are applicable to all alternatives are shown in one cell across a row. These actions would be implemented regardless of which alternative is ultimately selected. Actions that are applicable to more than one, but not all alternatives are indicated by either combining cells or by denoting as "same as Alternative B" for example.

Table 2.1. Summary of Alternatives – All Subunits Combined

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Fish and Aquatic Species	Riparian Conservation Areas (RCAs) not addressed.	Manage 73 watersheds as RCAs.	Manage 45 watersheds as RCAs.	Manage 24 watersheds as RCAs.	Same as Alternative B.
	High priority restoration watersheds not addressed.	Manage 5 watersheds as high priority for restoration.			Manage 7 watersheds as high priority for restoration.
Visual Resources	Assign all BLM-managed lands to VRM Classes. Manage according to the VRM class objectives described in section 2.6.2.9				
	VRM Class I: 138,000 acres	VRM Class I: 346,000 acres	VRM Class I: 343,000 acres	VRM Class I: 317,000 acres	VRM Class I: 343,000 acres
	VRM Class II: 583,000 acres	VRM Class II: 4,951,000 acres	VRM Class II: 1,876,000 acres	VRM Class II: 546,000 acres	VRM Class II: 3,383,000 acres
	VRM Class III: 1,494,000 acres	VRM Class III: 371,000 acres	VRM Class III: 267,000 acres Class	VRM Class III: 421,000 acres	VRM Class III: 11,000 acres
	VRM Class IV: 0 acres	VRM Class IV: 855,000 acres	VRM Class IV: 4,037,000 acres	VRM Class IV: 5,239,000 acres	VRM Class IV: 2,787,000 acres
	VRM classes not assigned: 4,308,000 acres	VRM classes not assigned: 0 acres			
Wilderness Characteris-tics	**Areas managed to protect wilderness characteristics as a priority over other resource values and multiple uses**				
	Wilderness characteristics not addressed.	None	None	None	None
	Acres and Areas managed to emphasize other resource values and multiple uses while applying management restrictions to reduce impacts to wilderness characteristics				
	Wilderness characteristics not addressed.	5,017,000 acres (76%)	2,076,000 acres (31%)	741,000 acres (11%)	3,456,000 acres (53%)
	Acres managed to emphasize other resource values and multiple uses as a priority over protecting wilderness characteristics				
	Wilderness characteristics not addressed.	1,506,000 acres (23%)	4,447,000 acres (68%)	5,782,000 acres (88%)	3,068,000 acres (47%)
Wildlife	No limits on types of pack animals for either casual or permitted use.	The use of domestic goats, alpacas, llamas, and other similar species would not be allowed in conjunction with BLM-authorized activities in Dall sheep habitat.			
		Domestic sheep, goats, and camelids (including alpaca and llama) are not allowed in Dall sheep habitat.	No prohibitions on casual use of Domestic sheep, goats, and camelids (including alpaca and llama).		Same as Alternative B

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Forest and Woodland Products	Personal use of timber: allowed on 6,523,000 acres	Personal use of timber: allowed on 4,027,000 acres	Personal use of timber: allowed on 6,219,000 acres	Personal use of timber: allowed on 6,522,000 acres	Personal use of timber: allowed on 6,523,000 acres
	No commercial timber harvest is allowed on 2,213,000 acres within the Steese National Conservation Area and White Mountains NRA. Use considered elsewhere.	Commercial timber salvage sales: considered on 4,027,000 acres.	Commercial timber salvage sales: considered on all BLM-managed lands (6,523,000 acres)		
		Commercial timber sales: considered on 1,667,000 acres	Commercial timber sales: considered on 5,499,000 acres	Commercial timber sales: considered on 6,120,000 acres	Commercial timber sales: considered on 4,556,000 acres
	Forest products are reserved for local use on 2,213,000 acres within the Steese National Conservation Area and White Mountains NRA. Use allowed elsewhere.	Allow harvest of forest products for personal use on all BLM-managed lands in the planning area, 6,523,000 acres			
	Commercial use of forest products not allowed on 2,213,000 acres in the Steese National Conservation Area and White Mountains NRA. Use allowed elsewhere.	Commercial use of forest products: allowed on 4,027,000 acres	Commercial use of forest products: allowed on 6,357,000 acres	Commercial use of forest products: allowed on 6,502,000 acres	Commercial use of forest products: allowed on 6,523,000 acres, all BLM-managed lands in the planning area.
Land Tenure	Consider land exchange to acquire approximately 15,000 acres of State lands within the Steese National Conservation Area. Consider acquisition of private inholdings in the White Mountains NRA, Steese National Conservation Area, and the Fortymile, Birch Creek, and Beaver Creek WSR corridors on a willing seller basis.				
	No lands identified for disposal or exchange	Make Zone 3 lands (approximately 45,000 acres of scattered, unmanageable parcels) available for disposal (Appendix G). Validly selected lands would not be considered for disposal unless the selection is relinquished.			
		If federal mining claims outside of the White Mountains NRA, Steese National Conservation Area, and Fortymile WSR become null and void, and are not conveyed to the State, consider these lands for disposal or exchange.			

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Land Use Authorizations	Designated transportation corridors: Four in the Steese National Conservation Area and two in the White Mountains NRA (Map 19).	Retain two transportation corridors in the Steese National Conservation Area and one in the White Mountains NRA (Maps 49 and 53).	Retain two transportation corridors in the Steese National Conservation Area (Map 50).	None of the existing transportation corridors would be retained and no new corridors would be designated.	
	No ROW avoidance areas are identified.	ROW avoidance areas: Steese ACEC, RNAs and Birch Creek WSR; White Mountains ACEC and Beaver Creek WSR; Fortymile ACEC and Fortymile WSR; and Salmon Fork ACEC (3,058,000 acres)	There would be no ROW avoidance areas.		
Fluid Leasable Minerals (e.g., oil and gas)	Closed to mineral leasing by public land orders: Upper Black, Fortymile, Steese, and White Mountains subunits. (6,523,000 acres)	31,000 acres open with no surface occupancy; 803,000 acres open with standard stipulations; 5,689,000 acres closed.	462,000 acres open with minor constraints; 2,804,000 acres open with standard stipulations; 3,257,000 acres closed.	2,113,000 acres open with minor constraints; 3,091,000 acres open with standard stipulations; 1,319,000 acres closed.	201,000 acres open with minor constraints; 1,513,000 acres open with standard stipulations; 4,811,000 acres closed.
Solid Leasable Minerals	Closed to mineral leasing by public land orders: Upper Black, Fortymile, Steese, and White Mountains subunits. (6,523,000 acres)	31,000 acres open with no surface occupancy; 803,000 acres open with standard stipulations; 5,689,000 acres closed.	462,000 acres open with minor constraints; 2,804,000 acres open with standard stipulations; 3,257,000 acres closed.	2,113,000 acres open with minor constraints; 3,091,000 acres open with standard stipulations; 1,319,000 acres closed.	201,000 acres open with minor constraints; 1,513,000 acres open with standard stipulations; 4,811,000 acres closed.
		Coal leasing is deferred because the coal screening process (43 CFR 3420.1-4) has not been completed. A RMP amendment would be needed before coal leasing could occur.			
Locatable Minerals (e.g., gold)	6,523,000 acres withdrawn from mineral entry and location by of public land orders or legislation.	Recommend 834,000 acres open [a]; 5,689,000 acres closed.	Recommend 3,887,000 acres open[a]; 2,636,000 acres closed.	Recommend 4,755,000 acres open[a]; 1,768,000 acres closed.	Recommend 1,713,000 acres open[a]; 4,811,000 acres closed.
Salable Minerals (e.g., gravel)	6,523,000 acres open to disposal of sand, gravel, rock, and other saleable minerals.	3,772,000 acres open; 2,751,000 acres closed.	6,134,000 acres open; 389,000 acres closed.	6,378,000 acres open; 145,000 acres closed.	6,134,000 acres open; 389,000 acres closed.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Recreation	Existing plans do not designate SRMAs, but the Steese National Conservation Area, White Mountains NRA, and Fortymile WSR are managed as such.	Designate 3,045,000 acres in Fortymile, Steese, and White Mountains areas as SRMAs. Establish desired recreation setting character classes.	Designate 2,495,000 acres in Fortymile, Steese, and White Mountains areas as SRMAs. Establish desired recreation setting character classes. In these alternatives, the Fortymile SRMA is limited to the WSR corridor.		
Travel Management	OHV area designations: 16,000 acres Closed; 2,213,000 acres Limited; 4,294,000 acres undesignated	OHV area designations: 16,000 acres Closed; 6,507,000 acres Limited; 0 acres undesignated.			OHV area designations: 6,523,000 acres Limited; 0 acres Closed; 0 acres undesignated.
Withdrawals	Steese National Conservation Area and White Mountains NRA withdrawn from mining and mineral leasing by ANILCA and additional public land orders under ANCSA. Provisions in ANILCA allow Secretary of the Interior to modify the withdrawal to allow for mining.	Retain the ANILCA withdrawal on 100% of the Steese National Conservation Area. Recommend revoking ANCSA withdrawals. National Conservation Area would remain closed to mining by ANILCA.	Retain the ANILCA withdrawal on 80% of the Steese National Conservation Area; recommend revoking ANCSA withdrawals and issuing an opening order for 241,000 acres (20% of the National Conservation Area).	Retain the ANILCA withdrawal on 46% of the Steese National Conservation Area; recommend revoking ANCSA withdrawals and issuing an opening order for 646,000 acres (54% of the National Conservation Area).	Same as Alternative B.
		Retain the ANILCA withdrawal on 100% White Mountains NRA.	Same as Alternative B.	Recommend modifying ANILCA and ANCSA withdrawal on 160,000 acres in the White Mountains to allow for leasing of hardrock minerals.	Same as Alternative B.
	Modification of ANCSA withdrawals not addressed	Recommend partial revocation of ANCSA withdrawals to open 849,000 acres to mining; recommend retaining ANCSA withdrawals for 3.3 million acres until a new FLPMA withdrawal is approved.	Recommend partial revocation of ANCSA withdrawals to open 1,308,000 acres to mining; recommend retaining ANCSA withdrawals for 541,000 acres until a new FLPMA withdrawal is approved.	Recommend partial revocation of ANCSA withdrawals to open 1.8 million acres to mining; recommend retaining ANCSA withdrawals for 82,000 acres until a new FLPMA withdrawal is approved.	Recommend partial revocation of ANCSA withdrawals to open 1.7 million acres to mining; recommend retaining ANCSA withdrawals for 2.5 million acres until a new FLPMA withdrawal is approved.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Withdrawals	Modification of public land orders not addressed.	Modify public land orders as needed to allow for disposal of parcels identified in Appendix G and to implement recommended mining decisions (above).			
	Retain all recreation site withdrawals in the Fortymile and White Mountains subunits.			Modify recreation site withdrawals to allow conveyance of Eagle and Perhaps Creek to the State.	Modify recreation site withdrawals to allow conveyance of Perhaps Creek to the State.
Areas of Critical Environmental Concern	No ACECs are designated.	Designate the Fortymile ACEC, Salmon Fork ACEC, Steese ACEC, and White Mountains ACEC (2,811,000 acres)	Designate the Fortymile ACEC, Salmon Fork ACEC, and Steese ACEC (1,632,000 acres)	Designate the Fortymile ACEC, Salmon Fork ACEC, and Steese ACEC (1,368,000 acres)	Designate the Fortymile ACEC, Mosquito Flats ACEC, and Salmon Fork ACEC (1,022,000 acres)
Research Natural Areas	16,100 acres are designated as Research Natural Areas (RNAs) in the Steese National Conservation Area and White Mountains NRA: Big Windy Hot Springs, Mount Prindle, Limestone Jags, and Serpentine Slide.				
	RNAs are closed to all OHV use including snowmobiles.	RNAs are closed to all OHV use including snowmobiles, except by federally qualified subsistence users.			Snowmobile use would be allowed in RNAs.
Wild and Scenic Rivers	Outstandingly Remarkable Values (ORVs) are not identified.	ORVs for Birch Creek WSR are scenic, recreation, and fisheries. ORVs for Beaver Creek WSR are scenic, recreation, geologic, fisheries, and wildlife. ORVs for Fortymile WSR are scenic, recreation, geologic, historic, and wildlife. Specific ORVs by river segment are listed in Appendix E.			
	Other rivers in planning area have not been studied for eligibility or suitability.	35 rivers studied for eligibility and suitability. Five rivers found to be eligible.			
		Rivers found suitable for designation (109 miles): Gold Run, Dome Creek, Big Windy Creek, Fossil Creek, and Salmon Fork Black River.	No rivers found suitable for designation.		

[a]RMP recommends open or closed. To implement this recommendation requires action by the Secretary of the Interior

2.3. Alternatives Considered but Not Analyzed in Detail

The BLM considered the following alternatives, but eliminated them from further consideration for the reasons provided below.

2.3.1. Livestock Grazing

The Fortymile MFP (BLM 1982) allowed for the authorization of livestock grazing permits. However, there are currently no permitted livestock operations within the planning area and there have been no applications for grazing permits since 1978. The grazing regulations for Alaska (43 CFR 4200) were removed in 1998 due to the lack of demand for permits and the lack of land suitable for grazing (FR 1998).

The BLM does not anticipate any applications for livestock grazing in the future, unless it is grazing associated with Special Recreation Permits, such as hunting guides using horses. Grazing associated with recreation is permitted through the Recreation Program. There are no identified areas with high grazing potential in the planning area. Livestock grazing on remote BLM lands is not practical due to potential conflicts with wildlife (disease and competition), potential introduction of wood bison, lack of suitable grazing lands, the potential for predation on livestock by bears and wolves, and the lack of access for livestock operators. Areas close to communities where grazing would be more practical are state or private lands.

In summary, BLM lands are generally not suitable for grazing, there is no demand for permits, and there are potential conflicts with wildlife. Thus a grazing alternative was not analyzed in detail and grazing is discussed no further in this RMP.

2.3.2. Recommending Wilderness Designation by Congress

The BLM has determined not to analyze in detail an alternative that would recommend Wilderness designation within the planning area because it is beyond the scope of this planning effort. The BLM has conducted an inventory of the planning area to document lands with wilderness characteristics and has considered in this plan a full range of reasonable alternatives addressing how BLM will manage certain lands with wilderness characteristics for naturalness, solitude, and outstanding opportunities for primitive and unconfined recreation, where practical.

2.4. Alternative Considered in Supplemental EIS

When preparing the Draft RMP/EIS, the BLM understood the provisions under the Alaska National Interest Lands Conservation Act (ANILCA) for hardrock leasing (authorizing removal of locatable minerals under a lease instead of a mining claim) in the White Mountains NRA (implemented by 43 CFR 3585) to apply only to removal of hardrock minerals from mining claims that existed before November 16, 1978. Since there are no longer any mining claims of record within the NRA, it was thought that no one could meet the requirements to lease hardrock minerals. This interpretation was incorrect, as the BLM, through its regulations at 43 CFR part 3580, has interpreted Section 1312 of ANILCA as allowing for disposal of hardrock minerals by lease in the White Mountain NRA even in the absence of an underlying unperfected mining claim, subject to certain findings by the Secretary.

To analyze an adequate range of alternatives and obtain public comment on hardrock mineral leasing in the White Mountains NRA, the BLM issued a Supplemental EIS considering the leasing of hardrock minerals in the White Mountains NRA on January 11, 2013. This Supplement amended Alternative D of the Draft RMP/EIS to include a hardrock mineral leasing scenario. This alternative recommended making approximately 160,000 acres in the White Mountains NRA available for hardrock mineral leasing. The Supplement described the additions to Alternative D and environmental effects associated with the hardrock mineral leasing scenario.

In the Supplement and this Proposed RMP/Final EIS, a hardrock mineral leasing program refers to issuing exploration licenses and mineral leases for the exploration and development of known deposits of placer gold and rare earth elements. Both gold and rare earth elements are locatable minerals normally only available through mining claims. As discussed above, however, ANILCA allows for leasing of these types of minerals in the White Mountains, but not for the location of new mining claims. Mineral leasing is done through a lease sale at the discretion of the BLM. Leases are for a defined term, a royalty is charged, and the lease may contain leasing stipulations at the time of the lease sale.

Pursuant to Section 810 of ANILCA, the BLM evaluated the effects of the revised Alternative D presented in the Supplement on subsistence activities and determined that there may be a significant restriction on subsistence uses. These findings were presented in Appendix B of the Supplement and are incorporated into the Section 810 analysis in Appendix J of this Proposed RMP/Final EIS.

The Supplement is included in this Proposed RMP/Final EIS as Appendix M. Additionally, decisions from the Supplement are incorporated into Chapter 2, White Mountains Alternative D of this document, including in the Summary of Alternatives and Summary of Impacts tables (Tables 2.1 and 2.25). Standard operating procedures specific to the supplement are incorporated in to Appendix A, section A.3.

2.5. ANILCA Access – Implementing Sections 811 and 1110(a) of ANILCA

This section applies to all subunits and alternatives.

ANILCA provides specific guidance on access for:

- the use of snowmobiles, motorboats and other means of surface transportation traditionally used for subsistence purposes by local residents on all federal public lands (Section 811). See ANILCA Section 102 (3) for the definition of “public lands”; and

- the use of snowmachines, motor boats, airplanes and non-motorized surface transportation methods for traditional activities and travel to and from homesites, on conservation system units, national recreation areas, and national conservation areas (Section 1110).

Pursuant to ANILCA Sections 811 and 1110, such uses are subject to reasonable regulation. The NPS and USFWS have developed regulations to implement Section 811 of ANILCA. While the BLM has not developed similar regulations, a process similar to those promulgated by NPS and USFWS will be followed.

The BLM will ensure that rural residents engaged in subsistence uses shall have reasonable access to subsistence resources (ANILCA Section 811(a)) and will implement restrictions and closures to the use of snowmobiles, motorboats, and other means of surface transportation traditionally employed for subsistence purposes by local rural residents (ANILCA Section 811(b)) only if the Authorized Officer determines that such use is causing or is likely to cause an adverse impact on public health and safety, resource protection, protection of historic or scientific values, subsistence uses, conservation of endangered or threatened species, or other purposes, values, and uses for which the lands are being managed under FLPMA or designated by ANILCA[1] (e.g. Wild and Scenic River, National Recreation Area, National Conservation Area, if applicable).

The BLM will follow the regulations implementing Section 1110 of ANILCA, as found in 43 CFR Part 36. The BLM will implement restrictions and closures to use of snowmachines, motorboats, aircraft, and non-motorized surface transportation methods (e.g. domestic dogs, horses, and other pack or saddle animals, etc.) for traditional activities only if the Authorized Officer makes a finding, pursuant to 43 CFR 36.11(h), that such use would be detrimental to the resource values of the area.

To meet the requirements of ANILCA, decisions in this RMP/EIS that are covered by Sections 811 and 1110 of ANILCA will be listed as "Proposed" Supplemental Rules in the ROD. Where transportation and travel management planning is deferred, interim rules will be identified. After the RMP/EIS RODs and travel management decision record are signed, the BLM will undertake the following process for both interim and final decisions:

- Publish and provide notice of proposed Supplemental Rules in the *Federal Register* and other formats and locations reasonably calculated to inform residents in the affected vicinity.
- Allow a minimum of 60-days for the public comment period on the proposed Supplemental Rules.
- Hold public hearings in the affected vicinity and other locations as deemed appropriate by the BLM.
- Respond to comments and publish the final Supplemental Rules in the *Federal Register*.
- Make the final Supplemental Rules known by the following methods (at a minimum):
    - Supplemental Rules and maps with relevant information will be available for public inspection at the BLM office and at other places convenient to the public, and locations and formats reasonably calculated to inform residents in the affected vicinity.
    - Signs will be posted at appropriate sites.
    - BLM brochures and websites will list Supplemental Rules and show relevant maps.

If the decision in the ROD is to develop a step-down transportation and travel management plan, the Supplemental Rule process described above will be followed to address any travel management plan decisions that are covered by sections 811 and 1110 of ANILCA. This rule process will be completed after the decision record on the transportation and travel management plan.

[1]Closure criteria pursuant to National Park Service regulations at 36 CFR 13.460(b) and U.S. Fish and Wildlife regulations at 50 CFR 36.12(b).

2.6. Management Common to All Subunits and All Action Alternatives

The following sections describe management common to all planning subunits and all action alternatives (B – E), broken down by program area. The Standard Operating Procedures and Fluid Mineral Leasing Stipulations in Appendix A apply to all action alternatives and all subunits.

2.6.1. Mitigation

The BLM will apply mitigation measures to BLM-authorized activities within the Eastern Interior Planning Area in order to achieve land use plan goals and objectives while continuing to honor the BLM multiple-use mission. The BLM is directed to implement mitigation measures by Presidential Memorandum: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment (November 3, 2015) and Department of the Interior Manual 600 DM 6 (October 23, 2015). The BLM is currently developing a mitigation manual and handbook.

The sequence of mitigation action will be the mitigation hierarchy identified by the White House Council on Environmental Quality (CEQ) (40 CFR 1508.20). This hierarchy prioritizes mitigating impacts at the time and location of the implementation level activities (e.g. land-use authorizations) which must be in conformance with the land use plan goals and objectives. Mitigation would be achieved through impact avoidance, minimization, rectification, and reduction over time of the impact, including those measures described in laws, regulations, policies, and the Eastern Interior RMP. When these types of mitigation measures are not sufficient to meet the RMP goals and objectives, additional measures to compensate for residual impacts may be required.

The mitigation approach will incorporate the following general principles:

1. **Avoid, minimize, rectify, reduce or eliminate the impact over time, and compensate.** The sequence of mitigation action will be the mitigation hierarchy (avoid, minimize, rectify, reduce or eliminate over time, compensate), as identified by the White House Council on Environmental Quality (CEQ) (40 CFR 1508.20). Compensatory mitigation requirements may apply to implementation level activities whose impacts the agency cannot adequately avoid, minimize, rectify, reduce or eliminate over time (i.e. residual impacts) in order to meet land use plan goals.

2. **Regional Mitigation Approach.** A regional approach to mitigation would include preparing a prioritized assessment of degraded areas in need of restoration and areas important for preservation across the relevant landscape. This prioritized list would provide the basis for mitigation required for implementation level activities and focuses on attaining the maximum mitigation benefit on a landscape basis.

3. **Monitor mitigation projects and measures and make adaptive changes.** The BLM land use authorization decision documents that require compensatory mitigation as a condition of the permit approval should identify project level monitoring and adaptive management requirements. This will ensure the mitigation and adaptive management requirements are implemented as designed, remain effective during the life of the project's impact, and management is adjusted as necessary based on lessons learned and/or new science.

4. **Use the best available science.** The best available scientific principles, standards and practices for mitigation shall be used when determining implementation level mitigation requirements.

5. **Be consistent and fair.** The mitigation program should apply consistently across activities that result in direct, indirect, or cumulative impacts within the planning area.

6. **Durability.** The BLM should ensure that mitigation conducted outside the area of impact, will at a minimum, be effective for as long as the land-use authorization affects the resources and values.

7. **Additionality.** A compensatory mitigation measure that improves the baseline conditions of the impacted resource, and is demonstrably new and would not have occurred without the compensatory mitigation measure.

2.6.2. Resources

2.6.2.1. Air and Atmospheric Values

The BLM's role in air resource management includes ensuring that BLM activities, programs, and projects comply with applicable air quality standards and that BLM-authorized activities comply with conditions and stipulations in leases and permits. This work is accomplished through interagency coordination, participation in state implementation plan development and processes, collecting and acquiring data, modeling air quality impacts, monitoring changes in air resource conditions, performing environmental impact analyses as required by NEPA, and implementing adaptive management practices as outlined in BLM Handbook H-1601-1. The State agencies typically issue air quality permits or otherwise implement and enforce the regulations in the Clean Air Act, unless the EPA does so directly. Air quality is determined by atmospheric emissions and pollutants, and includes noise, smoke management, and visibility.

GOALS:

All direct or authorized emission-generating activities, such as placer mining or BLM facilities development, occurring on BLM-managed lands within the planning area will comply with federal and State air quality laws and regulations.

Protect and maintain air quality of BLM-administered lands consistent with federal and State attainment, nonattainment, or maintenance classification status for atmospheric emissions and pollutants, including noise, smoke management, and visibility.

Coordinate, cooperate, and consult with federal, Tribal, State, and local regulatory agencies, and with other appropriate land management agencies, to resolve air resource issues that may impact BLM-administered lands.

Collaborate with other federal, State and local regulatory agencies, Tribal governments, user groups, and BLM offices to support a coordinated Air Resource Management Program consistent with a science-based adaptive management approach to air resource management.

DECISIONS:

Implement interagency wildland fire smoke effects mitigation measures adopted by the Alaska Wildland Fire Coordinating Group. Consider smoke effects on human health, communities, recreation, and tourism in all wildland and prescribed fire management activities.

Ensure BLM activities, programs, and projects comply with all applicable federal, State, Tribal, and local air quality laws, statutes, regulations, standards, and state implementation plans, including applicable general and transportation conformity regulations within EPA designated nonattainment or maintenance areas, consistent with the Clean Air Act and FLPMA.

Inventory, model, analyze, and monitor air resources on an annual, biannual, or quarterly schedule, or as directed by resource managers, to evaluate conditions and trends and their potential impacts on and from BLM-authorized activities, consistent with science-based adaptive management.

Where BLM activities, programs, and projects or BLM-authorized activities have the potential to impact visibility, BLM will evaluate the extent of the potential impact and consider mitigation. Areas where BLM may analyze potential visibility impacts include mandatory Federal Prevention of Significant Deterioration Class I and adjacent areas, wildland/urban interface areas, National Landscape Conservation System units, and in or near areas that contain special natural resources.

When BLM programs, projects, and/or use authorizations have the potential to affect existing resources that may be sensitive to noise such as public health and safety, wildlife, heritage resources, wilderness, wildland/urban interface areas, and other special value areas (such as Areas of Critical Environmental Concern and National Landscape Conservation Areas), BLM will consider noise and its potential impacts on the public and the environment, as well as any appropriate mitigation measures, during the planning and authorization review process.

Where applicable, BLM will utilize guidance in the June 23, 2011 MOU *Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions through the National Environmental Policy Act Process*, among the USDA, DOI, and the EPA and will incorporate updates or revisions as available.

Ensure BLM activities, programs, and projects utilize CEQ issued guidance (December 2014), providing direction for federal agencies on when and how to consider the effects of GHG emissions and climate change in their evaluation of all proposed federal actions in accordance with the National Environmental Policy Act (NEPA) and the CEQ regulations implementing the procedural provisions of NEPA (CEQ Regulations 42 U.S.C. § 4321 et seq.; 40 CFR Parts 1500-1508). Updates or revisions to the CEQ guidance will be incorporated as available.

2.6.2.2. Cultural Resources

GOALS:

Identify, preserve and protect significant cultural resources by a variety of means; including site avoidance or conservation, site stabilization, monitoring, public awareness programs, and/or data recovery to ensure that these resources are available for appropriate uses by present and future generations.

Identify and manage cultural resources for a variety of present and future uses, including scientific use, conservation for future use, public use, traditional use, and experimental use, or else discharge from further management.

Seek to reduce imminent threats and resolve potential conflicts from natural or human-caused deterioration, or potential conflict with other resources by ensuring that all authorizations for land and resource use comply with “Section 106” National Historic Preservation Act (NHPA) [54 USC 306108].

DECISIONS:

Provide permits for archaeological investigation (following 43 CFR 7), along with any other authorizations for individuals or institutions conducting archaeological investigations on public lands, and ensure that artifacts remain in federal custody.

Avoid impacts to cultural resources by project redesign, project abandonment, and/or mitigation of adverse impacts through scientific recovery and analysis. When impacts to cultural resources cannot be avoided, complete a Determination of Eligibility to the State Historic Preservation Office to determine a site’s significance and eligibility to the National Register of Historic Places, and follow prescribed NHPA "Section 106" [54 USC 306108] consultation for all sites determined eligible. If a site is determined eligible, develop a memorandum of agreement (MOA) to mitigate the action.

Prioritization of NHPA "Section 110" field surveys and inventories [54 USC 306102(b)(1)] would be based on (1) a reasonable combination of expected development activities on the public land, as well as (2) “values” related to the resource itself, such as rareness, uniqueness, density on the landscape, and other characteristics inherent in the resource itself.

Prioritization of cultural sites for rehabilitation, stabilization, and restoration would be based upon the “value” of the resource (i.e., NRHP eligible; uniqueness; rarity), along with other recreational or public uses, and other BLM land or resource use considerations.

Systematically monitor threatened sites on an established schedule, and monitor other sites as opportunities or funds become available.

Allow for both destructive and non-destructive cultural resource data recovery by qualified BLM personnel for both "Section 106" mitigative projects as well as non-"Section 106", research oriented projects, where “destructive” refers to archaeological excavation and extensive sub-surface testing and non-destructive refers to mapping, photography, and other means of non-disturbance site recordation.

Maintain an inventory of archaeological sites and localities for the planning area. The locations of these sites and localities are protected by federal law from disclosure to the public, certain exceptions aside, so as to better protect them.

2.6.2.3. Fish and Aquatic Species

GOALS:

The following goals are consistent with the National Fish Habitat Action Plan (NFHAP 2006) and BLM Instruction Memorandum 2009-141:

Maintain water quality that satisfies state standards and provides for stable and productive riparian and aquatic ecosystems.

Maintain stream channel integrity, channel processes, and the sediment regime (including the elements of timing, volume, and character of sediment input and transport) under which the riparian and aquatic ecosystems developed.

Manage instream flows to support healthy riparian and aquatic habitats, which promote the stability and effective function of stream channels, and the ability to effectively route flood discharges.

Maintain natural timing and variability of the water table elevation in meadows and wetlands.

Manage for diversity and productivity of native plant communities in riparian zones.

Manage riparian vegetation to:

- Provide an amount and distribution of large woody debris characteristic of intact natural aquatic and riparian ecosystems;
- Provide adequate summer and winter thermal regulation within the riparian and aquatic zones; and,
- Help achieve rates of surface erosion, bank erosion, and channel migration characteristic of those under which the communities developed.

Manage habitat to support populations of well-distributed native plant, vertebrate, and invertebrate populations that contribute to the viability of riparian-dependent communities.

DECISIONS:

Priority Species

Where priority species are present, manage and monitor habitats to promote self-sustaining populations. Priority aquatic species are those species utilized for subsistence, designated as BLM sensitive, federally listed under the Endangered Species Act, and/or recreationally important species. Table 2.2, "Priority Fish Species in the Eastern Interior Planning Area" lists the current priority aquatic species that occur with the planning area. These species all occur in the White Mountains, Steese, and Upper Black River subunits. The Fortymile Subunit is not known to support anadromous fish.

Cooperate and coordinate with state agencies, federal agencies, Native organizations, and other groups to ensure efficient and effective program implementation toward conservation of native and desired, non-native aquatic species.

Table 2.2. Priority Fish Species in the Eastern Interior Planning Area

Common Name	Scientific Name	Priority Status
Chinook salmon (King)[A]	*Oncorhynchus tshawytscha*	Subsistence, recreation
Chum salmon[A]	*Oncorhynchus keta*	Subsistence, recreation
Coho salmon[A]	*Oncorhynchus kisutch*	Subsistence, recreation
Arctic grayling	*Thymallus arcticus*	Subsistence, recreation
Broad whitefish[AR]	*Coregonus nasus*	Subsistence
Humpback whitefish[AR]	*Coregonus pidschian*	Subsistence
Round whitefish [AR]	*Prosopium cylindraceum*	Subsistence
Whitefish (unidentified)[AR]	*Coregoninae*	Subsistence
Least cisco[AR]	*Coregonus sardinella*	Subsistence
Sheefish[AR]	*Stenodus leucichthys*	Subsistence, recreation
Northern pike	*Esox lucius*	Subsistence, recreation

Common Name	Scientific Name	Priority Status
Burbot	*Lota lota*	Subsistence, recreation
Alaska brook lamprey	*Lampetra alaskense*	BLM sensitive

[A]Anadromous fish species
[AR]Species that may be anadromous or resident species

Desired Future Conditions for Aquatic Species

Develop and implement appropriate management practices to maintain the following desired future conditions for aquatic species:

- Maintain habitats historically occupied by native aquatic species (fish, invertebrates, plants and other aquatic-associated species) to promote continued occupation.
- Develop and implement habitat management plans and strategies for special status fish and aquatic species that include specific habitat and population management objectives designed for conservation, as well as management strategies necessary to meet those objectives.
- Monitor spatial extents of habitat disturbances to ensure disturbances are less than the area occupied by priority species, in order to preserve population structure and life history strategies.
- Cooperate to ensure aquatic habitats are managed consistently with federal, state and Native fish population goals.

Priority Habitats

Identify and manage for priority habitats. Priority habitats are those habitats that support any life stages of priority aquatic species, which includes both resident and anadromous fish species. Due to the extensive amounts of aquatic habitat in the planning area considered priority habitats, the BLM identified the highest priority areas for aquatic species.

Approximately 363 watersheds in the planning area contain BLM-managed fisheries habitat (71 in the Steese Subunit, 136 in the Fortymile Subunit, 116 in the Upper Black River Subunit, and 40 in the White Mountains Subunit). An analytical approach was developed to categorize and evaluate watershed resource values. This process is described in Appendix I *Fisheries and Aquatic Resources*. In summary, the process categorized all watersheds containing BLM land as either Conservation or Restoration Watersheds based on watershed integrity and historic land use. Conservation Watersheds were those that have processes and functions that occur in a relatively undisturbed and natural landscape setting. Restoration Watersheds were those where biological and physical processes and functions do not reflect natural conditions because of past and long-term human-caused land disturbances. Within these categories, the watersheds were further evaluated to identify those with the highest aquatic habitat resource values using a ten factor rating system (Appendix I *Fisheries and Aquatic Resources*). The Conservation and Restoration Watersheds with the highest values were further categorized as Riparian Conservation Areas and High Priority Restoration Watersheds, respectively.

Identify high priority conservation watersheds as Riparian Conservation Areas (RCAs) and monitor these areas. These watersheds contain the highest fisheries and riparian resource values within the planning area. In these watersheds, riparian-dependent resources receive primary emphasis and management activities are subject to specific requirements described below under Watershed Management.

Develop and implement active restoration practices for High Priority Restoration Watersheds. High Priority Restoration Watersheds are identified as those watersheds with the highest resource values. High Priority Restoration Watersheds would generally require active restoration practices

to restore physical and biological integrity (High Condition Rating). It is assumed that Restoration Watersheds currently exhibit a Low to Moderate Condition Rating.

The RCAs and High Priority Restoration Watersheds are displayed on Maps 6, 7, 8, 9, 10, 11, 12, and 13, and described under the subunit specific decisions.

Desired Future Conditions for Aquatic Habitats

Identify desired future habitat conditions for fish and aquatic resources. The desired future conditions for aquatic habitats and species must consider an integrated suite of aquatic (including both abiotic and biotic components), riparian (including riparian-associated terrestrial species), and hydrologic (including uplands) conditions. It is desirable that most watersheds, generally should be in or making progress toward a High Condition Rating as described in Section I.3.1, "Watershed Condition Matrix" of Appendix I.

Utilize habitat metrics to help design appropriate management actions or mitigate proposed activities at the site-specific project level, in attempt to move watersheds toward a High Condition Rating. If certain metrics highlight a concern in a watershed, then analysis should disclose how proposed management actions would be designed to take into account the concerns, and/or when the proposed action would lead to achieving objectives. Metric criteria values are not absolute criteria, and are rated in regards to a functional condition or ecological/biological condition.

Desired Future Condition Metrics for Aquatic Habitats

Within all watersheds the desired condition is to provide aquatic habitat to support native vertebrate and invertebrate populations at natural levels. Stream channel conditions are stable and consistent with the surrounding landform and watershed.

Desired stream and riparian habitat conditions are listed below. Many of these values are interim goals based on professional judgment; however, future monitoring of reference aquatic systems would be integrated to refine desired condition targets based on the Adaptive Management and Implementation and Effectiveness Monitoring Processes (Section I.2.1, "Monitoring and Evaluation of the RMP"). The refined targets would be established based upon the upper percentile of values, and stratified by channel type and other factors; such as aspect and elevation.

1. Habitat Connectivity: Native fish species have access to historically occupied habitats.
2. Water Temperature: Cold Water Biota: Habitat complexity provides daily, seasonally, annually and spatially variable water temperatures within expected normal ranges. Consistent with Alaska Water Quality Standards (18 AAC 70) temperatures may not exceed 20 degrees C. at any time. The following maximum temperatures are not exceeded:
   - Migration routes 15 degrees C.
   - Spawning areas 13 degrees C.
   - Rearing areas 15 degrees C.
   - Egg and fry incubation 13 degrees C.
3. Turbidity: Stream stability levels facilitate balanced sediment aggradation and degradation within the watershed, thereby maintaining seasonally consistent turbidity levels. Turbidity levels would not exceed those outlined in the Alaska Water Quality Standards (18 AAC 70).
4. Pool Frequency: Pool frequency would approximate Rosgen (1996) estimates based on channel type.
5. Width to Depth Ratio: Less than or equal to 12:1 for confined channel types (Rosgen channel types A, E and G); less than 20:1 for moderately confined channel types (Rosgen channel type B); and less than 40:1 for unconfined channel types (Rosgen channel types C and F).

6. Channel Substrate Condition: Spawning gravel surface fines (<0.06 mm) in pool tails <5 percent (Bryce et al. 2008).
7. Large Woody Debris (applies to forested systems): Near-natural patterns in size and amount of in-channel, large woody debris and potential wood on stream banks and floodplain.
8. Streambank Stability: Streambank stability greater than 95 percent for A and B and E channel types; greater than 90 percent for C channel types within 80 percent of any stream reach. Streambank stability would be evaluated using the BLM Multiple Indicator Monitoring technique or other appropriate methodology.
9. Riparian and RCA Vegetation: Riparian and wetland areas in Proper Functioning Condition. Conditions reflect natural disturbances processes. Desired conditions generally mature to late seral community types as outlined in Winward 2000. Percent of riparian vegetation in the greenline dominated by late seral community types or anchored rocks/logs is greater than 80 percent (good-excellent ecological condition). Over 80 percent of the plant community type along the streambank provides high bank stability, deep fibrous roots, good resistance to streambank erosion or is comprised of anchored rocks/logs. The riparian vegetation provides adequate shade, large wood debris recruitment, and connectivity.

Management of Watersheds

These decisions apply to all watersheds and all subunits unless otherwise noted.

The BLM would provide and coordinate hydrologic data with the State to secure instream flows needed to maintain riparian resources, channel conditions, and aquatic habitats.

To achieve the goals, meet the Desired Future Conditions for aquatic habitats and species, and maintain a thriving natural ecological balance and multiple-use relationship; the SOPs in Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations* would be implemented on a project-specific basis.

Locate water removal sites to minimize impacts on priority species and avoid preventing attainment of desired conditions.

The BLM would utilize the watershed matrix to assist in site-specific project impact analysis (Appendix I *Fisheries and Aquatic Resources*) and mitigate impacts identified as potentially degrading to the watershed Condition Rating.

The following decisions apply to mining operations on all watersheds.

To avoid unnecessary and undue degradation of public land under notice level mining operations and mining operations requiring a plan of operations, the 43 CFR 3809.420(b)(3)(ii)(E) requires the rehabilitation of fisheries and wildlife habitat. The fisheries and wildlife habitat rehabilitation performance standard requires the operator to rehabilitate or repair damage caused to fisheries or wildlife habitat.

Further, 43 CFR 3809.420(a)(3) requires operations and post-mining land use to comply with the applicable BLM land use plans and activity plans, and with coastal zone management plans under 16 U.S.C. 1451, as appropriate. The following section outlines planning area and location-specific goals that need to be the focus of a fisheries rehabilitation plan submitted under 43 CFR 3809.301 and 3809.401 in order to meet the fisheries rehabilitation requirement under 43 CFR 3809.420(b)(3)(ii)(E).

For purposes of this plan, the rehabilitation of fisheries habitat is defined as providing aquatic and riparian habitat characteristics that will support fish such that the species and life stage composition and density that occurred prior to disturbance is reestablished. Given the complexity of fisheries habitat rehabilitation in Alaska, reclamation plans will include detailed descriptions of measures to achieve the following three objectives:

1. A stable channel form that is in balance with the surrounding landform such that channel features are maintained and the stream neither aggrades nor degrades. To achieve this the operator must design a post-mining stream channel using morphological characteristics of the pre-disturbance channel and floodplain (e.g., bankfull and floodprone dimension, meander pattern, design flows and velocity, riffle to pool ratio, substrate particle size). These characteristics could be derived from field surveys of the area, remotely sensed information, or information from adjacent watersheds that exhibit similar characteristics as the watershed proposed for mining. A key reference used on the national scale for alluvial channel design is The National Resources Conservation Service's *Stream Restoration Design, National Engineering Handbook, Part 654* (NRCS 2007 Chapter 9);
2. Sufficient riparian vegetation or anchored rocks/logs to effectively dissipate stream energy, prevent soil erosion, stabilize streambanks, provide essential nutrient input, and maintain water quality and floodplain function; and,
3. Provide instream habitat complexity similar to that of pre-disturbance levels by the use of instream structures (e.g., vortex rock weirs, cross-vane structures, installation of root wads).

By focusing on these three objectives, the probability of fisheries habitat rehabilitation success is increased. Typically, the operator would satisfy these requirements through the development of a site-specific reclamation plan. Bond release would be based on meeting specific measurable objectives outlined in a reclamation plan (43 CFR 3809.401(b)(3)).

Develop monitoring and associated reporting requirements as part of site-specific plans (i.e., Plan of Operation) to measure impacts and subsequent reclamation success levels. Use monitoring data to adaptively manage existing and future plans of operation to make measurable progress toward desired future conditions in subsequent years following reclamation.

Riparian Conservation Areas and ACEC Specific Requirements:

The management goal in RCAs and ACECs that meet the relevance and important criteria for fish and aquatic resources is to: maintain and provide stream channel integrity, ensure riparian proper functioning condition, and achieve desired future conditions for the high-value fish and aquatic resources, and yet allow for surface-disturbing activities.

To increase the likelihood of fisheries habitat rehabilitation within these watersheds, which represent the highest value fisheries resources within the planning area, additional baseline data pursuant to 43 CFR 3809.401 (c) (1) would be required. Within these areas baseline hydrological data that is adequate to characterize seasonal flow patterns and discharge would be required from the operator. The BLM would be available to advise operators on the exact type of baseline data and detail needed to meet this requirement. In addition reclamation requirements in site-specific reclamation plans, would be designed to result in rehabilitation of habitats within an accelerated time frame (e.g., less than five years). To achieve fisheries habitat rehabilitation within five years, rigorous revegetation and streambank stabilization techniques and a high level of monitoring and maintenance will be required.

High Priority Restoration Watersheds:

The goal is to manage High Priority Restoration Watersheds to restore physical and biological integrity (High Condition Rating). Within the planning area, federal funding (greater than one million dollars in Abandoned Mine Lands Funds) has been used for the Harrison Creek stream channel and floodplain restoration project.

To ensure that this project and any future restoration projects are not adversely impacted, the following would apply:

All surface-disturbing activities proposed within the same or upstream watersheds of ongoing or completed restoration projects must outline specific measures to adequately mitigate or minimize adverse impacts to the restoration project. This may be accomplished by providing a detailed plan of operations and a reclamation plan demonstrating the use of current best management practices.

Essential Fish Habitat (EFH) Management

BLM-authorized actions that may adversely affect EFH either directly or indirectly will be analyzed and coordinated with the National Marine Fisheries Service pursuant to 50 CFR § 600.905-930.

Incorporate additional conservation measures, recommended by the National Marine Fisheries Service in site-specific consultation, to minimize impacts to EFH.

Implement the measures outlined in Appendix G of the 2005 Alaska Essential Fish Habitat Environmental Impact Statement as appropriate (Section I.6, "Recommended Conservation Measures for Essential Fish Habitat").

2.6.2.4. Non-Native Invasive Species

GOAL:

Prevent the introduction and spread of noxious and non-native invasive species on and adjacent to BLM-managed lands.

DECISIONS:

Use integrated pest management (IPM) practices to control or eradicate noxious and non-native invasive species.

Within five years of signing the ROD or by management direction, develop a step-down Invasive Species Strategic Management Plan for the planning area to implement IPM practices, which may include cultural, biological, mechanical, manual, or chemical controls. The plan would incorporate early detection and rapid response efforts and, using the Alaska invasiveness risk ranking to prioritize treatments, include prevention practices. Prevention practices may include outreach and education, vehicle, boat, OHV, and aircraft cleaning protocols, and use of certified weed-free gravel and seed. Additional SOPs and Fluid Mineral Leasing Stipulations for land uses may be developed through the step-down plan.

Complete inventory and mapping for noxious and non-native invasive plants at disturbed sites within the Fortymile Subunit and along trails and WSR corridors within five years of signing the ROD or by management direction.

Conduct inventory for other non-native invasive species, including insects, pathogens, and other pests, as they are detected moving toward the planning area.

Monitor all inventory and control sites on a rotational basis (every two to three years depending on severity of infestations and treatment method).

Continue to support data management through the Alaska Exotic Plant Information Clearinghouse (AKEPIC) database and the BLM national database (National Invasive Species Management Information System).

Work with the Committee for Noxious and Invasive Plants Management in Alaska, the Alaska Department of Natural Resources, the Alaska Invasive Species Working Group and other agencies and groups to coordinate inventory, monitoring, prevention, and control of noxious and non-native invasive species within the planning area.

Adapt management of non-native invasive plants to address climate change and other management issues as new information becomes available.

Minimize the introduction and spread of noxious and non-native invasive plants through use of Alaska certified weed-free products for any action requiring stabilization, reclamation, restoration, or revegetation. When certified products are not available, use native seed and locally produced products.

Comply with the most current BLM Alaska Noxious Weeds and Invasive Species Management policy.

Employ measures outlined in the most current Alaska Aquatic Nuisance Species Management Plan (ADF&G 2002a) and the most current Interim Fire Operations Guidance to Prevent Spread of Aquatic Invasive Species (USFS 2011) to reduce the introduction and spread of Aquatic Nuisance Species.

2.6.2.5. Paleontological Resources

GOALS:

Manage, protect, and preserve paleontological resources using scientific principles and expertise to ensure that they are available for appropriate uses by present and future generations.

Ensure that proposed land uses initiated or authorized by BLM avoid or mitigate inadvertent disturbance to federal and non-federal paleontological resources.

Promote stewardship, conservation, and appreciation of paleontological resources through educational and outreach programs.

DECISIONS:

Require permits for individuals or institutions conducting paleontological investigations for vertebrate fossils and some rare invertebrates on public lands and ensure that fossils remain in federal custody.

Prior to projects that may result in extensive surface or sub-surface disturbance in areas likely to contain significant paleontological resources, conduct an inventory for paleontological

resources. At times, this may be done in conjunction with the inventory for cultural resources but supplemental paleontological expertise may be needed in other cases.

Comply with federal laws (National Environmental Policy Act; Federal Land Policy and Management Act; Paleontological Resources Preservation Act) and regulations for the preservation of paleontological resources by avoiding impacts to significant paleontological resources through project redesign, project abandonment, and/or mitigation of adverse impacts through scientific recovery and analysis.

Enable scientific use of paleontological resources by qualified non-BLM personnel for scientific research and public education. Allow the removal of significant paleontological resources by means of a BLM-issued permit, which requires that such resources remain the property of the United States and are preserved for the public in an approved repository.

Inventory public lands for paleontological resources. Maintain an inventory of paleontological sites and localities. Monitor paleontological sites in danger of alteration or destruction from natural- or human-made causes. Develop partnerships as feasible to achieve these ends.

2.6.2.6. Soil Resources

GOALS:

Ensure that watersheds are in (or are making significant progress toward) a properly functioning physical condition that includes their upland, riparian, wetland, and aquatic areas. The infiltration and permeability rates, moisture storage, and stability of upland soils are appropriate to the watershed's soil, climate, and landform (BLM 2004c).

- Protect the soil surface from erosion; avoid detention of overland flow; maintain infiltration and permeability consistent with the potential/capability of the site.
- Promote moisture storage by soil and plant conditions consistent with the potential/capability of the site.
- Hydrologic, vegetative, and erosion/depositional processes support physical functioning, consistent with the potential or capability of the site.
- Stream channel, lake bed, shoreline characteristics are appropriate for the landscape position.

Ensure that water and nutrient cycling and energy flow support healthy, productive, and diverse natural communities. Water and nutrient cycling and energy flow occur effectively to support healthy, productive, diverse communities at levels appropriate to the potential/capability of the site.

Minimize soil erosion and sedimentation associated with storm water discharge from disturbed sites, particularly where soils and overburden are stripped and stockpiled for an extended period of time.

DECISION:

Design all BLM-authorized surface-disturbing activities to reduce soil erosion and minimize impacts to soil profiles. Where permitted operations result in surface disturbance, return land to its pre-disturbance condition to the extent possible. SOPs (Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would be implemented to reduce soil impacts from surface-disturbing activities.

Where permitted surface disturbing operations result in a total land disturbance of equal to or greater than one acre an Alaska Pollutant Discharge Elimination System (APDES) permit for Storm Water discharge, will normally be required and would include developing and following a Storm Water Pollution Prevention Plan (SWPPP) to manage materials, equipment, and runoff from the site. Most construction, materials, and placer mine operations would be eligible for coverage under a construction or multi-sector industrial activity general permit.

- The Alaska Construction General Permit (ACGP) (AKR100000, Effective May 2011) authorizes storm water discharges from large and small construction activities that result in a total land disturbance of equal to or greater than one acre and where those discharges enter waters of the United States (U.S.). Construction operations must meet specific Best Management Practices (BMP) requirements and water quality standards for turbidity.

- The Multi-Sector General Permit for Storm Water Discharge associated with Industrial Activity (MSGP) (AKR060000, Effective April 2015) requires industrial facilities to implement control measures and develop site-specific storm water pollution prevention plans (SWPPP) to comply with APDES requirements and meet water quality standards for turbidity. Requirements in Subpart G apply to storm water discharges associated with industrial activity from Metal Mining facilities, including mines abandoned on federal lands. Coverage is required for metal mining facilities that discharge storm water contaminated by contact with, or that has come into contact with, any overburden, raw material, intermediate product, finished product, by-product, or waste product located on the site of the operation.

  It is anticipated that most materials sites and placer mining operations will need MSGP coverage to address storm water discharge from their industrial activities. Permit coverage is required from the commencement of surface disturbing activities until final stabilization.

2.6.2.7. Special Status Species

GOALS:

Manage animal and plant resources and habitats consistent with the conservation needs of Special Status Species (BLM Manual 6840) in a manner that will not contribute to the need to list any species under the Endangered Species Act and to ensure progress towards recovery of any listed threatened or endangered species.

Manage BLM Alaska sensitive species habitats so that actions do not contribute to species decline or contribute to federal listing.

Prevent damage from proposed land uses to habitats supporting Special Status Species.

Identify, conserve, and monitor Special Status Species and habitats to ensure that self-sustaining populations of these species continue to persist in the planning area (i.e., without the need for population supplementation or habitat restoration efforts). Ensure that habitats support healthy, productive, and diverse populations and communities of native plants and animals.

DECISIONS:

Develop a Special Status Species management plan in cooperation with ADF&G. This plan would determine inventory and monitoring needs, priorities and methods, and recommend management

actions necessary to conserve these species. Increased inventory may lead to removal of some species from the Special Status Species list.

Develop and implement appropriate site-specific and programmatic management practices to avoid or minimize adverse impacts to sensitive species and their habitats.

If impacts to Special Status Species (populations and habitats) cannot be avoided, the applicant (or the BLM for internal actions) will develop mitigation measures to reduce impacts.

Require the project proponents to complete surveys for Special Status Species when it is determined that the project will impact or could possibly impact potential habitat. The mitigation hierarchy will be implemented if Special Status Species are found during inventories.

Where sensitive status plant species are located, implement measures to protect these populations or individuals through site-specific buffers or management prescriptions, such prohibiting surface occupancy or ground disturbance in occupied habitats, where appropriate. Site new roads and trails away from sensitive plant populations and minimize summer cross-country OHV travel where sensitive plants are located.

Monitor BLM sensitive plant species populations. Where disturbance to individuals or habitat is documented, remove the source of the disturbance to a location that avoids continued damage or implement mitigation to reduce the damage.

Cooperate with partners in inventory and monitoring of rare plant and animal species to improve the knowledge of statewide abundance, distribution, and trends of sensitive species and the development of management strategies at a regional scale.

Where it is found that Special Status Species habitat is likely to be negatively affected by use (i.e., such use is likely to result in a significant local or regional decline in species distribution, abundance, or productivity), such uses would be redirected to other locations, or other mitigation actions that will be effective in preventing local population impacts will be implemented in accordance with BLM 6840 Manual.

Ensure reclamation and restoration plan objectives incorporate the needs of Special Status Species where habitat potential exists.

In restoration watersheds, improve habitats for Special Status Species, particularly riparian and wetland habitats, or other habitats that may support multiple Special Status Species.

2.6.2.8. Vegetative Communities

GOALS:

Ensure that watersheds (including their upland, riparian, wetland, and aquatic areas) are making significant progress toward or are in proper functioning condition.

Ensure that water and nutrient cycling, and energy flow support healthy, productive, and diverse natural communities.

Ensure that habitats support healthy, productive, and diverse populations and communities of native plants and animals.

In disturbed areas, rapidly re-establish native plant communities, with locally adapted plants. (Recognizing that temporary establishment of non-native plants may occasionally be necessary to stabilize sites, control erosion, or facilitate eventual establishment of native plants).

DESIRED OUTCOME:

Maintain the current nature of the vegetation in the planning area which has a natural diversity of species, communities, and seral stages largely undisturbed, except by natural forces.

DECISIONS:

Manage wildland fire to achieve natural fire regimes and ecosystem processes dependent upon fire. Use prescribed fire in select areas to improve wildlife habitat.

In response to shifting fire regimes resulting from climate change, fire management may be implemented to achieve wildlife habitat objectives (e.g., meeting habitat needs for subsistence species) or to facilitate ecosystem adaptation to climate change (e.g., addressing spread of invasive plants).

All firelines would be rehabilitated and closed to OHV use to facilitate revegetation. Rehabilitate firelines by spreading original soil and vegetation on the disturbed ground, except in specific circumstances where seeding or planting may be necessary. Protect vegetation from damage caused by summer OHV use. In specific circumstances where firelines are routed and constructed so that they meet pre-determined travel management needs and maintain resource values, the AO may determine that an exception is appropriate and retain suitable firelines as OHV or snowmobile routes. Fire lines built on existing roads or OHV trails will be returned to conditions suitable for original use.

Manage lichen-rich plant communities as high value habitats due to the slow growth potential of lichen and its great importance to caribou.

When developing travel management plans, minimize impacts through appropriate restrictions on cross-country OHV use. Monitor vegetation for impacts that may be caused by OHVs.

Reduce disturbance of vegetation by minimizing footprint of surface-disturbing activities, consolidating access to minimize the number of routes, and requiring prompt reclamation and revegetation.

Avoid disturbance of the vegetative mat unless it is not feasible to do so. Plans for revegetation of surface disturbances will be addressed during authorization of an action (as outlined in SOP Veg-1).

Utilize and encourage natural revegetation of disturbed sites as the generally preferred method of revegetation (in situations where this is adequate to prevent erosion and will result in rapid establishment of plant cover). In some circumstances, however some combination of seeding, planting, and transplanting of adult plants or vegetation mats, or fertilizing may be necessary. Native species would be utilized whenever possible if seeding or planting is necessary. Temporary establishment of non-native plants may occasionally be approved by the Authorized officer when it is determined to be necessary to stabilize sites, control erosion, or facilitate eventual establishment of native plants. Vegetation treatment and revegetation requirements are described in SOP Veg-1 in Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*).

Manage riparian and wetland areas to achieve proper functioning condition (PFC), or if not at PFC, to enhance condition rating. Management strategies to achieve PFC are described in section 2.6.2.3.

Inventory vegetation community composition across the planning area and monitor changes related to climate and fire regime (size, frequency, and severity).

In addition to mapping of fire perimeters, map unburned inclusions within fire perimeters and fire severity on fires 1,000 acres or greater using Monitoring Trends in Burn Severity (MTBS) standards established by U.S. Geological Service (USGS) and U.S. Forest Service, or similar interagency standards. .

Monitor the area of surface disturbance and areas effectively reclaimed, allowing an estimate of cumulative un-reclaimed surface disturbance.

Map priority habitats and plant communities to facilitate conservation planning and the mitigation of impacts to priority habitats and plant communities.

Conduct watershed assessments as outlined in section 2.6.2.3 Fish and Aquatic Species.

In areas of potentially sensitive habitats, prepare and utilize ecological mapping to identify unique, rare, or high-value plant species, communities, and habitats and to allow development of mitigation.

Priority Plant Species and Communities

The priority plant communities listed below constitute a small proportion of the planning area, yet support a number and variety of plant and animal species and ecosystem processes.

- Aspen/steppe bluffs (most often occurring as river bluffs)
- Riparian communities
- Wetlands (with a focus on wetlands other than the widespread mesic black spruce and tussock and shrub tussock vegetation types)
- Tall shrub communities
- Sparsely plant covered calcareous substrate (e.g., limestone)
- Lichen-rich habitats

Priority plant species would be plants on the BLM Alaska Sensitive Species and BLM Alaska Watch lists.

2.6.2.9. Visual Resources

GOAL:

Maintain and manage visual resource values in accordance with Visual Resource Management (VRM) Classes.

DECISIONS:

Designate all BLM-managed lands into one of the following VRM Classes; VRM Class allocations are described under each subunit:

VRM Class I: Preservation of the landscape is the primary management goal. This class provides for natural ecological changes; it does not, however, preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

VRM Class II: The objective of this class is to retain the existing character of the landscape. Activities or modifications of the environment should not be evident or attract the attention of the casual observer. Changes should repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape.

VRM Class III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not detract from the existing landscape.

VRM Class IV: The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. Changes may attract attention and be dominant landscape features, but should reflect the basic elements of the existing landscape. Class IV rating is generally reserved for areas where the visual intrusions dominate the view shed but are in character with the landscape.

2.6.2.10. Water Resources

The BLM's role in water resource management includes ensuring that BLM activities, programs, and projects comply with applicable state and federal laws and regulations and that BLM-authorized activities comply with conditions and stipulations in leases and permits. Surface and ground water of sufficient quality and quantity, is integral to the successful management of the public lands managed by the BLM. The water program leads efforts to assess and restore water quality conditions, assess and restore channel and floodplain conditions, and acquire and monitor instream flow water rights. This work is accomplished through interagency coordination, participation in state implementation plan development and processes, collecting and acquiring data, modeling water resource impacts, monitoring changes in water resource conditions, performing environmental impact analyses as required by NEPA, and implementing adaptive management practices as outlined in BLM Handbook H-1601-1.

GOALS:

Watersheds: Watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian, wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and timing and duration of flow.

Water Quality: Protect, restore, and maintain the natural chemical, physical, and biological quality of surface and ground waters, wetlands, and floodplains influenced by BLM resource management activities. Ensure full compliance with applicable federal and state laws and executive orders.

Water Quantity: Protect, restore, and maintain the natural flow regime, water levels, and integrity of surface and ground waters influenced by BLM resource management activities.

Water Rights: Ensure availability of surface and ground water for public land management purposes by acquiring and protecting federal reserved water rights and water rights obtained

through state-based administrative and judicial systems. Ensure full compliance with applicable federal and state laws.

Wild and Scenic Rivers: Each Wild and Scenic River component will be managed to protect and enhance the values for which the river was designated with protection of water quality and quantity as a principal goal.

Science-based Adaptive Management: Coordinate, cooperate, and consult with federal, tribal, state, and local agencies, private landowners, and stakeholder organizations in order to foster a unified, science-based adaptive management approach to water resource management.

Assessment and Monitoring: Provide a unified framework for BLM's science-based watershed approach to management of natural and developed water systems consistent with federal and state water quality and quantity assessment methods, including monitoring, sampling, and reporting protocols.

DECISIONS:

Ensure BLM activities, programs, and projects comply with all applicable federal, State, Tribal, and local water quality, wetland, and floodplain laws, statutes, regulations, standards, and state implementation plans, consistent with executive orders, the Clean Water Act and FLPMA.

Develop regional scale water quantity and water quality monitoring strategies in cooperation with other federal and State agencies consistent with science-based adaptive management. Focus management on entire watersheds using an ecosystem approach involving all interested landowners and affected parties when feasible.

Compile summary reports on a rotational basis (every three or four years, or more frequently as necessary) for inventory and monitoring data collected to support WSR instream flow water rights and water quality.

Consistent with the Antidegradation Policy in the Alaska Water Quality Standards (18 AAC 70.015) all segments designated as Wild or Scenic of Birch Creek, Beaver Creek, and the Fortymile River National Wild and Scenic Rivers, are nominated as Tier 3 waters, also referred to as Outstanding National Resource Waters (ONRW). See 18 AAC 70.015(a)(3).

Where permitted surface disturbing operations result in a total land disturbance of equal to or greater than one acre an Alaska Pollutant Discharge Elimination System (APDES) permit for Storm Water discharge, will normally be required and would include developing and following a Storm Water Pollution Prevention Plan (SWPPP) to manage materials, equipment, and runoff from the site. Most construction, materials, and placer mine operations would likely be eligible for coverage under the Alaska Construction General Permit (ACGP) (AKR100000, Effective May 2011) or the Multi-Sector General Permit for Storm Water Discharge associated with Industrial Activity (MSGP) (AKR060000, Effective April 2015). Permit coverage would be required from the commencement of surface disturbing activities until final stabilization.

Within five years of signing the ROD, or by management direction, undertake development of step-down Watershed Management Plans (WMPs) for high-value streams in each subunit. Watershed planning helps address water quality problems in a holistic manner by fully assessing the potential contributing causes and sources of pollution including uplands, then prioritizing restoration and protection strategies to address these problems. The main watersheds in each subunit vary widely in physical, chemical, and biological characteristics, resource conditions, and

local use impacts. Therefore, the objectives and management designed for an area shall be tailored to the conditions, conflicts, capability and improvement potential, and land use considerations on a watershed-specific basis. Site specific soil and water management determinations (e.g., watershed, floodplain-wetland, or riparian rehabilitation techniques, monitoring techniques and schedule, and the design and placement of improvements) will be developed in the interdisciplinary Watershed Management Planning phase for resource programs. The "Watershed Assessment Matrix" (Table I.1), depicting range of desired conditions for aquatic habitats would be incorporated in the Watershed Management Plans as well as other science-based watershed assessment tools. Relevant new science and new empirical water resource data would also be incorporated in the WMPs. Additional SOPs and Fluid Mineral Leasing Stipulations for land uses may be developed through the step-down WMPs.

Systematically inventory, model, analyze, and monitor water resources on an established schedule in order to evaluate conditions and trends and their potential impacts on and from BLM-authorized activities consistent with science-based adaptive management principles.

Prioritization of disturbed stream sites for rehabilitation, stabilization, and restoration would be based upon an interdisciplinary team site assessment and other BLM land or resource use considerations. Consider the extent to which the site may deteriorate if restoration or improvement action is not immediately implemented. Areas that may suffer further degradation and have potential for improvement should be given top priority. Those that have been degraded but appear stable may be given lower priority for restoration and improvement. Other factors, such as special status species, water quality, competing water uses, fisheries, and recreation values should also be considered when establishing priorities.

The BLM will utilize available USFWS National Wetlands Inventory (NWI) database and maps in determining wetland classification for a particular site. Where published (NWI) maps are not available other federal or State wetland maps will be utilized. Where federal or State maps are not available BLM or other agency personnel with wetland expertise will use published federal guidance to determine wetland classification.

Procedures for implementing Executive Order 11988, Floodplain Management are set forth as an 8-step decision-making process outlined in Part II of the 1978 Water Resources Council Guidelines. When an action is proposed in a floodplain, the 8-step procedural process will be addressed and integrated in developing land use authorizations.

2.6.2.11. Wilderness Characteristics

GOAL: In areas identified for minimization of impacts to wilderness characteristics, retain wilderness characteristics including naturalness, solitude, and outstanding opportunities for primitive and unconfined recreation to the extent possible while allowing for other multiple use activities.

DECISIONS:

For all action alternatives, the following activities, uses, and decisions could occur in areas identified as lands where wilderness characteristic would be maintained. Allowable activities are not limited to activities and uses listed below. The listed activities are those protected under ANILCA.

- Snowmobile travel with adequate snow cover

- Motorboat use
- Airplane use, including primitive, unimproved landing areas
- Temporary structures and equipment placement related to hunting, fishing, and trapping
- Public use cabins and other small facilities for visitor safety and recreational use
- Limited OHV use
- Access for subsistence use and commercial activities including rights-of-way or other types of permits

RATIONALE: Through a wilderness characteristics inventory, the Eastern Interior Field Office determined that 99 percent of BLM lands in the planning area (over 6.4 million acres) have wilderness characteristics (Appendix F). Under BLM Manual 6320, the BLM can manage areas to emphasize other resource values and multiple uses while applying management restrictions to protect wilderness characteristics. Management for other resource drivers such as recreation, wild and scenic rivers, fish, and wildlife are complementary to maintaining wilderness characteristics.

BLM Manual 6320 outlines several outcomes of considering wilderness characteristics in the land use planning process, including, but not limited to: (1) emphasizing other multiple uses as a priority over protecting wilderness characteristics; (2) emphasizing other multiple uses while applying management restrictions (conditions of use, mitigation measures) to reduce impacts to wilderness characteristics; (3) the protection of wilderness characteristics as a priority over other multiple uses. Alternatives in the plan consider outcomes (1) and (2). Under (1) wilderness characteristics will not be considered during site specific NEPA analysis and project permitting, and no measures will be applied specifically to reduce impacts to wilderness characteristics, although mitigation for other resources may have the effect of reducing impacts to wilderness characteristics. For example requiring site reclamation and revegetation to reduce erosion would contribute to maintaining naturalness of the site. Under (2) wilderness characteristics will be considered during site specific NEPA analysis and project permitting. Measures will be applied to reduce impacts to size, naturalness, opportunities for solitude, and outstanding opportunities for primitive and unconfined recreation. The impacts to wilderness characteristics will be analyzed in the associated NEPA document.

ANILCA allows certain uses in Wilderness areas in Alaska. Since these uses are allowed in designated Wilderness, these uses could also occur on lands with wilderness characteristics while still maintaining those characteristics. In the planning area, maintaining wilderness characteristics is consistent with ANILCA-protected uses and facilities, including: snowmobile and motorboat use; other means of surface transportation traditionally employed for subsistence purposes; airplane landings; temporary structures related to hunting, fishing and trapping; and public use cabins (ANILCA sections 811, 1110, 1315(d), and 1316(a)).

2.6.2.12. Wildland Fire Ecology and Management

GOALS:

Protection of human life is the single overriding priority. Other priorities are based on the values to be protected, human health and safety, and the costs of protection.

Respond to all wildfires, with an emphasis on firefighter and public safety, and ensure that costs are commensurate with the values to be protected.

Use wildland fire, and other treatments to maintain or restore ecological systems and to meet land use and resource management objectives.

Prevent human caused wildfires.

Reduce risk and costs of wildfire by managing wild fires to meet resource objectives and implementation of fuels management projects.

Reduce adverse effects of wildland fire management activities.

DECISIONS:

Cooperate and collaborate with other federal, state, and Native land managers, and with other suppression organizations to address issues and concerns related to wildland fire management in Alaska and to implement operational decisions. Implement the most current fire management plan.

Apply four wildland fire management suppression options: Critical, Full, Modified, and Limited. Management options are ecologically and fiscally sound, operationally feasible, and sufficiently flexible to respond to changes in fire conditions, land use patterns, resource information, new technologies, and new scientific findings. Throughout the planning area, fire may be managed for multiple objectives. These options will be revisited by the field office annually and changed as needed to ensure the most effective initial response from the protection agency. Option changes will be documented on the official map atlases maintained by the Alaska Interagency Coordination Center and the respective Protection Zone/Area.

Common indicators for changing fire management options include:

- A value to protect appears on the landscape (i.e. new neighborhood, structures is determined to have historic value, critical caribou habitat mapping); a value to protect disappears from the landscape.
- A non-standard response was required for a wildfire the year previous and justifies the need for a change in that area.
- A fire or other disturbance changes the fuel structure.
- Another agency proposes an inter-agency change involving BLM for the previously described reasons.

The designation of a management option pre-selects strategies to accomplish established land use and resource objectives. Management options, objectives, wildland fire response and acres are listed in Table 2.3, "Wildland Fire Management Options in the Eastern Interior Planning Area" and displayed on Map 14.

Implement the Standard Operating Procedures listed in Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations* during wildland fire management activities.

Table 2.3. Wildland Fire Management Options in the Eastern Interior Planning Area

Management Options	Critical	Full	Modified	Limited
BLM Acres	5,000 acres	45,000 acres	168,000 acres	6,304,000 acres
Objectives	Protect and Preserve	Protect and Preserve	Moderate fire effects and Balance acres and costs	Manage for a natural fire regime
Initial Fire Response	Aggressive and continued actions to protect the area from fire without compromising firefighter safety.	Aggressive action to minimize resource damage and suppress the fires at the smallest reasonably possible number of acres.	Initial attack with intent to contain the fire when resources are available. If resources are not available, allow fire to function in its natural ecological role. Actions will be taken to protect site-specific values or adjacent higher priority management areas.	Allow fire to function in its natural ecological role. Actions will be taken to protect site-specific values or adjacent higher priority management areas.

In addition to these wildland fire management options, some actions will be taken to protect specific sites that have been identified for special fire management protection. Site-specific actions may be taken to protect structures, cultural and paleontological sites, small areas of high resource value, and threatened and endangered species habitat to give suppression agencies more specific guidance for small sites.

Monitor vegetative communities for cumulative effects of wildland fire, suppression activities, and effects of excluding fire.

The desired future condition for BLM-managed lands is to be in Fire Regime Condition Class 1, which represents landscapes still within the natural historical range of variation in fire regime.

In response to shifting fire regimes resulting from climate change, fire management may be implemented to achieve wildlife habitat objectives (e.g., meeting habitat needs for subsistence species) or to facilitate ecosystem adaptation to climate change (e.g., addressing spread of invasive plants).

Fuels management activities assist in achieving the objectives stated for wildland fire management options. Prescribed burning, mechanical and manual treatments may also be used. Projects may be implemented in support of scientific research and in cooperation with BLM cooperators and partners.

Fuels treatments are prioritized to:

1. Reduce the risk to human life and inhabited property. Highest priority for fuel treatments would be those communities surrounded by hazardous fuels.
2. Reduce the risk and cost of wildland fire suppression in areas of hazardous fuels buildup.
3. Achieve other resource objectives such as habitat needs.
4. Achieve desired future condition of Fire Regime Condition Class 1.

2.6.2.13. Wildlife

GOALS:

Maintain natural ecosystem functions and the quality and quantity of habitat to support healthy populations of wildlife.

In cooperation with ADF&G, monitor wildlife populations and habitats and manage BLM lands to conserve and enhance fish and wildlife populations. Ensure optimum, self-sustaining populations and a natural abundance and diversity of wildlife resources.

Maintain and protect subsistence resources and opportunities. Determine how management actions, guidelines, and allowable uses prescribed in response to the other issues will affect subsistence opportunities and resources. Monitor populations and habitats to ensure opportunities for subsistence harvest of wildlife.

Minimize impacts to wildlife species and their habitats from BLM-authorized activities on BLM-managed lands.

Protect habitats important to wildlife population maintenance by the avoidance of possible adverse effects of land use activities, through mitigation and by reserving specific areas from certain land use activities.

Maintain a diversity and abundance of wildlife habitat that will provide resilience in adaptation to changing climate.

Ensure opportunities for wildlife viewing, fishing, hunting, and trapping.

Locate trails and recreational development to avoid conflicts with important and priority wildlife habitat and environmentally sensitive areas.

Maintain and restore riparian and wetland areas so that they provide habitat diversity and healthy riparian and aquatic conditions for riparian and wetland dependent species and other wildlife species.

DECISIONS:

Manage habitat for migratory birds to emphasize avoidance or minimization of negative impacts, and to restore and enhance habitat quality pursuant to Executive Order 13186, Migratory Bird Treaty Act, and Memorandum of Understanding between BLM and USFWS to Promote Conservation of Migratory Birds (2010). Bird Species of Concern are listed in Table 3.17, "Bird Species of Conservation Concern in the Eastern Interior Planning Area" and include: USFWS Bird Species of Conservation Concern , BLM Alaska Sensitive Species, Featured Species in the Alaska State Wildlife Conservation Strategy, and Boreal Partners in Flight Priority Species. Habitats that support several of these species, (including riparian and wetland habitats) would be given priority consideration in efforts to minimize impacts and restore habitat quality.

Minimize impacts to known nesting sites of priority raptors from actions authorized by the BLM. Priority raptor species are peregrine falcon, gyrfalcon, bald eagle and golden eagle. Specific SOPs applicable to priority raptor habitats are listed in Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*. All priority raptor SOPs may be modified based on project-specific analyses. Nest sites of other raptors would be similarly managed, although management would generally be less restrictive and would be determined in site-specific environmental analyses.

Employ industry-accepted best management practices to prevent raptors and other birds from colliding with or being electrocuted by utility lines, alternative energy structures, towers, and poles (Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*).

Maintain health of Dall sheep by maintaining effective separation (WAFWA 2012) between Dall Sheep and domestic animals that pose a risk to Dall sheep health, including sheep, goats, llamas, alpacas, and other camelids. Prohibit the use of domestic goats, sheep, alpacas, llamas, and other similar species in conjunction with BLM-authorized activities occurring in Dall sheep habitat. Educate the public about the disease risks of using these pack animals within Dall sheep habitat.

Protect important wildlife habitats through special restrictions where necessary, including yearlong or seasonal activity restrictions and minimum altitudes for aircraft use (Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*).

Avoid or minimize impacts from projects that could degrade riparian areas and promote restoration of riparian areas to achieve Proper Functioning Condition.

Develop a caribou habitat management plan for the historical range of the Fortymile caribou herd. In cooperation with other land managers and ADF&G, utilize a combination of on-the-ground inventory and remote sensing of caribou habitat, along with caribou habitat use and distribution data, to develop the plan.

Inventory and monitor caribou range (forage) conditions in the Steese National Conservation Area in cooperation with other land and wildlife managers. These efforts would include analyses of the impacts of climate change on fire regimes and caribou forage, and recommendations for management of Fortymile caribou herd habitats.

Priority Wildlife Species and Habitats

Inventory and monitor priority wildlife species and their habitats within the planning area. Species listed in Table 2.4, "Priority Wildlife Species and Habitats in the Eastern Interior Planning Area" and Bird Species of Concern (Table 3.17) would be a conservation priority in the planning area.

Monitor populations of priority and subsistence wildlife species in cooperation with ADF&G and USFWS. Identify important habitats for priority species and monitor changes. Work towards development of adaptive management plans that will identify levels of change at which management actions will be implemented. Other important species and habitats include denning and seasonal high use areas for bears and furbearers, nesting habitats for other raptors, waterfowl, and shorebirds, and winter concentration areas for small game. .

Table 2.4. Priority Wildlife Species and Habitats in the Eastern Interior Planning Area

Priority Species, All Subunits	Priority Seasonal Habitats (with higher priority habitats listed towards left)				
Caribou	Calving/ Post-calving (including mineral licks)	Summer (including insect-relief habitat)	Migration/ Movement routes	Pre-calving	Fall/Winter
Dall sheep	Mineral licks (summer)	Lambing	Movement Routes	Summer	Winter
Moose	Calving	Mineral licks	Late winter	Rutting	Riparian and willow shrub habitats

Priority Species, All Subunits	Priority Seasonal Habitats (with higher priority habitats listed towards left)				
Peregrine falcon, gyrfalcon, bald eagle, golden eagle	Nesting	Prey gathering			
All Special Status Species – See Appendix K					
Additional Priority Species for Black River Subunit only: Marten and lynx					

2.6.3. Resource Uses

2.6.3.1. Forest and Woodland Products

GOALS:

Maintain and restore the health, productivity, and biological diversity of forest and woodland ecosystems.

Consistent with other resource values, provide personal use of wood and special forest products for local consumption and opportunities for commercial harvest.

DECISIONS:

Allow harvest of dead or downed wood for recreational uses, including camping on all BLM-managed lands throughout the planning area.

Allow harvest of forest products for personal use on all BLM-managed lands throughout the planning area.

Areas where commercial timber harvest is authorized is described for the subunits. In addition to requirements outlined in the SOPs (Section A.2, "Standard Operating Procedures Considered in the Draft RMP"), consider the following limitations in areas where timber harvest is authorized.

- Require winter harvest to minimize disturbances to soils and ground vegetation.
- Disperse slash generated from timber harvest activities.
- Set a maximum stump height for harvested trees.

2.6.3.2. Land Tenure

GOALS:

Retain public lands with high resource values. Adjust land to consolidate public land holdings, acquire lands with high public resource values, and meet public and community needs.

Acquire and maintain access to public lands, where needed, to improve management efficiency and facilitate multiple use and the public's enjoyment of these lands in coordination with other federal agencies, state and local governments, and private landowners.

DECISIONS:

Those lands to be retained, acquired, or disposed of are identified as Zone 1, 2, or 3, in Appendix G, *Land Tenure and Withdrawals*. Zone 1 lands are displayed on Maps 99 and 100. These decisions have no effect on the ongoing land conveyance process or valid selections.

Lands in Zone 1 would be retained under BLM management. Inholdings would be considered for acquisition on a willing seller basis.

Lands in Zone 2 would generally be retained, but would be available for acquisition or disposal, whichever is appropriate to enhance public resource values, improve management capabilities, or reduce the potential for land use conflict.

Lands in Zone 3 would be made available for disposal. If needed, modify existing public land orders to allow for disposal.

Lands currently in Zones 2 and 3 would be reassigned to Zone 1 if they are included in future designations of critical habitat under the Endangered Species Act by the USFWS.

RATIONALE: With the ongoing conveyance of State- and Native-selections, the final land status in the planning area is uncertain. Once the conveyances are complete and the entitlements are fulfilled, there may be scattered parcels of BLM-managed lands that are impractical or uneconomical to manage. The zoning method described above would provide the flexibility to either dispose of or acquire land for the purposes of blocking up land patterns and reducing the number of scattered parcels of BLM-managed lands.

There are many "orphan" federal mining claims within the planning area that are surrounded by large blocks of State land. Most if not all, are State-selected lands for conveyance [2]. If these claims become null and void after the State's entitlement is fulfilled (the BLM would not be able to convey additional land to the State) or if the State declines to take a parcel, the claims would meet BLM's disposal criteria of being impractical or uneconomical to manage.

Land Disposals

Several authorities to dispose of lands in Zones 2 and 3 would be used as described below:

FLPMA Sales: Public lands located in Zones 2 or Zone 3 that meet one or more of the following criteria may be disposed of by FLPMA Sales (43 CFR 2710.0–3):

1. A tract acquired for a specific purpose that is no longer required for that or any other federal purpose.
2. A tract whose disposal would serve important public objectives, such as expansion of communities and economic development, that cannot be prudently or feasibly achieved on other than public lands, and that outweighs other public objectives and values. Examples of those other public objectives and values, which would normally be used as justification to maintain such a tract in federal management, include (but are not limited) to recreation and scenic values.
3. A tract of land which, because of its location or other characteristics, is difficult and uneconomical to manage as part of the public lands, and is not suitable for management by another federal department or agency.

Note: Lands identified for disposal under this authority that are State- or Native-selected would have to be adjudicated before the BLM would entertain a sale. If these lands become unencumbered during the life of the plan, they would then be suitable for disposal under this authority and have been properly identified through the planning process.

[2]Land under valid federal claims cannot be conveyed.

Lands not to be disposed of, include:

1. Lands withdrawn from the public land laws or segregated by State- or Native-selection. Disposal can occur once the segregation is removed or if the withdrawal is modified or revoked.

2. Lands located within valid mining claims or that are of record under Section 314 of FLPMA would not be disposed of unless BLM policy is changed in the future to allow for their disposal. Lands with federal mining claims that become null and void may be disposed of.

3. Lands identified as land tenure Zone 1.

Reserved federal interests in split-estate lands anywhere in the planning area may be considered for conveyance out of federal management.

Recreation and Public Purposes Act (R&PP) (43 U.S.C. 869 et seq.): R&PP disposal would be considered on Zone 2 and 3 lands throughout the planning area in accordance with the following:

1. Lands identified for disposal under the Recreation and Public Purposes Act (R&PP) that are selected by either the State of Alaska or a Native corporation would have to be fully adjudicated before the BLM would entertain a sale. If these lands become unencumbered within the life of the plan, then they would be suitable for disposal under this authority.

2. In most instances, the BLM would first lease lands under this Act and only convey the lands after the project is constructed in compliance with an approved development and management plan. Tracts proposed as sanitary landfills would always be sold; they would not be leased.

3. Any lands conveyed under this act which are being used for solid waste disposal (sanitary landfill) or for any other purpose that the Authorized Officer determines may include the disposal, placement, or release of any hazardous substance (such as wastewater treatment facility, shooting range, firefighter training facility) would be conveyed with a limited reversion clause. The limited reversion clause will prohibit reversion to the federal government of any portion of the land if such portion has been used for solid waste disposal or for any other purpose that the Authorized Officer determines may include the disposal, placement, or release of any hazardous substance. With regard to such sites all provisions of 43 CFR 2743 shall be followed.

Airport and Airway Improvement Act of September 3, 1982 (49 U.S.C. 2215): The BLM would process airport conveyances as requested by the FAA. Each conveyance will contain appropriate covenants and reservation(s) requested by FAA. As a condition to each conveyance, the property interest conveyed will revert to the federal government in the event the lands are not developed for airport or airway purposes or are used in a manner inconsistent with the terms of the conveyance.

Exchanges: The BLM would consider mutually benefiting public interest land exchanges. Exchanges are authorized in Alaska by FLPMA (43 U.S.C. 1716), Section 22(f) of ANCSA, and Section 402(b) of ANILCA. When considering public interest, full consideration will be given to efficient management of public lands and to securing resource management objectives. Exchanges would not be actively sought out until State and Native entitlements are fulfilled.

Land Acquisitions

When and where appropriate, lands may be acquired by purchase, exchange, or donation, from willing owners/sellers, to further the programs of the Secretary of the Interior. The BLM may acquire less than fee title to property if management goals can be achieved by doing so (43 CFR 2100 and BLM Acquisition Handbook H-2100-1). Acquisition of a conservation easement is an example of acquiring less than fee title.

Consider acquisition of land from willing sellers in Zone 1 areas (inholdings) and in Zone 2 areas for consolidation of land patterns (Maps 99 and 100). Specific acquisition needs are identified under each subunit.

2.6.3.3. Land Use Authorizations

GOALS:

Meet public needs for land use authorizations (such as rights-of-way, leases, and permits) while minimizing adverse impacts to other resource values.

Prevent, control, and eliminate unauthorized use (trespass) on BLM-managed lands.

DECISIONS:

Leases

Allow FLPMA leases throughout the planning area, except where prohibited by law or public land order.

All FLPMA leases would be at fair market value. Cabins or permanent structures used for private recreation may not be authorized. Proposals for commercial use leases of cabins (such as guiding or trapping) would be considered.

R&PP leases would not be used for the purpose of authorizing solid waste disposal sites (sanitary landfills) or for any other purpose that the Authorized Officer determines may include the disposal, placement, or release of any hazardous substance (such as wastewater treatment facility, shooting range, firefighter training facility). Existing leases for solid waste disposal sites or other uses which the Authorized Officer determines may include the disposal, placement, or release of any hazardous substance should be converted to patents without a reversionary clause. R&PP lease proposals on selected land must include a letter of non-objection from the selecting entity. R&PP leases and disposal would be considered on Zone 2 and 3 lands.

Permits

Permits are used to authorize short-term occupancy, use, or development of a site under Section 302 of FLPMA (43 CFR 2920) or under ANILCA. Land use permits would be considered throughout the planning area with the following limitations:

1. Cabin or permanent structure permits are not issued for private recreation uses.

2. Cabins and other structures for commercial trapping would be authorized by short term (three year maximum) Section 302 permits renewable at the discretion of the Authorized Officer. The applicant must provide proof of substantial commercial trapping activity.

3. Authorization of structures within the Steese National Conservation Area, the White Mountains NRA, the Beaver Creek and Birch Creek WSR Corridors, and the Fortymile WSR Corridor would be issued in accordance with Sections 1310, 1303(b) and 1316 of ANILCA.

4. Permit authorizations on all other BLM-managed lands would be considered pursuant to Section 302 of FLPMA.

5. Military maneuver permits would be considered within the planning area except in the wild and scenic rivers, the Steese National Conservation Area, and the White Mountains NRA (Public Law 100-586).

6. Permits for administrative use of BLM-managed lands by the State of Alaska would be considered throughout the planning area.

Unauthorized Use

Unauthorized use and/or unauthorized occupancy of the public lands (Trespass) will be addressed and resolved in accordance with the regulations found in 43 CFR 9220.1-2 and the guidance provided by BLM's Realty Trespass Abatement Handbook H-9232-1.

Trespass cabins may become the property of the U.S. Government and be managed as administrative sites, emergency shelters or public use cabins (BLM 1989b). Possible management actions on trespass cabins include:

1. Authorization by lease or permit for legitimate uses, if consistent with goals and objectives for the area.
2. Relinquishment to the U.S. for management purposes.
3. Removal of the structure.

Rights-of-Way

Rights-of-way (ROWs) would be located near other rights-of-way or on already disturbed areas whenever practical and reasonable to do so.

Rights-of-way would be considered throughout the planning area. There are no rights-of-way exclusion areas in the planning area. Rights-of-way located within the Steese National Conservation Area, wild and scenic rivers, and the White Mountains NRA must be consistent with purposes for which the areas were designated. Notwithstanding any decision in this plan and in accordance with ANILCA Title XI, rights-of-way for Transportation or Utility Systems will be considered throughout the Conservation Systems Units, Steese National Conservation Area, and White Mountains NRA. Approval or disapproval of these rights-of-way will be consistent with the provisions of ANILCA Title XI and regulations found at 43 CFR 36. Rights-of-way authorizations on all other BLM-managed lands would be considered, and authorized under Title V of FLPMA in accordance with the regulations found in 43 CFR 2808.

Provide access to non-federally owned lands, including ACECs, adequate to secure the owner the reasonable use and enjoyment of such lands as required by section 1323(b) of ANILCA. Access across ACEC lands is not precluded by ACEC designation. Proposals for access across ACEC lands to private lands would be considered and evaluated on the basis of environmental impacts.

Allow for additional communication site development on public land to support resource development and ancillary needs. Consider communication site rights-of-way throughout the

planning area. Ensure coordination between existing and potential communication site users, and maximum utilization of existing sites (43 CFR 2800).

Authorizations for use of State- or Native-selected land

Native-selected: Prior to issuance of a use authorization, the views of the concerned Native region(s) or village(s) will be obtained and considered consistent with 43 CFR 2650.1. If the corporation objects to the proposal, the BLM may proceed with authorization only if the State Director determines that the proposal is deemed to be in the public's best interest. Monies received for any use authorization on Native-selected lands would go into an escrow account.

State-selected: In accordance with Section 906(k) of ANILCA, BLM must receive a letter of concurrence prior to issuance of any use authorization on State selected lands. BLM may then incorporate State-recommended terms and condition of the use authorization, if in compliance with federal laws and regulations. If the State objects, BLM would not issue the use authorization.

2.6.3.4. Renewable Energy

GOAL: Encourage the development of renewable energy sources consistent with other decisions in this plan and with the Energy Policy Act of 2005 and the BLM Energy and Mineral Policy (August 26, 2008).

DECISIONS:

Applications for wind energy, solar energy and biomass utilization activities would be considered. Small-scale renewable energy facilities used to provide energy to isolated locations would be considered throughout the planning area. Wind energy, solar energy, and biomass utilization activities would be authorized under the appropriate land use authorization (lease, right-of-way, or permit).

The following National Conservation Lands are not available for large-scale wind energy site testing, monitoring, and development:

- Beaver Creek WSR Corridor
- Birch Creek WSR Corridor
- Fortymile WSR Corridor
- Steese National Conservation Area

Should a Title XI application be received for large-scale wind energy projects in the areas listed above, BLM will consider alternatives locations consistent with the Title XI process.

Notwithstanding any decision in this plan and in accordance with ANILCA Title XI, rights-of-way for Transportation or Utility Systems will be considered throughout the National Wild and Scenic Rivers System, Steese National Conservation Area and White Mountains NRA, including NLCS units excluded from wind energy uses. Any approval or disapproval of these rights-of-way will be consistent with the provisions of ANILCA.

Small-scale renewable energy facilities would be considered in these areas if consistent with protecting the values for which the areas were designated. Small-scale facilities considered could include projects that provide energy to: BLM administrative sites, BLM recreation sites, private land inholdings, mine sites, and small communities (less than 250 residents). These projects

would consist of a few solar panels, a wood-fired boiler, or a few wind turbines and would not affect more than 100 acres per NLCS unit over the life of the RMP.

RATIONALE: BLM's Land Use Planning Handbook (BLM 2005a) requires the identification of existing and potential development areas for renewable energy projects (e.g., wind, solar, and biomass) consistent with the goals and objectives for natural resources in the planning area. The BLM describes criteria that must be met for economically feasible utility-scale solar, wind and biomass development in *Assessing the Potential for Renewable Energy on Public Lands* (BLM and DOE 2003). Although Alaska was not included in this report, we applied the criteria to lands in the planning area and determined that no lands met the criteria outlined in the assessment.

The primary criterion for commercial solar operations is a solar resource of at least 5 kWh/m^2/day. This criteria is not met anywhere within the planning area (DOE 2008a and 2008b). Primary criteria for commercial biomass projects included a biomass power plant and a population center with a skilled labor force within 50 miles of the source of the biomass. These criteria cannot be met on BLM-managed lands in the planning area.

Primary criteria for utility-scale wind development include a wind power class 4 and above for short-term, and class 3 and above for long-term; transmission access within 25 miles; and road access within 50 miles. Within the planning area, wind potential on BLM-managed lands is generally poor to fair (Class 1–3). There are limited areas of Class 4–7 wind resources in the White Mountains NRA and Steese National Conservation Area (DOE 2006, wind energy map). However, most BLM lands are not within 25 miles of a major transmission line. Large-scale wind farms are connected to the electric power transmission network; small-scale facilities are used to provide electricity to isolated locations. It is unlikely that there would be any large-scale wind farms in the planning area. It is possible, however, that some small-scale facilities may be developed for BLM administrative use, or that the BLM may authorize small-scale facilities to promote energy to rural areas.

Geothermal leasing falls under the regulations for fluid leasable minerals and is addressed under section 2.6.3.5.1 Fluid Leasable Minerals.

2.6.3.5. Minerals

2.6.3.5.1. Fluid Leasable Minerals

GOALS:

The public lands and federal mineral estate would be made available for orderly and efficient exploration, development and production of fluid leasable mineral resources (includes oil, natural gas, tar sands, coal bed natural gas, and geothermal steam), unless withdrawal or other administrative action is justified in the national interest.

When authorizing fluid leasable minerals actions, to the extent possible, ensure that goals to protect other resource values in the planning area are met.

DECISIONS:

Fluid mineral (oil and gas, geothermal and coal bed natural gas) leasing and development would be considered in areas open to leasing, subject to additional NEPA analysis. Areas open to leasing are described for each subunit.

Fluid mineral leasing would be subject to BLM Lease Terms (standard lease terms), Fluid Mineral Leasing Stipulations, and SOPs (Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*).

In split-estate situations, requirements in Appendix A prescribed for federal mineral development apply only to the development of federal subsurface minerals because the BLM does not have authority over surface management requirements.

All open areas are open to geophysical exploration. Areas closed to fluid mineral leasing may be considered for geophysical exploration. Geophysical exploration activities are subject to SOPs (Appendix A).

2.6.3.5.2. Solid Leasable Minerals

GOALS:

The public lands and federal mineral estate will be made available for orderly and efficient exploration, development, and production of solid leasable mineral resources (includes coal and oil shale) and non-energy leasable minerals (potassium, sodium, phosphate, and gilsonite), unless withdrawal is justified in the national interest.

When authorizing solid leasable minerals actions, to the extent possible, ensure that goals to protect other resource values in the planning area are met.

DECISIONS:

All areas closed to fluid mineral leasing would also be closed to leasing of solid leasable minerals; in areas open to fluid mineral leasing, solid leasable minerals (except for coal) would be leased subject to 43 CFR 3500. Leasing would be subject to BLM Lease Terms and SOPs (Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*).

All areas that are open to fluid mineral leasing would also be open to coal resource inventory and exploration. Areas closed to fluid mineral leasing may be considered for coal inventory and exploration. Leasing is deferred because the coal screening process (as identified by 43 CFR 3420.1-4) has not been completed in the planning area. If an application for a coal lease is received, the appropriate land use and environmental analysis, including the coal screening process, would be conducted to determine whether or not the coal areas are acceptable for further consideration for leasing and development under 43 CFR 3420.1-4. An RMP amendment would be needed before coal leasing could occur. Only those BLM-managed public lands that have development potential may be identified as acceptable for further consideration for coal leasing.

If this RMP is amended to allow for coal leasing, develop an agreement between the State of Alaska and the Office of Surface Mining defining the regulatory role of the State in accordance with 30 CFR 745.

Oil shale could be leased in areas that are open to fluid mineral leasing; areas closed to fluid mineral leasing would also be closed to oil shale leasing. The Energy Policy Act of 2005 authorizes the Secretary of the Interior to conduct lease sales in states that show an interest. Leasing would be unlikely, as there are no known occurrences of oil shale on BLM lands in the planning area.

In split-estate situations, the SOPs (Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) apply only to the development of the federal subsurface minerals. The BLM does not have authority over surface management requirements.

2.6.3.5.3. Locatable Minerals

GOALS:

Maintain or enhance opportunities for mineral exploration and development, while maintaining other resource values.

DECISIONS:

Mining of locatable minerals would be subject to the surface management regulations found in 43 CFR 3809, the SOPs (Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*), and other decisions in the Approved RMP. Surface occupancy under the mining laws would be subject to regulations contained in 43 CFR 3715. Bonding would be required in accordance with BLM's policy.

Mining-related disturbances would be rehabilitated, on active and inactive workings, as required by 43 CFR 3809 and in accordance with SOPs and BLM's policy.

All operations would require the filing of a Plan of Operations or Notice of Operations with the BLM (43 CFR 3809). Plans of Operation must be approved prior to commencement of on-the-ground activities. SOPs (Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would be utilized to minimize surface impacts and to facilitate rehabilitation and revegetation of mined areas.

Isolated federal mining claims located outside of the White Mountains NRA, Steese National Conservation Area, wild and scenic river corridors, ACECs, and riparian conservation areas (approximately 13,000 acres in the Steese, Fortymile, and White Mountains subunits) would be recommended open to locatable minerals. If this recommendation is implemented by the Secretary of the Interior, it would remove the requirement for a mineral examination report prior to approving a new or modified plan of operation.

2.6.3.5.4. Salable Minerals

GOALS:

Make lands, including federally administered surface/minerals and split-estate, available for mineral material disposal.

When authorizing salable minerals actions, to the extent possible, ensure that goals to protect other resource values in the planning area are met.

DECISIONS:

Mining of salable material would be subject to the Mineral Materials Disposal regulations found in 43 CFR 3600. Bonding would be required in accordance with BLM contract regulations.

Mineral material sales on selected lands would require concurrence of the potential, future landowner, and proceeds from the sale placed into escrow.

Free Use Permits would not be issued for resources on selected lands.

Material sales on un-certificated Native allotments would not be permitted (43 CFR 3601.12(b)).

Material sales on certificated Native allotments are the purview of the Bureau of Indian Affairs (BIA) and its successor agency.

Material sales on split-estate would require concurrence of the surface owner.

Mineral materials sales are not permitted on pre-1955 mining claims (Public Law 167) and are subject to non-interference with the mining operation on post-1955 mining claims.

2.6.3.6. Recreation

GOALS:

Provide for multiple recreational uses of the public lands. This includes facilitating a wide range of beneficial outcomes by managing for desired recreational activities, settings and experiences. This helps support local economic stability, while sustaining recreation resources and other sensitive resource values.

DECISIONS:

Follow BLM program direction for managing recreation on public lands by incorporating "The BLM's Priorities for Recreation and Visitor Services" (BLM 2003), BLM Manual 8320 Planning for Recreation and Visitor Services (BLM 2011), applicable sections of Appendix C of the Land Use Planning Handbook, and other BLM directives that are related to recreation management.

Land Use Planning decisions for Recreation and Visitor Services include:

- Designation of recreation management areas (RMAs)
- Establishment of recreation and visitor service objectives for each RMA
- Identification of land use planning level supporting management actions and allowable use decisions for each RMA.
- No recreational shooting within one-quarter mile of developed recreational facilities. This includes (but is not limited to) campgrounds, cabins, waysides, trailheads, and administrative sites.
- No recreational shooting on, from, or across the drivable surface of any trail, travel route, or travel way.

Recreation Management Areas

Designate Special Recreation Management Areas (SRMAs) and manage to protect and enhance a targeted set of activities, experiences, benefits and desired recreational setting characteristics. The SRMAs may be subdivide into Recreation Management Zones (RMZs) to further delineate specific recreation opportunities.

The SRMAs/RMZs must have measurable outcome-focused objectives. Supporting management actions and allowable use decisions are required to 1) sustain or enhance recreation objectives,

2) protect the desired recreation setting characteristics, and 3) constrain uses, including non-compatible recreation activities that are detrimental to meeting recreation or other critical recourse objectives.

Management Actions

Develop recreation area management plans for each SRMA which include monitoring and evaluation of visitor satisfaction, niche decisions, targeted outcomes, and setting character decisions, based on RMZ objectives and prescriptions for each RMZ (Appendix H, Recreation Management Zones), in accordance with BLM Manual 8320 (BLM 2011c) and other BLM guidelines.

On public lands that are not designated as a SRMA, recreation is not emphasized, but lands will be managed to meet basic recreation, visitor services, and resource stewardship needs. Special recreation permits would be issued if consistent with other resource uses. Administrative presence would be limited.

Implementation Level Management Actions

Support events that emphasize collaborative outreach and public awareness to promote public stewardship, such as National Public Lands Day or National Trails Day. Utilize volunteer participation and recruit and train volunteers to provide effective visitor contact assistance.

Establish and maintain information kiosks with site maps, brochures, interpretive and educational information, important contacts, and site regulations. Develop and maintain a website of BLM recreation sites and areas that provide access information and available opportunities.

Establish comparable, cost-effective, and value-based fee systems for services and facilities provided to public users in accordance with BLM directives and the Federal Lands Recreation Enhancement Act.

Conduct periodic accessibility, safety, and condition assessments at developed recreation sites, and resolve deferred and corrective maintenance needs.

Establish, maintain and/or expand partnership agreements that are mutually beneficial to the BLM and to the public to enhance comprehensive planning, collaborative management, and collective funding.

Issue special recreation use permits according to BLM's 2930 Handbook.

BLM policy is to allow the safe use of public lands for recreational activities including the use of firearms for hunting and shooting sports, and trapping. Dispersed recreational use for trapping and shooting in a safe manner will be allowed, except as follows:

1. Trapping and placement of bait and wildlife lures (scents) is prohibited within one-quarter mile of any developed sites. This includes, but is not limited to: campgrounds, cabins, waysides, trailheads, and administrative sites without authorization. Trapping includes, but is not limited to, the use of marten pole sets, snares, conibear, or leg hold traps.

2. No one may set up a bear bait station within one-quarter mile of any publicly maintained road or trail.

The following table defines the desired Recreation Setting Character Matrix that applies to the planning area. Recreational Setting Characteristics (RSC) are descriptive conditions describing management parameters at the implementation level. These are implementation decisions, not land use planning level decisions, per H-8320-1.

Table 2.5. Recreation Setting Character Matrix for the Eastern Interior Planning Area

PHYSICAL - Resources and Facilities: Character of the Natural Landscape						
	Primitive Classification	*Semi-Primitive Classification*	*Backcountry Classification*	*Middlecountry Classification*	*Frontcountry Classification*	*Rural Classification*
Remoteness	Managed for an extremely high probability of experiencing solitude, closeness to nature, tranquility, self reliance, challenge, and risk.	Managed for a very high probability of experiencing solitude, closeness to nature, tranquility, self reliance, challenge, and risk.	Managed for a high probability of experiencing solitude, closeness to nature, tranquility, self reliance, challenge, and risk.	Managed for a moderate probability of experiencing solitude, closeness to nature, and tranquility. Managed for a moderate degree of challenge and risk associated with the use of motorized equipment.	Managed for the opportunity to affiliate with other users in developed sites but with some chance for privacy. Little challenge and risk. On or near improved trails or roads.	Managed for the opportunity to observe and affiliate with other users in areas where convenience of facilities is important. On or near primary highways, but still within a rural area.
Natural-ness	Protect an undisturbed or rehabilitated naturally-appearing landscape.	Provide a naturally-appearing landscape with a low level of modifications noticeable.	Provide a predominately naturally-appearing landscape with a low level of modifications noticeable, none of which dominate the natural landscape features.	Provide for a generally natural landscape partially modified by roads, pipelines, etc., with usually none dominating natural landscape features.	Provide for a relatively natural landscape partially modified by roads, pipelines, etc., which may dominate natural landscape features.	Provide for a landscape substantially modified by structures and roads that usually dominate natural landscape features.
Visitor Facilities	Maintain minimal rustic and rudimentary facilities that are constructed for site protection using natural materials and are designed to blend with the surrounding landscape.	Maintain rustic and rudimentary facilities that are generally constructed using natural materials, and are designed to blend with the surrounding landscape.	Maintain some naturally appearing trails and facilities, such as cabins, bridges and signs for user convenience, which usually blend with the surrounding landscape.	Maintain marked trails with associated trailheads and facilities including cabins, toilets, parking areas and garbage collection, which generally blend with the surrounding landscape.	Maintain improved yet modest facilities such as campgrounds, toilets, trails, and interpretive signs, which could attract attention.	Maintain modern facilities such as developed campgrounds, group shelters, and exhibits, which generally attract attention.

SOCIAL – Visitor Use and Users: Character of the Social Environment						
	Primitive Classification	*Semi-Primitive Classification*	*Backcountry Classification*	*Middlecountry Classification*	*Frontcountry Classification*	*Rural Classification*
Contacts (with other group)	Average number of contacts per day usually fewer than three groups.	Average number contacts per day usually fewer than four groups.	Average number contacts per day usually fewer than seven groups.	Average number contacts per day usually fewer than 10 groups.	People are generally visible at campsites, but are usually distant enough to prevent interactions.	People seem to be prevalent, but human contact is still intermittent.
Group Size	Manage for a majority of group sizes that usually average fewer than three people per group.	Manage for a majority of group sizes that usually average fewer than four people per group.	Manage for a majority of group sizes that usually average fewer than seven people per group.	Manage for a majority of group sizes that usually average fewer than 10 people per group.	Manage for a majority of group sizes that usually average fewer than 12 people per group.	Manage for a majority of group sizes that usually average fewer than 15 people per group.
Evidence of Use	Only footprints are typically observed.	Footprints plus slight vegetation trampling at campsites and on travel routes. Winter snow trails and/or tracks may be present.	Winter snow trails and/or tracks may be present, but generally blend with the surrounding landscape. OHV routes may be present.	Some landscape alternations are present but generally repeat the basic elements of the surrounding landscape. Surface vegetation may show wear with some bare soils.	Landscape alterations are generally present and may attract attention. Well-worn soils and vegetation may be present. Travel routes often gravel surfaced for erosion control.	Landscape alterations are present and attract attention. Improved routes protect soils and vegetation, but noise, litter, and facility impacts are possible.

ADMINISTRATIVE – Administrative and Service Setting: Character of the Operational Environment						
	Primitive Classification	*Semi-Primitive Classification*	*Backcountry Classification*	*Middlecountry Classification*	*Frontcountry Classification*	*Rural Classification*
Motorized Use	No trails or trailheads managed for motorized activities. Snowmobile and other means of surface transportation, motorboat, and aircraft activity permissible through ANILCA 1110(a) and 811.. Restrictions may apply in Research Natural Areas.	No trails or trailheads managed for motorized activities. Snowmobile and other means of surface transportation, motorboat, and aircraft activity permissible through ANILCA 1110(a) and 811.	Various forms of use may be present but not substantially noticeable. Winter trails maintained for snowmobile use.	Four-wheel drives, all-terrain vehicles, motorboats, snowmobiles and aircraft uses are common, in addition to non-motorized use.	Two-wheel drive vehicle use is predominate on developed roads and highways, encounters will be regular. Trails and trailheads managed to accommodate summer and winter OHV use.	Car and truck traffic is characteristic and will be encountered on a regular basis. Trails and trailheads managed to accommodate summer and winter OHV use.
Management Controls	No visitor controls apparent. Enforcement presence very rare.	Signs at key access points on basic user ethics. Use restrictions may be present. Enforcement presence rare.	Occasional regulatory signing. Motorized and mechanized use restrictions are usually in place. Random enforcement presence.	Moderate regulatory signing. Motorized and mechanized use restrictions are usually in place. Periodic enforcement presence.	Rules clearly posted with common seasonal or weight/type of OHV use restrictions. Routine enforcement presence.	Regulations prominent. Total use can be limited by permit, reservation, etc., Significant enforcement presence may exist.
Visitor Services	None are typically available on-site.	Basic maps and area personnel are rarely available to provide on-site assistance.	Basic maps and area personnel are occasionally available to provide on-site assistance.	Area brochures and maps, plus area personnel are periodically present to provide on-site assistance. May have information and interpretation available.	Information materials describe recreation areas and activities. Area personnel are sometimes available.	Everything described to the left in this row, plus area personnel perform informal on-site education.

2.6.3.7. Travel Management

GOAL:

Provide opportunities for a range of motorized and non-motorized uses on public lands while protecting resources and minimizing conflicts among various users.

DECISIONS:

Designate all BLM-managed lands as Open, Limited, or Closed to motorized travel activities(43 CFR 8340.0-5(f), (g) and (h)).

Open: "…an area where all types of vehicle use is permitted at all times, anywhere in the area subject to the operating regulations and vehicle standards set forth in subparts 8341 and 8342…"

Limited: "…an area restricted at certain times, in certain areas, and/or to certain vehicular use. These restrictions may be of any type, but can generally be accommodated within the following type of categories: Numbers of vehicles; types of vehicles; time or season of vehicle use; permitted or licensed use only; use on existing roads and trails; use on designated roads and trails; and other restrictions."

Closed: "…an area where off-road vehicle use is prohibited. Use of off-road vehicles in closed areas may be allowed for certain reasons; however, such use shall be made only with the approval of the Authorized Officer. In closed areas, a permit for motorized use may be issued pursuant to FLPMA, ANILCA, the 1872 Mining Law, and other applicable laws.

The following would be exempt from OHV decisions: any fire, military, emergency, or law enforcement vehicle used for emergency purposes; and any vehicle whose use is expressly authorized by the Authorized Officer, or otherwise officially approved (43 CFR 8340.0–5).

Manage OHV use in accordance with BLM's National Management Strategy for Motorized Off-Highway Vehicle Use (BLM 2001a). Manage bicycle and other mechanized uses consistent with BLM's National Mountain Bicycling Strategic Action Plan (BLM 2002a) or their successors.

BLM Back Country Byways and National Recreation Trails may be designated in the future, as deemed appropriate, with site-specific environmental analysis.

Where off-road vehicles are causing or will cause considerable adverse effects upon soil, vegetation, wildlife, wildlife habitat, cultural resources, historic resources, threatened or endangered species, wilderness suitability, other authorized uses, or other resources, the affected areas shall be closed to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence. (43 CFR 8341.2)

Public land routes, roads or trails determined to cause considerable adverse impacts or to constitute a nuisance or threat to public safety would be considered for relocation or closure and rehabilitation after appropriate coordination with applicable agencies and partners.

Where authorized, construction of roads or trails may occur in support of mining, rights-of-way, and recreational facilities.

When an alternative identifies a deferred travel management plan, limitations imposed by travel management planning may include: vehicle weight, vehicle width, season of use, existing trails,

designated trails, permitted access, and game retrieval options. Travel management plans would be developed using a public process, allowing for additional public and agency input. This process will include publishing a *Federal Register* Notice, public scoping meetings and if any closures are proposed, a formal hearing to address the closure procedures under 43 CFR 36.11 (h) as well as limitations affecting ANICLA provisions listed in Title VIII and Title XI. Additional NEPA analysis would be completed at that time.

R.S. 2477 rights are determined through a process that is entirely independent of the BLM's planning process. Consequently, travel management planning should not take into consideration R.S. 2477 assertions or evidence. Travel management planning should be founded on an independently determined purpose and need that is based on resource uses and associated access to public lands and waters. At such time as a decision is made on R.S. 2477 assertions, the BLM will adjust its travel routes accordingly.

RATIONALE: Recreational OHV use is resulting in resource damage such as trail braiding, user-created trails, damage to vegetation, erosion, thermokarsting, changes in vegetation composition, and spread of non-native invasive plants. Limiting the use of OHVs by weight, seasonal closure, and/or to designated routes are nationally accepted methods for protecting resources from damage by OHV use. Interior Alaska is a fragile landscape with seasonally frozen ground and permafrost making summer use of OHVs difficult. Traveling on ice-rich permafrost areas causes thawing, ground degradation and vegetation damage.

2.6.3.8. Withdrawals

GOAL:

Where the BLM determines withdrawals from the public lands laws are not necessary, those lands would be open to the public land laws.

DECISIONS:

In areas this RMP recommends open to locatable mineral entry, recommend to the Secretary of the Interior to partially revoke ANCSA 17(d)(1) withdrawals to open the land to the mining laws. In areas this RMP recommends closed to locatable mineral entry, recommend to the Secretary to retain the ANCSA 17(d)(1) withdrawals until a new withdrawal under the authority of FLPMA can be put into place for the purposes of protecting sensitive resources. Recommended new withdrawals under FLPMA would only withdraw lands from locatable mineral entry and location. These withdrawals would have no effect on validly selected lands. (Appendix G)

Modify or partially revoke ANCSA 17(d)(1) withdrawals to open isolated federal mining claims (federal mining claims surrounded by State land that cannot be conveyed) located outside of the White Mountains NRA, Steese National Conservation Area, wild and scenic river corridors, ACECs, and riparian conservation areas (approximately 13,000 acres) to mineral location and entry.

Recommend retaining federal agency withdrawals (e.g., NOAA, military, GSA, FAA) until no longer required by the agency. Regulations in 43 CFR 2370 and following will govern the process for an agency to relinquish lands or interest in lands, in whole or in part, when no longer needed. Once an agency has filed a completed notice of intent to relinquish to the BLM and appropriate General Services Administration (GSA) regional office the BLM will follow the appropriate regulations and the Authorized Officer will make a determination as to suitability

of the lands or interest in lands for return to the public domain. If the lands or interest in lands are determined suitable for return to the public domain the Authorized Officer will notify the holding agency that the Department of the Interior accepts accountability and responsibility for the property in accordance with procedures found in 43 CFR 2374. If the lands or interest in lands are determined to be unsuitable for return to the public domain the Authorized Officer will request concurrence from the appropriate officer of the GSA and upon receipt of the concurrence will notify the holding agency to report as excess property the lands and improvements or interest in lands to the General Service Administration in accordance with procedures found in 43 CFR 2374. (Table 3.36, "Existing Withdrawals to Other Agencies in the Planning Area").

2.6.4. Special Designations

2.6.4.1. Wild and Scenic Rivers

GOALS:

Protect outstandingly remarkable river-related values, water quality, and free-flowing condition of rivers designated as a component of the National Wild and Scenic Rivers System.

DECISIONS:

Follow guidance provided by the Interagency Wild and Scenic Rivers Coordination Council at http://www.rivers.gov/council.html.

Manage all suitable and designated rivers according to BLM Manual 6400 – Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation and Management and ANILCA.

Manage suitable and designated rivers to protect and enhance the Outstandingly Remarkable Values and free-flowing condition, and maintain the river's classification.

Develop a Comprehensive River Management Plan for each new river, if applicable, within three years of designation to provide for the protection of the river values. The plan will address resource protection, development of lands and facilities, user capacities, and other management practices necessary or desirable to achieve the purposes of the Wild and Scenic Rivers Act.

Establish boundaries for each new river, if applicable, within one year from the date of designation. Boundaries will include an average of not more than 640 acres of land per mile measured from the ordinary high water mark on both sides of the river.

Identified Outstandingly Remarkable Values (ORVs) for the Fortymile, Birch Creek and Beaver Creek WSRs are described in detail in Appendix E, *Wild and Scenic Rivers Inventory*.

River	Tributaries	Outstandingly Remarkable Values
Beaver Creek	N/A	scenic, recreation, geologic, fisheries, and wildlife
Birch Creek	N/A	scenic, recreation, and fisheries

River	Tributaries	Outstandingly Remarkable Values
Fortymile River	Main Stem, Lower North Fork, and South Fork	scenic, recreation, geologic, historic, wildlife
	Dennison Fork and Middle Fork	scenic, recreation, wildlife
	Upper North Fork	scenic, historic, wildlife
	Mosquito Fork and West Fork	scenic, recreation
	Champion Creek	scenic, historic
	Wade Creek	recreation, historic
	O'Brien Creek and Walker Fork	scenic, geologic
	Franklin Creek, Hutchinson Creek, Napoleon Creek, and Uhler Creek	historic
	Joseph Creek and Logging Cabin Creek	scenic

Revise or amend the existing River Management Plans (Fortymile, Birch Creek, and Beaver Creek) to incorporate resource protection decisions from the appropriate ROD, and to address development of lands and facilities, user capacities, and other management practices necessary or desirable to achieve the purposes of the Wild and Scenic Rivers Act.

Rivers suitable for designation under the Wild and Scenic Rivers Act of 1968 are discussed under each subunit. See Appendix E, *Wild and Scenic Rivers Inventory* for a description of the methods used to determine eligibility and suitability, and a description of Outstandingly Remarkable Values for each eligible river, and a list of suitable rivers (Table E.3, "Classification Findings for Eligible Rivers").

2.6.5. Social and Economic

2.6.5.1. Hazardous Materials

GOAL:

Protect public health and safety and environmental resources by minimizing environmental contamination from chemical, biological, and radiological sources on federal property or BLM-operated facilities.

DECISIONS:

Environmental remediation activities would follow the State of Alaska and federal environment regulations and laws, which outline the cleanup standards for contaminated sites. Clean up levels/standards may be implemented based on the future land use determination.

The SOPs (Appendix A *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would apply to BLM-authorized activities to minimize the probability of contamination on public lands when hazardous materials are utilized.

The BLM would educate permittees on the importance of developing site-specific best management practices (BMP), that minimize the potential for release of hazardous materials to the environment.

The BLM would monitor land use activities to identify potential contaminated sites as an integral part of maintaining healthy lands. Cleanup actions would be designed to limit and reduce the environmental liabilities for the BLM.

2.6.5.2. Subsistence

GOALS:

Maintain sufficient quality and quantity of habitat to support healthy populations of important subsistence species, including moose and caribou.

Effectively manage subsistence resources and uses by working with the local Regional Advisory Councils, ADF&G, and subsistence users. Implementation of a "rural priority" would be made by the Regional Advisory Council and Federal Subsistence Board through regulations, in coordination with federal and State land and wildlife management agencies. Agencies, including the BLM, would aid in enforcing the priority for rural subsistence use on federal public lands.

Provide for reasonable access to subsistence resources by federally qualified subsistence users as directed in ANILCA.

Minimize displacement of subsistence resources from traditional subsistence harvest areas (i.e., displacement of resources that may occur as a result of activities permitted by the BLM).

Maintain consistent subsistence management with adjacent land managers/owners.

DECISIONS:

At the project or permitting level, develop measures that serve to minimize impacts to subsistence uses, users, and/or resources. This may include avoidance of specific areas or limitations on season of use.

Protect important Fortymile caribou herd and White Mountains caribou herd calving and post-calving areas by restricting land use activities during times caribou are present (see sections 2.6.2.13 Wildlife, 2.7.2 Action Alternatives Fortymile Subunit, 2.8.2 Action Alternatives Steese Subunit, 2.10.2 Action Alternatives White Mountains, and SOPs Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*).

Implement the SOPs and Fluid Mineral Leasing Stipulations (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) to assure that physical and legal access to and movement corridors for subsistence resources are maintained when activities are permitted and to minimize displacement of subsistence resources.

Comply with ANILCA Section 810 Evaluation and Finding during analysis of all land use proposals. The management of federal public lands is to cause the least adverse impact possible on rural residents who depend on subsistence uses of the resources of such lands (Section 802 of ANILCA).

Require infrastructure (such as roads, power lines, other ROW, buildings, pipelines, towers) be constructed in a manner that it does not unreasonably impede access to subsistence resources. Restrict development of infrastructure or land disturbance in areas of high subsistence resource values or traditional harvest areas, where these activities would significantly restrict access by subsistence users. Review subsistence decisions in land use plans for adjacent lands and coordinate with the respective land managers and ADF&G when proposed land use actions may affect those lands.

Note: Additional decisions that may affect subsistence uses and resources are in section 2.6.2.3 Fish and Aquatic Species, section 2.6.2.13 Wildlife, Appendix I *Fisheries and Aquatic Resources* and Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*.

2.7. Fortymile Subunit

The goals and decisions in the following sections apply to the Fortymile Subunit.

2.7.1. Alternative A: No Action Alternative

Under the No Action Alternative, management in the Fortymile Subunit is guided by the Fortymile Management Framework Plan (BLM 1980) and the Fortymile River Management Plan (BLM 1983a). Current management based on these plans and federal laws and regulations, is summarized in the following sections. A more complete description of current management decisions can be found in the Analysis of the Management Situation, Eastern Interior Resource Management Plan (BLM 2009).

2.7.1.1. Resources

2.7.1.1.1. Cultural and Paleontological Resources

In the Fortymile subunit, current management for cultural resources is guided by federal regulations and decisions in the Fortymile MFP (BLM 1980) and Fortymile River Management Plan (BLM 1983a). The BLM conducts Class II and III cultural resource inventories as needed, and maintains an inventory of known sites on BLM-managed lands. Effects to cultural resources are addressed on a project-specific basis and mitigation developed to reduce or avoid impacts. Fort Egbert Historic Site is monitored and maintained regularly. Interpretation and public education are provided by the Eagle Historical Society and Museums. Some limited maintenance of historic cabins on the Fortymile River is done.

Other than Fort Egbert Historic Site, cultural sites have not been allocated for scientific use, conservation for future use, traditional use, public use, or experimental use as required by the BLM Land Use Planning Handbook (BLM 2005a).

Paleontological resources are managed according to BLM's 8270 manual and handbook, Title VI, Subtitle D of the Omnibus Public Land Management Act of 2009 (16 U.S.C. 470aaa), and other applicable federal laws (e.g., FLPMA). These allow for the issuance of paleontological permits to qualified parties.

2.7.1.1.2. Fish and Aquatic Species

In the Fortymile Subunit, the BLM considers actions which will affect fish habitat, and develops appropriate measures for each action to reduce impacts to fish. Screens, consistent with mesh size requirements recommended by the ADF&G, are installed on intake hoses when water is taken from under ice or from open water locations. Stream crossings are designed to conform with fish passage requirements. Measures to protect stream banks are applied at the project level. Human-caused disturbances are evaluated and stipulations are applied to minimize disturbance. The BLM coordinates with Alaska Department of Environmental Conservation (ADEC) on all

proposed activities which involve discharges into surface waters to ensure that BLM-authorized activities do not exceed State of Alaska Water Quality Standards.

2.7.1.1.3. Soil Resources

Measures to reduce erosion are applied on a project-specific basis. Limitations are placed on use of vehicles to protect soil and vegetation. All areas remain open to winter use (ground frozen to six inches) for vehicles 6,000 pounds or less. Existing roads and trails are open to all vehicles when the ground is frozen to a depth of six inches or more. At all other times of the year, vehicles exceeding 6,000 pounds or any vehicle with a blade, requires a permit. Vehicles weighing 6,000 pounds or less are limited to existing roads or trails, except for incidental use (such as to locate camp spots or retrieve downed game animals).

2.7.1.1.4. Special Status Species

The BLM considers effects to Special Status Species for each proposed activity. To the extent possible, surface-disturbing activities are limited in areas containing Special Status Species. There are currently no federally listed species in this subunit. The BLM conducts inventories for Special Status Species as time and funding allows. Intensive inventories of peregrine falcon nesting have been conducted in some portions of the Fortymile River. Some inventories of selected sites for Special Status Species have been conducted (Batten et al. 1979), although most of these sites are no longer under BLM's management.

2.7.1.1.5. Visual Resource Management

The Fortymile MFP (BLM 1980) does not address visual resource management (VRM). There are currently no assigned VRM classes. The “wild” segments of the Fortymile WSR Corridor are managed as VRM Class I in accordance with policy. All projects are reviewed for impacts to scenic quality and visual resources.

2.7.1.1.6. Water

Effects to water and riparian habitats from proposed activities are considered at the project level and appropriate measures are developed to reduce impacts in accordance with policy, Executive Orders, and federal law. The BLM coordinates with ADEC to ensure that water quality standards are not exceeded. The BLM participates in stream gauging and monitors snow course sites in the Fortymile area.

2.7.1.1.7. Wildland Fire Ecology and Management

Guidance for wildland fire management is provided by the BLM Alaska Land Use Plan Amendment for Wildland Fire and Fuels Management (BLM 2004b, 2005c). The decisions are described under section 2.6.2.12 Wildland Fire Ecology and Management, Management Common to All Subunits and Action Alternatives.

2.7.1.1.8. Wildlife

The Fortymile MFP (BLM 1980) identified and recognized sensitive areas important for Dall sheep, caribou, moose, bison, waterfowl, shorebirds, sharp-tailed grouse, raptors, grizzly bears, and other species. It recommended the development of habitat management plans for these areas in cooperation and consultation with ADF&G; no habitat management plans have been developed. Additionally, many of the areas identified for habitat management plans have been conveyed out of BLM management or are not located in the planning area.

Effects to wildlife habitats from proposed activities are considered at the project level and appropriate measures are developed to reduce impacts. Camping requirements concerning things such as garbage disposal, fencing are developed to reduce wildlife and human conflicts.

Mineral licks are recognized as an important habitat for ungulates. Currently, all ungulate mineral licks on BLM-managed lands are withdrawn from mineral entry.

No domestic livestock grazing is authorized on Dall sheep ranges. No reindeer grazing is allowed on any caribou ranges.

The Fortymile MFP (BLM 1980) recommended proceeding with ACEC designation if the nature of the sensitive habitat areas and/or species is such that ACEC designation is considered appropriate. No ACECs have been designated in the Fortymile Subunit, because designation is a land use plan decision and no land use plan has been developed for the Fortymile region since approval of the MFP.

2.7.1.2. Resource Uses

2.7.1.2.1. Forest and Woodland Products

The BLM considers applications for forest and timber products on a project-specific basis. Personal use firewood harvest is authorized under Free Use Permits. No areas are specifically set aside for firewood harvest. No forest inventory has been done due to the lack of demand for timber products.

2.7.1.2.2. Lands and Realty

Permits for land use authorizations are considered when applications are received. There are no designated utility corridors or right-of-way avoidance areas. No lands are specifically identified for disposal or acquisition. The Eagle recreational withdrawal is withdrawn under PLO 3432. Land status in the Fortymile Subunit has changed greatly since the Fortymile MFP (BLM 1980) was approved. Many of the lands identified for specific management in the MFP have been conveyed to either the State of Alaska or Native corporations. Easements have been proposed and approved as land is conveyed. Clean up of the Eagle Dump and Tanacross Fire Guard Station sites are in progress. Long-term camping in support of nearby state mining claims is allowed by permit in the “scenic” and “recreational” segments of the Fortymile WSR.

2.7.1.2.3. Minerals

The entire Fortymile Subunit is withdrawn from mineral entry and mineral leasing under ANCSA 17(d)(1) withdrawals. Mining is occurring on valid existing claims that predate the withdrawals. Material sites are authorized to provide for construction and maintenance of roads and highways.

2.7.1.2.4. Recreation

In the Fortymile Subunit, the Eastern Interior Field Office follows BLM program direction for managing recreation on public lands. Recreation management is focused on the Fortymile WSR Corridor and the Eagle area. The river corridor is managed to preserve river values.

The BLM provides public outreach in a variety of ways; including the establishment and maintenance of information kiosks; maintenance of a website; and use of volunteers to provide visitor contact assistance. Interpretive sites have been established at Fort Egbert Historic Site and along the Taylor Highway. Brochures have been developed and are available at multiple locations.

The BLM issues special recreation use permits as appropriate for commercial, competitive, and special events.

Established campgrounds and waysides are maintained. Periodic accessibility, safety, and condition assessments are conducted at developed recreation sites, and available funds are prioritized to resolve maintenance needs.

2.7.1.2.5. Travel Management

Fortymile WSR Corridor

No vehicular traffic is allowed off established trails in the corridor. The use of motorized vehicles exceeding 1,500 pounds gross vehicle weight rating (GVWR) is prohibited off of established and maintained roads (BLM 1994).

The following restrictions/authorizations on surface transportation are included in the Fortymile River Management Plan (BLM 1983a):

Action 1.1: New transportation and utility systems, and relocations of existing roads may be authorized in the "scenic" and "recreational" segments of the corridor if there is no reasonable alternative route available.

Action 1.2: New public road rights-of-way and other authorizations for transportation and utility systems may be authorized in the "wild" segments of the river corridor if three conditions are met: 1) such system would be compatible with the purposes for which the unit was established; 2) there is no economically feasible and prudent alternative route for the system; and 3) authorization would be in the public interest.

Action 1.3: Access to federal mining claims located prior to ANILCA will be managed under existing regulations in 43 CFR 3809.

Action 1.5: Off-road vehicle use, other than vehicles of less than 1,500 pounds GVWR, will be prohibited without a permit or approved Plan of Operations.

Action 1.6: Existing use of motorized boats on "scenic" and "recreational" segments will be allowed without specific authorization. Motorized boats will not be allowed on non-navigable "wild" segments except under the provisions of 43 CFR 3809. On navigable "wild" segments, a cooperative agreement with the State will be sought to limit the use of motorized boats.

Actions 2.1–3: The BLM will not undertake maintenance of existing airstrips. New airstrips may be authorized in accordance with Actions 1.1, 1.2, and 1.3. Existing use of gravel bars and winter snows by aircraft will be allowed subject to reasonable provisions to protect the values of the WSR.

Remainder of the Fortymile Subunit

No OHV designations are in place. Watershed decision 3.2 in the Fortymile MFP states: All areas will remain open to winter use (ground frozen to six inches) for vehicles weighing 6,000 pounds or less. Existing roads and trails will be open to all vehicles when the ground is frozen to a depth of six inches or more. At all other times of the year, vehicles exceeding 6,000 pounds require a permit, and vehicles weighing 6,000 pounds or less will be limited to existing roads or trails except for incidental use. The existing trail network has never been defined.

2.7.1.2.6. Withdrawals

The entire subunit is closed to locatable mineral entry and mineral leasing by ANCSA 17(d)(1) withdrawal. The primary public land orders (PLOs) affecting this subunit are PLO 5173, 5179, and 5184. There are approximately 10,000 acres of valid existing federal mining claims that predate the PLOs and ANILCA. Mining is occurring on some of these claims. There are numerous other withdrawals for federal other agencies. Existing withdrawals are described in section 3.3.8 Withdrawals.

2.7.1.3. Special Designations

The Fortymile WSR was designated by ANILCA and is managed consistent with the Fortymile River Management Plan (BLM 1983a). Restrictions on travel management are described in section 2.7.1.2.5 Travel Management above. The "wild" segments of the river corridor are managed as VRM Class I. The river corridor is withdrawn from mineral entry and mineral leasing, except for valid existing claims. No additional rivers would be recommended as suitable for designation under the Wild and Scenic Rivers Act.

Two eligible river segments in the Fortymile subunit have been identified in the Wild and Scenic Rivers Classification Findings for Eligible Rivers (Table E.3). Dome Creek is found to have characteristics eligible for a tentative classification of Recreational and Gold Run is found to have characteristics eligible for a tentative classification of Wild. These rivers segment classifications would be maintained through mitigation standards through NEPA review until suitability can be evaluated.

There are no designated areas of critical environmental concern or research natural areas.

2.7.2. Action Alternatives: Fortymile Subunit

2.7.2.1. Alternative B: Fortymile Subunit

The decisions in the following sections apply to Alternative B in the Fortymile Subunit.

2.7.2.1.1. Resources

2.7.2.1.1.1. Cultural Resources

DECISIONS:

In addition to the decisions Common To All Subunits listed in section 2.6.2.2 Cultural Resources, the following decisions would apply under Alternative B:

The following sites are designated as suitable for public use: Fort Egbert Historic Site (EAG-001); Steele Creek Community (EAG-144); Longbar Cabin (EAG-097); Kink Cabin (EAG-093); Discovery Cabin (EAG-192); Flat Creek Cabin (EAG-190); North Forks WAMCATS (EAG-157); and Franklin Community (EAG-003).

The following sites are designated for traditional use: BLM Firestation Site (EAG-070), Walker Fork Grave (EAG-212/340), and Joseph Village and Cemetery (EAG-010).

All other sites not specifically identified above shall be designated for scientific use.

2.7.2.1.1.2. Fish and Aquatic Species

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.3 the following decisions would apply under Alternative B:

The following 10 watersheds would be managed as Riparian Conservation Areas (RCAs) (Map 6).

1. Buck Creek-North Fork Fortymile River (HUC # 190401040306)
2. Fortymile River (HUC # 190401042201)
3. Hilda Creek-North Fork Fortymile River (HUC # 190401040806)
4. Middle Fork North Fork Fortymile River (HUC # 190401040701)
5. Moose Creek-Mosquito Fork (HUC # 190401041305)
6. North Fork Fortymile River (HUC # 190401040308)
7. Seward Creek-Mission Creek (HUC # 190404010105)
8. South Fork Fortymile River (HUC # 190401042006)
9. The Kink-North Fork Fortymile River (HUC # 190401040803)
10. Tower Bluffs Rapids (HUC # 190405030602)

The Sam Patch Creek-Fortymile River watershed (HUC # 190401042207) and Steele Creek-Fortymile River watershed (190401042203) would be identified as a High Priority Restoration Watershed and be emphasized for active restoration. Management of High Priority Restoration Watersheds is described in section 2.6.2.3 Fish and Aquatic Species (Map 6).

Complete watershed assessments prior to opening lands to locatable mineral location and entry to gather baseline information using the following priorities:

1. Watersheds containing areas of high or moderate locatable mineral potential.
2. Watersheds identified as RCAs.
3. Other watersheds.

2.7.2.1.1.3. Visual Resources

DECISIONS:

Proposed VRM classes are displayed on Map 15. Recreation Management Zones (RMZs) are displayed on Map 44. Areas where wilderness characteristics would be maintained are displayed on Map 70.

DECISIONS:

Under Alternative B the "wild" segments of the Fortymile River would be designated a VRM Class I per BLM Manual 8400. Management of VRM Class I areas is to preserve the existing characteristics of the landscape, but allow for limited management activities where changes should be very low and must not attract the attention of the casual observer.

"Scenic" river segments would be assigned a VRM Class II. "Scenic" segments would be managed in a largely primitive and undeveloped manner with the presence of small communities or dispersed dwellings acceptable. The shorelines should appear natural from the riverbank. (BLM Manual 6400–3.3, Illustration 2).

"Recreational" river segments (Wade Creek segment) would be designated a VRM Class III. "Recreational" segments would be managed in a manner allowing some development of residential and few commercial structures and substantial evidence of human activity including a full range of agricultural and forestry uses. (BLM Manual 6400–3.3, Illustration 2). Some screening of facilities would protect the visual quality of the area.

Those portions of the Fortymile SRMA within the North Fork Fortymile, Mosquito Fork, Fortymile, West Fork and Chicken RMZs with an RSC class of Semi-Primitive, Backcountry and Middlecountry, but outside the Fortymile WSR Corridor would be managed as VRM Class II. In VRM Class II areas, developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

Lands to be managed for wilderness characteristics outside of the WSR corridor (Fortymile ACEC and portions of the North Fork Fortymile, Mosquito Fork, West Fork, and Fortymile RMZs) would also be managed as a VRM Class II.

Those portions of the Fortymile SRMA within the Wade Creek and Eagle RMZs with an RSC class of Frontcountry and Rural, but outside the Fortymile WSR Corridor (Davis Dome) would be managed as VRM Class III. In VRM Class III areas, developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with moderate changes to landform and vegetation and may attract the attention of the casual observer.

All remaining BLM lands would be assigned a VRM Class IV. In these areas, management actions would be taken to protect the wild and scenic river view shed. Development activities would be designed to harmonize with the visually dominating elements of the surrounding landscape characteristics of line, form, color and texture, and major modification of the natural landscape would be allowed.

2.7.2.1.1.4. Wilderness Characteristics

OBJECTIVE:

Allow for multiple use while maintaining naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 949,000 acres so that these lands retain their wilderness characteristics for the life of the RMP.

DECISIONS:

Consistent with allocation decisions in this RMP, allow other multiple-uses on lands where wilderness characteristics would be maintained, while applying management restrictions (such as conditions of use or mitigation measures) to avoid or minimize impacts to wilderness characteristics and meet the objective retaining wilderness characteristics over the life of the RMP.

Wilderness characteristics would be maintained on 949,000 acres (51 percent of the lands with wilderness characteristics in this subunit). These lands occur within the Fortymile ACEC , Fortymile SRMA, and segments of the Fortymile WSR (Map 70).

RATIONALE: Wilderness characteristics would be maintained by decisions in this alternative to designate ACECs, close certain areas to mineral leasing and mining, retain the lands in federal management, manage for Semi-Primitive and Backcountry recreation settings, and set a Limited OHV area designation. Additionally, BLM-authorized uses would be further analyzed through the NEPA process for impacts to size, naturalness, primitive recreation, and solitude, and stipulated mitigation measures would be applied where needed to minimize impacts. Due to the limited access to many BLM lands in the Fortymile Subunit and the lack of mineral development potential, it is likely that wilderness characteristics would remain on much more than 49 percent of the lands over the life of the plan.

2.7.2.1.1.5. Wildlife

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.13, the following decision would apply under Alternative B:

Domestic sheep, goats, and camelids (including alpaca & llama) are not allowed in Dall sheep habitat.

2.7.2.1.2. Resource Uses

2.7.2.1.2.1. Forest and Woodland Products

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.1, the following decisions would apply under Alternative B:

Personal use of timber would be allowed on all lands, except within the Fortymile WSR Corridor, the Eagle Recreational withdrawal, and the Fort Egbert Historic Site.

Commercial timber salvage sales would be allowed on all lands, except within the Fortymile WSR Corridor, the Eagle Recreational withdrawal, and the Fort Egbert Historic Site.

Commercial timber sales (large or small) would be allowed on all lands, except within the Fortymile WSR Corridor, the Eagle Recreational withdrawal, and the Fort Egbert Historic Site.

Commercial use of forest products (i.e., mushrooms, berries, bark) would allowed on all lands, except within the Fortymile WSR Corridor, the Eagle Recreational withdrawal, and the Fort Egbert Historic Site.

2.7.2.1.2.2. Land Tenure

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.2, the following decisions would apply under Alternative B. The criteria for land tenure zones is described in Appendix G, *Land Tenure*.

Zone 1 lands (lands identified for retention or acquisition):

Lands within the Fortymile WSR Corridor and the Fortymile ACEC (Map 60) would be retained subject to conveyance of validly selected lands to the State and Native corporations.

Consider acquisition of private land inholdings from willing sellers within areas identified as Zone 1, including land surrounded on three sides by the Fortymile WSR Corridor.

Zone 2 lands (all lands not identified as Zone 1 or 3):

Consider acquisition, or disposal, including exchange, of scattered parcels within the Fortymile Subunit for the purposes of consolidation.

Zone 3 lands (lands identified for disposal):

Consider the following lands for disposal. If needed, modify existing public land orders to allow for disposal.

- Scattered parcels within the North Star Borough and along the Alaska Highway;
- East of Salcha Hot Springs site (PLO 5389);
- Tanacross airfield parcel (PLO 1768);
- Remnants of PLO 5150 (TAPs), north and east of the Alaska Highway;
- Federal, School and Park Reserves (Delta Junction), USS 3293, Blocks 14, 15, 16, 17, 18, 19;
- Recommend retaining PLO 1613, Alaska Highway ROW width reduction, and make the remaining lots available for disposal;
- If federal mining claims outside of the Fortymile WSR Corridor and outside of large blocks of BLM-managed lands become null and void and are not conveyed to the State of Alaska, consider these lands for disposal or exchange.

2.7.2.1.2.3. Land Use Authorizations

In addition to the decisions listed as Common To All Subunits in section 2.6.3.3, Land Use Authorizations, the following decisions would apply under Alternative B:

DECISIONS:

Do not allow long-term camping in support of nearby state mining claims in the "wild," "scenic," or "recreational" segments of the Fortymile WSR Corridor.

The Fortymile WSR Corridor and Fortymile ACEC would be ROW avoidance areas.

2.7.2.1.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals.

2.7.2.1.2.4.1. Fluid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.1, the following decisions would apply under Alternative B:

Approximately 1,076,000 acres in the following areas would be closed to fluid leasable minerals (Map 26):

- The Fortymile WSR Corridor (all segments)
- The Fortymile ACEC
- The Fortymile SRMA
- Within one mile of identified ungulate mineral licks
- Zone 3 disposal land
- BLM's Chicken and Eagle administrative sites, Fort Egbert Historic Site, and the Eagle Recreational withdrawal.

The remainder of the subunit, approximately 800,000 acres, would be open to leasing, subject to Standard Lease Terms.

2.7.2.1.2.4.2. Solid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.2, the following decisions would apply under Alternative B:

The same areas that are closed to fluid leasable minerals, approximately 1,076,000 acres, would also be closed to solid leasable minerals (Map 26).

The remainder of the subunit, approximately 800,000 acres, would be open to leasing, subject to standard leasing stipulations.

2.7.2.1.2.4.3. Locatable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.3, the following decisions would apply under Alternative B:

The same areas that are closed to fluid leasable minerals, approximately 1,076,000 acres, would also be closed to locatable minerals (Map 26).

All remaining lands in the Fortymile Subunit, approximately 800,000 acres, would be open to locatable mineral entry.

2.7.2.1.2.4.4. Salable Minerals

DECISIONS:

In addition to the decisions listed as common to all alternatives in section 2.6.3.5.4, the following decisions would apply under Alternative B:

Approximately 251,000 acres in the following areas would be closed to salable minerals:
- The "wild" and "scenic" segments of the Fortymile WSR Corridor
- Within one mile of ungulate mineral licks

All remaining lands in the Fortymile Subunit, approximately 1,625,000 acres, would be open to salable minerals.

2.7.2.1.2.5. Recreation

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.6, the following decisions would apply:

The Fortymile SRMA would include 798,000 acres of lands located within the Fortymile WSR Corridor, lands surrounding the town of Eagle, and additional lands adjacent to the river corridor (Map 44). Under Alternative B, the Fortymile SRMA would include seven Recreation Management Zones (RMZ), the management of which are described in Section H.1, "Fortymile Special Recreation Management Area".

Table 2.6. Fortymile Recreation Management Zones, Recreation Setting Character (RSC), and OHV Designations, Alternative B

Name	Acres	RSC[a] [b]	OHV Designation
North Fork Fortymile RMZ	546,000	Semi-Primitive	LIMITED
Mosquito Fork RMZ	80,000	Semi-Primitive	LIMITED
Fortymile RMZ	142,000	Backcountry	LIMITED
West Fork Fortymile RMZ	20,000	Backcountry	LIMITED
Wade Creek RMZ	3,000	Frontcountry	LIMITED
Chicken RMZ	7,000	Middlecountry	LIMITED

Name	Acres	RSC[a] [b]	OHV Designation
Eagle RMZ	1,000	Rural	LIMITED
Other BLM lands	1,077,000	N/A	LIMITED

[a]Table 2.5

[b]RSC are descriptive conditions describing management parameters at the implementation level. These are not land use planning decisions

2.7.2.1.2.6. Travel Management

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative B.

DECISIONS:

Under this alternative, the entire Fortymile Subunit would be delineated as a Travel Management Area. For lands within the SRMA, specific Travel Management Zones (TMZs) have also been delineated. These are the same polygons as the Recreation Management Zones (RMZs) and subsequent recreation setting character (RSC) settings. Each TMZ also contains a specific OHV designation of Open, Limited, or Closed (Table 2.6, "Fortymile Recreation Management Zones, Recreation Setting Character (RSC), and OHV Designations, Alternative B").

It is not practical to define and delineate a comprehensive travel management network for the Fortymile Subunit in this plan due to incomplete route data, size, and the complexity of the area. A map of preliminary (existing) routes (Map 44) and the following interim management prescriptions would be utilized until a Comprehensive Travel Management Plan is completed.

The additional data needed to complete a comprehensive travel management network is accurate route information. This would be accomplished utilizing a combination of methods, including overflights and on-the-ground GPS data acquisition. Once the ROD is issued for the Fortymile Subunit, additional data would be collected and a Comprehensive Travel Management Plan completed, utilizing interagency and public collaboration.

The OHV prescriptions vary by Recreation Management Zone and are described more fully below.

Interim Travel Management Prescriptions Common to All Lands

All forms of non-motorized use would be allowed, except for the use of pack goats in Dall Sheep habitat.

Cross-country winter use (October 15 through April 30) of snowmobiles 50 inches or less in width, and weighing 1,000 pounds curb weight and less would be allowed.

Aircraft use would be unrestricted, with the following provisions: Minimal clearing of rocks, downed logs, and brush would be allowed; construction or formal improvement of landing areas would occur by permit only; Use of gravel bars and winter snow areas would be allowed, subject to reasonable provisions to protect the values of the "wild", "scenic" and "recreational" river segments.

Additional restrictions could be developed for the purposes of site protection, visitor safety, and/or enhancing recreational opportunities, experiences and outcomes.

Wild and Scenic River Corridors, including Suitable River Segments

All forms of non-motorized use would be allowed. Motorboat use would be allowed without specific authorization consistent with ANILCA sections 1110(a) and 811. Airboats, hovercraft, and personal watercraft would not be permitted in the following non-navigable river segments: the North Fork above the Kink, the Middle Fork, Champion Creek, Joseph Creek, Mosquito Fork above Ingle Creek, and Gold Run suitable segment.

RATIONALE: The Wild and Scenic Rivers Act states that rivers classified as "wild" are generally inaccessible except by trail, and are to represent vestiges of primitive America (Wild and Scenic Rivers Act, Section 2). The Middle Fork of the Fortymile WSR has outstandingly remarkable recreational values. One of the available recreational opportunities is a Primitive, non-motorized boating experience. Airboats, hovercraft and personal watercraft generate noise levels which are disruptive to some recreationists and would diminish the Semi-Primitive experience managed for and expected by those recreationists on a "wild" river. These types of use are not considered compatible with the values for which the "wild" river is to be managed.

The Middle Fork and North Fork support a dense nesting population of American peregrine falcons. Motorboat activity can result in some level of disturbance of certain wildlife species and result in a corresponding level of avoidance of the river's edge. This may, to some extent, result in effective loss of habitat. While ANILCA Section 1110(a) and 811 permit the use of motorboats, prohibiting the use of hovercraft, airboats, and personal watercraft would protect and enhance the outstandingly remarkable recreation values in the Middle Fork and wildlife values (nesting peregrine falcons) in both the North Fork and Middle Fork.

All of the river segments listed above would be managed for a Semi-Primitive recreational opportunity, which focuses on non-motorized experiences. Prohibiting hovercraft, airboats, and personal watercraft would help maintain the Semi-Primitive setting in these areas and would reduce disturbance to wildlife.

Interim Travel Management Prescriptions for all Semi-Primitive Zones

Same as Management Common to All Lands, with the following addition: A permit or approved Plan of Operations would be required for all other OHV use, including ATVs.

Interim Travel Management Prescriptions for Backcountry, Middlecountry, Frontcountry, Rural Zones, and Other BLM lands outside of the SRMA

Same as Management Common to All Lands, with the following additions:

Summer use (May 1 through October 14) of OHVs 64 inches or less in width, and weighing 1,500 pounds curb weight and less would be allowed on existing routes only (Map 44)).

A permit or approved Plan of Operations would be required for all other OHV use (new user-created routes and cross-country travel off existing routes would not be allowed).

RATIONALE: Limiting the use of OHVs would help maintain the appropriate recreational setting. Additionally, it would reduce impacts to soil, water, vegetation, fish, and wildlife.

2.7.2.1.2.7. Withdrawals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.8, the following decisions would apply under Alternative B:

Recommend retaining BLM administrative site withdrawals, including PLO 753, Eagle administrative site (12.23 acres); PLO 1699, Chicken administrative site (11.35 acres); and, PLO 3943, West Fork and South Fork recreation sites (120 acres).

Recommend retaining PLO 3432, the Eagle Recreational withdrawal (816 acres).

Approximately 1,064,000 acres would be closed to locatable mineral entry in the following areas:

- The entire Fortymile ACEC to protect caribou calving/postcalving and Dall sheep habitats;
- Within one mile of the ungulate mineral lick (T. 26N., R. 19E., C.R.M.) to protect important wildlife habitat;
- The "wild," "recreational," and "scenic" segments of the Fortymile WSR, to include any lands within the river corridor that are not withdrawn under ANILCA and the WSR Act, for the purposes of protecting the water quality and Outstandingly Remarkable Values of the river;
- The Fortymile SRMA to maintain Primitive and Semi-Primitive recreational opportunity settings.

Land tenure Zone 3 lands (Appendix G, *Land Tenure*) will be closed to mineral leasing and location to prevent encumbrance. As needed, recommend modification of public land orders to allow for disposal of these parcels while keeping them closed to mineral entry and mineral leasing.

2.7.2.1.3. Special Designations

2.7.2.1.3.1. Areas of Critical Environmental Concern

DECISIONS:

Under Alternative B, approximately 690,000 acres would be designated as the Fortymile ACEC (Map 60) to protect relevant and important values, which are general caribou calving and postcalving habitat for the Fortymile caribou herd and Dall Sheep habitat. Of this, 386,000 acres are in process of conveyance or are State-selected lands or high priority Doyon, Limited—selected lands and will likely be conveyed and 56,000 acres are within Fortymile River Corridor.

The entire ACEC would remain closed to entry, location, and leasing of minerals subject to valid existing rights. A mining Plan of Operations would be required on any mining activity within an ACEC (43 CFR 3809.11(c)(3)).

Ungulate mineral licks: Within a distance of one mile of designated ungulate mineral licks, limit all permitted uses and development of facilities for permitted uses, from May 10 through August 31 to activities which would not reduce ungulate use of licks.

Allowed uses would be managed to maintain caribou and Dall sheep habitat. The area is and would remain generally free of summer motorized vehicle use (May 1 through October 14 sheep habitat; May 10 through July 15 remainder). (For example, summer motorized vehicle use, in the areas of the ACEC where allowed, would be restricted to a limited set of routes.) In locations where motorized vehicle trails are currently established, motorized vehicle use would be limited to select existing trails or routes (or designated trails when travel management plan is completed). In RMZs where motorized use is compatible (and OHV trail construction and other development may be planned), manage the area to maintain its value as caribou and Dall sheep habitat as well

as to meet the RSC objectives for that RMZ; designated trails or routes and other developments may be established if limited in density and compatible with caribou and Dall sheep habitat.

Winter motorized use in Dall sheep habitat is currently minimal, but would be monitored and, if use begins to approach a level which may result in altered distribution of Dall sheep, such use may be restricted in the future through alteration of maintained trails or, if necessary, closures of limited areas and/or time periods.

SUMMARY OF MANAGEMENT IN THE ACEC

The following is a summary of other management decisions that would apply within the Fortymile ACEC. See Appendix C, *Evaluation of ACEC Nominations* for an evaluation of ACEC nominations.

No salable mineral disposal would be authorized within one mile of ungulate mineral licks (Map 26). Subject to pending conveyance to the State and Native corporations, the ACEC would be retained in federal land status and would be a right-of-way avoidance area. Land use permits and leases would be considered, subject to constraints for ungulate mineral licks. Standard Operating Procedures (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would apply to activities requiring a permit from the BLM.

A full description of the OHV limitations can be found in section 2.7.2.1.2.6 Travel Management. A summary follows:

- The OHV designation is Limited.
- The ACEC includes lands within the Fortymile SRMA and portions of the Fortymile WSR;
- Limitations on motorized use varies among these areas.
- In general, cross-country winter use (October 15 through April 30) would be allowed for snowmobiles weighing 1,000 pounds curb weight and less.
- Aircraft use would be unrestricted.
- Summer use of OHVs would either be excluded in Semi-Primitive RMZ or limited to existing routes on remaining lands.

2.7.2.1.3.2. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

Outstandingly remarkable values for the Fortymile WSR include scenic, recreation, geologic, historic, and wildlife. Specific ORVs are identified by river segment in Appendix E, *Wild and Scenic Rivers Inventory*.

Under Alternative B, two eligible river segments, Gold Run and Dome Creek, (Map 70) would be recommended as suitable for designation according to their eligibility class.

River Name	Classification	Outstandingly Remarkable Values	Miles
Dome Creek	"recreational"	historic	5
Gold Run	"wild"	historic	4

RATIONALE: Dome Creek and Gold Run Creek are free-flowing and possess at least one outstandingly remarkable value as described in Section E.1.1, "Determining Eligibility". All eligible rivers would be recommended as suitable for designation in at least one alternative for the purpose of analysis.

2.7.2.2. Alternative C: Fortymile Subunit

The decisions in the following sections apply to Alternative C in the Fortymile Subunit.

2.7.2.2.1. Resources

2.7.2.2.1.1. Cultural Resources

DECISION:

Same as Alternative B.

2.7.2.2.1.2. Fish and Aquatic Species

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.3, the following decisions would apply under Alternative C:

The Tower Bluffs Rapids (HUC # 190405030602) watershed would be identified as a RCA (Map 7, "Conservation and Restoration Watersheds – Fortymile Subunit, Alternatives C and D").

The Sam Patch Creek-Fortymile River (HUC # 190401042207) and Steele Creek-Fortymile River watershed (190401042203) would be identified as a High Priority Restoration Watershed and be emphasized for active restoration. Management of High Priority Restoration Watersheds is described in section 2.6.2.3 Fish and Aquatic Species.

Complete watershed assessments Section I.5, "Watershed Assessment Process"as necessary for management.

2.7.2.2.1.3. Visual Resources

DECISIONS:

Proposed VRM classes for Alternative C are displayed on Map 16. Recreation Management Zones are displayed on Map 45. Areas where wilderness characteristics would be maintained are displayed on Map 71.

The "wild" segments of the Fortymile River would be assigned a VRM Class I and the "scenic" segments would be assigned a VRM Class II, as described under Alternative B.

"Recreational" river segments (Wade Creek segment) would be assigned a VRM Class IV. "Recreational" segments of the Fortymile River would be managed so that there is no substantial adverse effect on the river and its immediate environment (Manual 6400). Large-scale facilities may be established in proximity to the river.

Areas managed for wilderness characteristics associated with the Dennison Fork "scenic" segment and the core area of the Fortymile ACEC outside the river corridor would be assigned a VRM Class II to help maintain wilderness characteristics.

All remaining BLM-managed lands not within the Fortymile WSR Corridor would be assigned a VRM Class IV. This includes the Eagle RMZ with a RSC Class of Rural. Management actions would be taken to protect the wild and scenic river view shed. Development activities would be designed to harmonize with the visually dominating elements of the surrounding landscape characteristics of line, form, color and texture, but would allow major modification of the natural landscape.

2.7.2.2.1.4. Wilderness Characteristics

OBJECTIVE: Allow for multiple use while maintaining naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 494,000 acres so that these lands retain their wilderness characteristics for the life of the RMP.

DECISIONS:

Consistent with allocation decisions in the RMP, allow other multiple-uses on lands where wilderness characteristics would be maintained, while applying management restrictions (such as conditions of use or mitigation measures) to avoid or minimize impacts to wilderness characteristics and meet the objective retaining wilderness characteristics over the life of the RMP.

Wilderness characteristics would be maintained on 494,000 acres (26 percent of the lands with wilderness characteristics in this subunit). These lands occur within the Fortymile "wild" river segments that do not contain mining claims or have been determined to be non-navigable, in the Dennison Fork "scenic segment", and in the core of the Fortymile ACEC (Map 71).

RATIONALE: Wilderness characteristics would be maintained by decisions in this alternative to designate ACECs, close certain areas to mineral leasing and mining, retain the lands in federal management, manage for Semi-Primitive and Backcountry recreation settings, and set OHV designations. Additionally, BLM-authorized uses would be further analyzed through the NEPA process for impacts to size, naturalness, primitive recreation, and solitude, and stipulated mitigation measures would be applied where needed to minimize impacts. Due to the limited access to many BLM lands in the Fortymile Subunit and the lack of mineral development potential, it is likely that wilderness characteristics would remain on much more than 24 percent of the lands over the life of the plan.

2.7.2.2.1.5. Wildlife

DECISIONS:

See section 2.6.2.13 Wildlife Management Common to All Subunits.

2.7.2.2.2. Resource Uses

2.7.2.2.2.1. Forest and Woodland Products

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.1, the following decisions would apply under Alternative C:

Personal use of timber would be allowed on all lands, except within the "wild" segments of the Fortymile WSR, Eagle Recreational withdrawal, and Fort Egbert Historic Site.

Commercial timber salvage sales would be allowed on all lands.

Commercial timber sales (large and small) would be allowed on all lands, except within the Fortymile WSR Corridor, Eagle Recreational withdrawal, and Fort Egbert Historic Site.

Commercial use of forest products would be allowed on all lands, except within the "wild" segments of the Fortymile WSR Corridor, Eagle Recreational withdrawal, and Fort Egbert Historic Site.

2.7.2.2.2.2. Land Tenure

DECISIONS:

Same as Alternative B.

2.7.2.2.2.3. Land Use Authorizations

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.3, the following decisions would apply under Alternative C:

Long-term camping in the Fortymile WSR Corridor would be authorized by permit. Allow long-term camping in support of nearby state mining claims in the "scenic" and "recreational" segments of the Fortymile WSR, but not the "wild" segment. This is the same as Alternative A. There would be no right-of-way avoidance areas.

2.7.2.2.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals.

2.7.2.2.2.4.1. Fluid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.1, the following decisions would apply under Alternative C:

Approximately 623,000 acres in the following areas would be closed to fluid leasable minerals (Map 27):

- The Fortymile WSR Corridor (all segments)
- The Fortymile SRMA (same as the WSR corridor)
- Core caribou habitat in the Fortymile ACEC (central portion of the ACEC only)
- Zone 3 disposal lands

- BLM's Chicken and Eagle administrative sites, Fort Egbert Historic Site, and the Eagle Recreational withdrawal.

Approximately 155,000 acres would be open to fluid mineral leasing subject to minor constraints, including the remainder of the Fortymile ACEC outside of the core calving area.

The remainder of the subunit, approximately 1,098,000 acres, would be open to leasing, subject to Standard Lease Terms.

No surface occupancy would be allowed within one-half mile of identified ungulate mineral licks that are located in open areas.

2.7.2.2.2.4.2. Solid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.2, the following decisions would apply under Alternative C:

The same areas that are closed to fluid leasable minerals, approximately 623,000 acres, would also be closed to solid leasable minerals (Map 27).

Approximately 155,000 acres would be open to fluid mineral leasing, subject to minor constraints, including the remainder of the Fortymile ACEC outside of the core calving area.

The remainder of the subunit, approximately 1,098,000 acres, would be open to leasing, subject to standard leasing stipulations.

No surface occupancy would be allowed within one-half mile of identified ungulate mineral licks that are located in open areas.

2.7.2.2.2.4.3. Locatable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.3, the following decisions would apply under Alternative C:

Approximately 623,000 acres in the following areas would be closed to locatable mineral entry (Map 28):

- The Fortymile WSR Corridor (all segments)
- The Fortymile SRMA (same as the WSR corridor)
- Core caribou habitat within the Fortymile ACEC (central part of the ACEC only)
- Within one mile of identified ungulate mineral licks
- Zone 3 disposal lands
- BLM's Chicken and Eagle administrative sites, Fort Egbert Historic Site, and the Eagle Recreational Withdrawal.

All remaining lands in the Fortymile Subunit, approximately 1,253,000 acres, would be open to locatable mineral entry.

2.7.2.2.2.4.4. Salable Minerals

DECISIONS:

Same as Alternative B.

2.7.2.2.2.5. Recreation

DECISIONS:

In addition to the decisions Common To All Subunits listed in section 2.6.3.6, the following decisions would apply under Alternative C:

Recreation Management Areas

The Fortymile SRMA would include approximately 248,000 acres of lands located within the Fortymile WSR Corridor and lands surrounding the town of Eagle. Under this alternative, the Fortymile SRMA would include nine Recreation Management Zones (RMZs) displayed in Table 2.7, "Fortymile Recreation Management Zones, RSC Settings, and OHV Designations, Alternative C" the management of which is described in Section H.1.2, "Fortymile Alternative C".

Table 2.7. Fortymile Recreation Management Zones, RSC Settings, and OHV Designations, Alternative C

Name	Acres	RSC Setting[ab]	OHV Designation
Middle Fork Fortymile RMZ	125,000	Semi-Primitive	LIMITED
Mosquito Fork RMZ	19,000	Semi-Primitive	LIMITED
Fortymile RMZ	69,000	Backcountry	LIMITED
West Fork Fortymile RMZ	13,000	Backcountry	LIMITED
Logging Cabin Creek RMZ	7,000	Middlecountry	LIMITED
O'Brien Creek RMZ	4,000	Middlecountry	LIMITED
Wade Creek RMZ	3,000	Frontcountry	LIMITED
Chicken RMZ	7,000	Frontcountry	LIMITED
Eagle RMZ	1,000	Rural	LIMITED
Other BLM lands	1,628,000	N/A	LIMITED

[a]Table 2.5

[b]RSC are descriptive conditions describing management parameters at the implementation level. These are not land use planning decisions

2.7.2.2.2.6. Travel Management

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative C.

DECISIONS:

Alternative C is very similar to Alternative B. The primary differences are in the location and size of the Recreation Management Zones and an allowance for off-route travel for game retrieval.

The table above describes the Recreation Management Zones in the Fortymile SRMA under Alternative C (Map 45). Under this alternative, the SRMA only includes the Fortymile WSR Corridor and lands surrounding the Davis Dome and the town of Eagle. The OHV prescriptions vary by Recreation Management Zone and are described more fully below.

Interim Travel Management Prescriptions Common to All Lands

All forms of non-motorized use would be allowed.

Cross-country winter use (October 15 through April 30) of snowmobiles 50 inches or less in width, and weighing 1,000 pounds curb weight and less would be allowed.

Aircraft use would be unrestricted, with the following provisions: Minimal clearing of rocks, downed logs, and brush would be allowed; construction or formal improvement of landing areas would occur by permit only; and use of gravel bars and winter snow areas would be allowed, subject to reasonable provisions to protect the values of the "wild," "scenic," and "recreational" river segments.

Additional restrictions could be developed for the purposes of site protection, visitor safety, and/or enhancing recreational opportunities, experiences and outcomes.

Wild and Scenic River Corridors

All forms of non-motorized use would be allowed. Motorboat use would be allowed without specific authorization consistent with ANILCA Sections 1110(a) and 811. Airboats, hovercraft, and personal watercraft would not be permitted in the following non-navigable river segments: the North Fork above the Kink, the Middle Fork, Champion Creek, Joseph Creek, and Mosquito Fork above Ingle Creek.

RATIONALE: The Wild and Scenic Rivers Act states that rivers classified as "wild" are generally inaccessible except by trail, and are to represent vestiges of primitive America (Wild and Scenic Rivers Act, Section 2). The Middle Fork of the Fortymile WSR has outstandingly remarkable recreational values. One of the available recreational opportunities is a Primitive, non-motorized boating experience. Airboats, hovercraft and personal watercraft generate noise levels which are disruptive to some recreationists and would diminish the Semi-Primitive experience managed for and expected by those recreationists on a "wild" river. These types of use are not considered compatible with the values for which the "wild" river is to be managed.

The Middle Fork and North Fork support a dense nesting population of American peregrine falcons. Motorboat activity can result in some level of disturbance of certain wildlife species and result in a corresponding level of avoidance of the river's edge. This may, to some extent, result in effective loss of habitat. While ANILCA Section 1110(a) and 811 permit the use of motorboats, prohibiting the use of hovercraft, airboats, and personal watercraft would protect and enhance the outstandingly remarkable recreation values in the Middle Fork and wildlife values (nesting peregrine falcons) in both the North Fork and Middle Fork.

All of the river segments listed above would be managed for a Semi-Primitive recreational opportunity, which focuses on non-motorized experiences. Prohibiting hovercraft, airboats, and personal watercraft would help maintain the Semi-Primitive setting in these areas and would reduce disturbance to wildlife.

Interim Travel Management Prescriptions for All Semi-Primitive Zones

Same as Management Common to All Lands, with the following addition: A permit or approved Plan of Operations would be required for all summer OHV use, including ATVs.

Interim Travel Management Prescriptions for All Backcountry, Middlecountry, Frontcountry, Rural Zones and Other BLM lands Outside the SRMA

Same as Management Common to All Lands, with the following additions:

Summer use (May 1 through October 14) of OHVs 64 inches or less in width, and weighing 1,500 pounds curb weight and less would be allowed on existing routes only, except for game retrieval (Map 45).

A permit or approved Plan of Operations would be required for all other OHV use (new user-created routes and cross-country travel off existing routes would not be allowed).

RATIONALE: Limiting the use of OHVs by weight, seasonal closure, and/or to existing routes would help maintain the appropriate recreational setting. Additionally, it would reduce impacts to soil, water, vegetation, fish, and wildlife. Allowing for off-route travel by ATV for game retrieval would somewhat increase impacts to natural resources but would provide additional opportunity for motorized assisted hunting.

2.7.2.2.2.7. Withdrawals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.8, the following decisions would apply under Alternative C:

Recommend retaining BLM administrative site withdrawals, including PLO 753, Eagle administrative site (12.23 acres); PLO 1699, Chicken administrative site (11.35 acres); and, PLO 3943 West Fork and South Fork recreation sites (120 acres).

Recommend modifying PLO 3432 (816 acres) to allow for expansion of Eagle Gravel Pit.

Review the status of the Fort Egbert parcel. If it is not withdrawn, recommend a new FLPMA withdrawal to protect the historic structures and values on the parcel.

Approximately 610,000 acres would be closed to locatable mineral entry in the following areas:

- Core caribou habitat within the Fortymile ACEC to protect caribou calving/postcalving and Dall sheep habitat;
- Within one mile of the ungulate mineral lick (CRM, T. 26N., R. 19E.) to protect important wildlife habitat;
- The "wild," "recreational," and "scenic" segments of the Fortymile WSR, to include any lands within the river corridor that are not withdrawn under ANILCA and the WSR Act, for the purposes of protecting the water quality and Outstandingly Remarkable Values of the river;

Land tenure Zone 3 lands (Appendix G, *Land Tenure*) will be closed to mineral leasing and location to prevent encumbrance. As needed, recommend modification of public land orders to allow for disposal of these parcels while keeping them closed to mineral entry and mineral leasing.

2.7.2.2.3. Special Designations

2.7.2.2.3.1. Areas of Critical Environmental Concern

DECISIONS:

Under Alternative C, approximately 554,000 acres would be designated as the Fortymile ACEC (Map 61) to protect relevant and important values, which are concentrated caribou calving and postcalving habitat for the Fortymile caribou herd and Dall sheep habitat. Of this, 265,000 acres are in the process of conveyance or are State-selected lands or high priority Doyon, Limited-selected lands that will likely be conveyed. Approximately 38,000 acres are within the Fortymile WSR Corridor.

Only a portion of this acreage (core calving/postcalving habitat and ungulate mineral licks, 369,000 acres) would be closed to entry, location and leasing of minerals subject to valid existing rights. A mining Plan of Operations would be required on any mining activity within an ACEC (43 CFR 3809.11(c)(3)). Lands within one mile of ungulate mineral licks outside of the core area of the ACEC are open to fluid leasable minerals subject to no surface occupancy, and closed to locatable mineral entry.

Ungulate mineral licks: Within a distance of one mile of designated ungulate mineral licks, limit all permitted uses and development of facilities for permitted uses, from May 10 through August 31 to activities which would not reduce ungulate use of licks.

Allowed uses would be managed to maintain caribou and Dall sheep habitat. Within delineated sheep habitat and core caribou calving/postcalving habitat and within one mile of ungulate mineral licks, management intent would be the same as Alternative B for minerals management and travel management. Outside of delineated core calving/postcalving habitat, areas except for ungulate mineral licks would be open to locatable mineral entry subject to SOPs and open to leasables subject to minor constraints. Seasonal activity restrictions would apply within the ACEC (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) and operators must submit a plan describing methods proposed to minimize impacts to caribou and Dall sheep and their habitat.

SUMMARY OF MANAGEMENT IN THE ACEC

The following is a summary of other management decisions that would apply within the ACEC. See Appendix C, *Evaluation of ACEC Nominations* for an evaluation of ACEC nominations.

No salable mineral disposal would be authorized within one mile of ungulate mineral licks. Subject to pending conveyance to the State and Native corporations, the ACEC would be retained in federal land status. Land use permits, rights-of-way, and leases would be considered, subject to constraints for ungulate mineral licks. Standard Operating Procedures (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*)would apply to activities requiring a permit from BLM.

A full description of the OHV limitations can be found in section 2.7.2.2.2.6 Travel Management. A summary follows:

- The OHV designation is Limited.
- The ACEC includes lands within the Fortymile SRMA (same as the Fortymile WSR Corridor);
- Limitation on motorized use varies among these areas.

- In general, cross-country winter use (October 15 through April 30) would be allowed for snowmobiles weighing 1,000 pounds curb weight and less.
- Use of aircraft would be unrestricted.
- Summer use of OHVs would either be excluded in Semi-Primitive Zones or limited to existing routes on remaining lands.
- Travel off existing routes would be allowed for game retrieval.

2.7.2.2.3.2. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

Outstandingly remarkable values for the Fortymile WSR include scenic, recreation, geologic, historic, and wildlife. Specific ORVs are identified by river segment in Appendix E.

Under Alternative C, no rivers would be recommended as suitable for designation under the Wild and Scenic Rivers Act in the Fortymile Subunit.

RATIONALE: Dome Creek possesses outstandingly remarkable historic values in that it exemplifies small-scale capitalized entrepreneurs or businesses in mining placer gold deposits in Interior Alaska from the 1910s to 1930s. There are 18 valid existing mining claims on Dome Creek. BLM could not ensure that the historic ORV would be maintained. Gold Run flows into a stream that feeds the North Fork (classified as a "wild" river) but it is separated from the North Fork by approximately nine miles of streams under private ownership. In addition, there is no known federal, public, state, Tribal, local, or other interests in these designations. State and local groups are opposed to designation. For these reasons, Dome Creek and Gold Run Creek were not recommended as suitable for designation under Alternative C.

2.7.2.3. Alternative D: Fortymile Subunit

The decisions in the following sections apply to Alternative D in the Fortymile Subunit.

2.7.2.3.1. Resources

2.7.2.3.1.1. Cultural Resources

DECISIONS:

Same as Alternative B.

2.7.2.3.1.2. Fish and Aquatic Species

DECISIONS:

In addition to the decisions Common To All Subunits listed in section 2.6.2.3 Fish and Aquatic Species, the following decisions would apply under Alternative D:

The Tower Bluffs Rapids (HUC # 190405030602) watershed would be identified as a RCA (Map 7).

The Sam Patch Creek-Fortymile River (HUC # 190401042207) and Steele Creek-Fortymile River watershed (190401042203) would be identified as a High Priority Restoration Watershed and emphasized for active restoration. Management of High Priority Restoration Watersheds is described in section 2.6.2.3 Fish and Aquatic Species.

Complete watershed assessments Section I.5, "Watershed Assessment Process"as necessary for management.

2.7.2.3.1.3. Visual Resources

DECISIONS:

Proposed VRM classes under Alternative D are displayed on Map 17. Recreation Management Zones are displayed on Map 46.

The "wild" segments of the Fortymile River would be assigned a VRM Class I as described in Alternative B.

"Scenic" river segments would be assigned a VRM Class III. "Scenic" segments would be managed in a near-natural setting so that there is no substantial adverse effect on the river and its immediate environment, with facilities screened from the river (Manual 6400).

In VRM Class III areas, developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture but allow for moderate changes to landform and vegetation and may attract the attention of the casual observer.

"Recreational" river segments (Wade Creek segment) would be assigned a VRM Class IV. "Recreational" segments would be managed so that there is no substantial adverse effect on the river and its immediate environment. Large-scale recreational facilities may be established in proximity to the river, but are not required (Manual 6400).

All BLM-managed lands not within the Fortymile WSR Corridor would be assigned a VRM Class IV. This includes the Eagle Recreation Management Zone with a RSC Class of Rural. Management actions would be taken to protect the Wild and Scenic River view shed.

In VRM Class IV areas, developments would be designed to harmonize with the visually dominating elements of the surrounding landscape characteristics of line, form, color and texture; but major modification of the natural landscape would be allowed.

2.7.2.3.1.4. Wilderness Characteristics

OBJECTIVE:

Allow for multiple use while maintaining naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 53,000 acres so that these lands retain their wilderness characteristics for the life of the RMP.

DECISIONS:

Consistent with allocation decisions in the RMP, allow other multiple-uses on lands where wilderness characteristics would be maintained, while applying management restrictions (such

as conditions of use or mitigation measures) to avoid or minimize impacts to wilderness characteristics and meet the objective retaining wilderness characteristics over the life of the RMP.

Wilderness characteristics would be maintained on 53,000 acres (3 percent of the lands with wilderness characteristics in this subunit). These lands occur in the Middle Fork Fortymile Semi-Primitive RMZ, which corresponds to the Joseph Creek and Middle Fork "wild" segments of the Fortymile WSR (Map 72).

RATIONALE: Wilderness characteristics would be maintained by decisions in this alternative to close certain areas to mineral leasing and mining, retain the lands in federal management, manage for Semi-Primitive recreation settings, and set OHV designations. Additionally, BLM-authorized uses would be further analyzed through the NEPA process for impacts to size, naturalness, primitive recreation, and solitude, and stipulated mitigation measures would be applied where needed to minimize impacts. Due to the limited access to many BLM lands in the Fortymile Subunit and the lack of mineral development potential, it is likely that wilderness characteristics would remain on much more than 3 percent of the lands over the life of the plan.

2.7.2.3.1.5. Wildlife

DECISIONS:

See section 2.6.2.13 Wildlife Management Common to All Subunits.

2.7.2.3.2. Resource Uses

2.7.2.3.2.1. Forest and Woodland Products

DECISIONS:

In addition to the decisions Common To All Subunits listed in section 2.6.3.1, the following decisions would apply under Alternative D:

Personal use of timber would be allowed on all lands, except within the Eagle Recreational withdrawal and Fort Egbert Historic Site.

Commercial timber salvage sales would be allowed on all lands.

Commercial timber sales (large and small) would be allowed on all lands, except within the Fortymile WSR Corridor, Eagle Recreational withdrawal, and Fort Egbert Historic Site.

Commercial use of forest products would be allowed on all lands, except within the Fort Egbert Historic Site.

2.7.2.3.2.2. Land Tenure

DECISIONS:

Land tenure decisions are the same as Alternative B, except for the following.

Revoke PLO 3432, the Eagle Recreational withdrawal (816 acres), to make land available for disposal (Zone 3 lands).

2.7.2.3.2.3. Land Use Authorizations

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.3, the following decisions would apply under Alternative D:

Long-term camping in the Fortymile WSR Corridor would be authorized by permit. Allow long-term camping in support of nearby state mining claims in the "wild," "scenic," and "recreational" segments of the Fortymile WSR.

2.7.2.3.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals.

2.7.2.3.2.4.1. Fluid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.1, the following decisions would apply under Alternative D:

Approximately 165,000 acres in the following areas would be closed to fluid leasable minerals (Map 29).

- The "wild" and "recreational" segments of the Fortymile WSR Corridor
- Zone 3 disposal lands
- BLM's Chicken and Eagle administrative sites, Fort Egbert Historic Site, and Eagle Recreational withdrawal.
- Within one-half mile of identified ungulate mineral licks.

Approximately 515,000 acres in the Fortymile ACEC would be open to fluid mineral leasing subject to minor constraints.

The remainder of the subunit, approximately 1,196,000 acres, would be open to leasing, subject to Standard Lease Terms. This would include the "scenic" segments of the Fortymile WSR Corridor and all remaining lands not previously described.

2.7.2.3.2.4.2. Solid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.2, the following decisions would apply under Alternative D:

The same areas that are closed to fluid leasable minerals, approximately 165,000 acres, would also be closed to solid leasable minerals.

Approximately 515,000 acres in the Fortymile ACEC would be open to solid mineral leasing, subject to minor constraints.

The remainder of the subunit, approximately 1,196,000 acres, would be open to leasing, subject to standard leasing stipulations. This would include the "scenic" segments of the Fortymile WSR Corridor and all remaining lands not previously described.

2.7.2.3.2.4.3. Locatable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.3, the following decisions would apply under Alternative D:

Approximately 163,000 acres in the following areas would be closed to locatable mineral entry (Map 30):

- The "wild" segment of the Fortymile WSR Corridor
- A portion of the "recreational" segment of the Fortymile WSR Corridor, starting at CRM, T. 27N., R. 20E., Sec. 19, S. ½ and heading southwesterly along Wade Creek to the confluence of Wade Creek and Walker Fork
- Within one-half mile of identified ungulate mineral licks
- Zone 3 disposal lands
- BLM's Chicken and Eagle administrative sites, Fort Egbert Historic Site, and the Eagle Recreational Withdrawal.

All remaining lands in the Fortymile Subunit, approximately 1,713,000 acres, would be open to locatable mineral entry, including the "scenic" segments of the Fortymile WSR Corridor and portions of the "recreational" segment (above the dredge site).

2.7.2.3.2.4.4. Salable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.4, the following decisions would apply under Alternative D:

Approximately 145,000 acres in the "wild" segments of the Fortymile WSR Corridor would be closed to salable minerals.

All remaining lands in the Fortymile Subunit, approximately 1,731,000 acres, would be open to salable minerals.

2.7.2.3.2.5. Recreation

DECISIONS:

In addition to the decisions Common To All Subunits listed in section 2.6.3.6, Recreation, the following decisions would apply under Alternative D.

Recreation Management Areas

Similar to Alternative C, the Fortymile SRMA would include 248,000 acres of lands located within the Fortymile WSR Corridor and lands surrounding the town of Eagle (Map 46). Under this alternative, the Fortymile SRMA would be split into 10 Recreation Management

Zones (RMZs) listed in the table below. Proposed management of the RMZs is described in Section H.1.3, "Fortymile Alternative D".

Table 2.8. Fortymile Recreation Management Zones, RSC Settings, and OHV Designations, Alternative D

Name	Acres	RSC Setting[a] [b]	OHV Designation
Middle Fork Fortymile RMZ	54,000	Semi-Primitive	LIMITED
North Fork Fortymile RMZ	76,000	Backcountry	LIMITED
Mosquito Fork RMZ	19,000	Backcountry	LIMITED
Fortymile RMZ	64,000	Middlecountry	LIMITED
West Fork Fortymile RMZ	13,000	Middlecountry	LIMITED
Logging Cabin Creek RMZ	7,000	Frontcountry	LIMITED
O'Brien Creek RMZ	4,000	Frontcountry	LIMITED
Wade Creek RMZ	3,000	Frontcountry	LIMITED
Chicken RMZ	7,000	Rural	LIMITED
Eagle RMZ	1,000	Rural	LIMITED
Other BLM lands	1,627,000	N/A	LIMITED

[a]Table 2.5

[b]RSC are descriptive conditions describing management parameters at the implementation level. These are not land use planning decisions

2.7.2.3.2.6. Travel Management

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative D.

DECISIONS:

Alternative D varies from Alternatives B and C in that cross-country summer use of OHVs weighing 1,500 pounds curb weight and less would be allowed in all areas except the Semi-Primitive RMZ.

Table 2.8, "Fortymile Recreation Management Zones, RSC Settings, and OHV Designations, Alternative D" above describes the Recreation Management Zones in the Fortymile SRMA under Alternative D. Under this alternative, the SRMA only includes the Fortymile WSR Corridor. The OHV prescriptions vary by Recreation Management Zone and are described below (Map 46).

Interim Travel Management Prescriptions Common to All Lands

All forms of non-motorized use would be allowed.

Cross-country winter use (October 15 through April 30) of snowmobiles 50 inches or less in width, and weighing 1,000 pounds curb weight and less would be allowed.

Aircraft use would be unrestricted, with the following provisions: Minimal clearing of rocks, downed logs, and brush would be allowed; construction or formal improvement of landing areas would occur by permit only; and use of gravel bars and winter snow areas would be allowed, subject to reasonable provisions to protect the values of the "wild," "scenic," and "recreational" river segments.

Additional restrictions could be developed for the purposes of site protection, visitor safety, and/or enhancing recreational opportunities, experiences and outcomes.

Wild and Scenic River Corridors

Same as Alternative C, all forms of non-motorized use would be allowed. Motorboat use would be allowed without specific authorization consistent with ANILCA Sections 1110(a) and 811. Airboats, hovercraft, and personal watercraft would not be permitted in the following non-navigable river segments: North Fork above the Kink, Middle Fork, Champion Creek, Joseph Creek, and Mosquito Fork above Ingle Creek.

RATIONALE: The Wild and Scenic Rivers Act states that rivers classified as "wild" are generally inaccessible except by trail, and are to represent vestiges of primitive America (Wild and Scenic Rivers Act, Section 2). The Middle Fork of the Fortymile WSR has outstandingly remarkable recreational values. One of the available recreational opportunities is a Primitive, non-motorized boating experience. Airboats, hovercraft and personal watercraft generate noise levels which are disruptive to some recreationists and would diminish the Semi-Primitive experience managed for and expected by those recreationists on a "wild" river. These types of use are not considered compatible with the values for which the "wild" river is to be managed.

The Middle Fork and North Fork support a dense nesting population of American peregrine falcons. Motorboat activity can result in some level of disturbance of certain wildlife species and result in a corresponding level of avoidance of the river's edge. This may, to some extent, result in effective loss of habitat. While ANILCA Section 1110(a) and 811 permit the use of motorboats, prohibiting the use of hovercraft, airboats, and personal watercraft would protect and enhance the outstandingly remarkable recreation values in the Middle Fork and wildlife values (nesting peregrine falcons) in both the North Fork and Middle Fork.

All of the river segments listed above would be managed for a Semi-Primitive recreational opportunity, which focuses on non-motorized experiences. Prohibiting hovercraft, airboats, and personal watercraft would help maintain the Semi-Primitive setting in these areas and would reduce disturbance to wildlife.

Interim Travel Management Prescriptions for All Semi-Primitive Zones

Same as Management Common to All Lands, with the following addition:

A permit or approved Plan of Operations would be required for all summer OHV use, including ATVs.

Interim Travel Management Prescriptions for All Backcountry, Middlecountry, Frontcountry, Rural Zones and Other BLM lands Outside the SRMA

Same as Management Common to All Lands, with the following additions:

Cross-country summer use (May 1 through October 14) of OHVs 64 inches or less in width, and weighing 1,500 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use (new user-created routes and cross-country travel off existing routes would not be allowed).

RATIONALE: Limiting the use of OHVs by weight or seasonal closure would help maintain the appropriate recreational setting. Additionally, it would somewhat limit impacts to soil, water, vegetation, fish, and wildlife. Allowing for cross-country travel by ATV would increase impacts

to natural resources but would provide additional opportunity for motorized recreation under this alternative.

2.7.2.3.2.7. Withdrawals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.8, the following decisions would apply under Alternative D:

Recommend retaining BLM administrative site withdrawals, including PLO 753, Eagle administrative site (12.23 acres); PLO 1699, Chicken administrative site (11.35 acres); and, PLO 3943 West Fork and South Fork recreation sites (120 acres).

Recommend revoking PLO 3432 and make lands within the Eagle Recreational withdrawal (816 acres) available for disposal.

Recommend withdrawal of approximately 163,000 acres from locatable mineral entry in the following areas:

- Within one-half mile of all identified ungulate mineral licks to protect important wildlife habitat;
- The “wild” segments of the Fortymile WSR Corridor, to include any lands within the river corridor that are not withdrawn under ANILCA and the WSR Act, for the purposes of protecting the water quality and Outstandingly Remarkable Values of the river.
- The portion of the "recreational" segment (Wade Creek) of the Fortymile WSR Corridor, below the dredge (CRM, T. 27N., R. 20E., Sec. 19).

Land tenure Zone 3 lands (Appendix G, *Land Tenure*) will be closed to mineral leasing and location to prevent encumbrance. As needed, recommend modification of public land orders to allow for disposal of these parcels while keeping them closed to mineral entry and mineral leasing.

2.7.2.3.3. Special Designations

2.7.2.3.3.1. Areas of Critical Environmental Concern

DECISIONS:

Under Alternative D, approximately 554,000 acres would be designated as the Fortymile ACEC (Map 62) to protect the relevant and important values which are concentrated caribou calving and postcalving habitat for the Fortymile caribou herd and Dall Sheep habitat. Of this, 265,000 acres are in process of conveyance or are State-selected lands or high priority Doyon, Limited-selected lands and will likely be conveyed. Approximately 38,000 acres that are within the Fortymile WSR Corridor.

Areas within one-half mile of ungulate mineral licks and within the "wild" segments of the Fortymile WSR Corridor would be closed to locatable mineral entry and mineral leasing subject to valid existing rights. The remainder of the ACEC would be open to locatable mineral entry subject to the SOPs and to mineral leasing subject to minor constraints. A mining Plan of Operations would be required on any mining activity within an ACEC (43 CFR 3809.11(c)(3).

Ungulate mineral licks: Within a distance of one-half mile of designated ungulate mineral licks, limit all permitted uses and development of facilities for permitted uses, from May 10 through August 31 to activities which would not reduce ungulate use of licks.

Allowed uses would be managed to maintain caribou and Dall sheep habitat. Seasonal activity restrictions would apply within the ACEC and operators must submit a plan describing methods proposed to minimize impacts to caribou and Dall sheep and their habitat.

SUMMARY OF MANAGEMENT IN THE ACEC

The following is a summary of other management decisions that would apply within the ACEC.

The ACEC would be open to salable minerals, except those portions that overlap with the "wild" segments of the Fortymile WSR Corridor. Subject to pending conveyance to the State and Native corporations, the ACEC would be retained in federal land status. Land use permits, ROW, and leases would be considered, subject to constraints for ungulate mineral licks.

A full description of the OHV limitations can be found in section 2.7.2.3.2.6 Travel Management. A summary follows:

- The OHV designation is Limited.
- The ACEC includes lands within the Fortymile SRMA (same as the Fortymile River WSR Corridor);
- Limitation on motorized use varies between these areas.
- In general, cross-country winter use (October 15 through April 30) would be allowed for snowmobiles weighing 1,000 pounds curb weight and less.
- Use of aircraft would be unrestricted.
- Cross-country summer use (May 1 through October 14) of OHVs weighing 1,500 GVWR and less would be allowed in areas not designated a SRMA.
- Summer use of OHVs would be excluded in the Semi-Primitive Zones of the Fortymile SRMA.

2.7.2.3.3.2. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

Same as Alternative C, no rivers would be recommended suitable.

RATIONALE: Dome Creek possesses outstandingly remarkable historic values in that it exemplifies small-scale capitalized entrepreneurs or businesses in mining placer gold deposits in Interior Alaska from the 1910s to 1930s. There are 18 valid existing mining claims on Dome Creek. BLM could not ensure that the historic ORV would be maintained. Gold Run flows into a stream that feeds the North Fork (classified as a "wild" river) but it is separated from the North Fork by approximately nine miles of streams under private ownership. In addition, there is no known federal, public, state, Tribal, local, or other interests in these designations. State and local groups are opposed to designation. For these reasons, Dome Creek and Gold Run Creek were not recommended as suitable for designation under Alternative D.

2.7.2.4. Alternative E (Proposed RMP): Fortymile Subunit

The decisions in the following sections apply to Alternative E (Proposed RMP) in the Fortymile Subunit.

2.7.2.4.1. Resources

2.7.2.4.1.1. Cultural Resources

DECISION:

Same as Alternative B.

2.7.2.4.1.2. Fish and Aquatic Species

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.3, the following decisions would apply under Alternative E:

The following watersheds would be managed as Riparian Conservation Areas (RCAs) (Map 6). These are the same as Alternative B.

1. Buck Creek-North Fork Fortymile River (HUC # 190401040306)
2. Fortymile River (HUC # 190401042201)
3. Hilda Creek-North Fork Fortymile River (HUC # 190401040806)
4. Middle Fork North Fork Fortymile River (HUC # 190401040701)
5. Moose Creek-Mosquito Fork (HUC # 190401041305)
6. North Fork Fortymile River (HUC # 190401040308)
7. Seward Creek-Mission Creek (HUC # 190404010105)
8. South Fork Fortymile River (HUC # 190401042006)
9. The Kink-North Fork Fortymile River (HUC # 190401040803)
10. Tower Bluffs Rapids (HUC # 190405030602)

The following watersheds would be identified as a High Priority Restoration Watersheds and be emphasized for active restoration (Map 6).

1. Sam Patch Creek-Fortymile River watershed (HUC # 190401042207)

2. Steele Creek-Fortymile River watershed (HUC # 190401042203)

Complete watershed assessments Section I.5, "Watershed Assessment Process"as necessary for management.

2.7.2.4.1.3. Visual Resources

DECISIONS:

Proposed visual resource management (VRM) classes for Alternative E are displayed on Map 18. Recreation Management Zones are displayed on Map 47.

DECISIONS:

Management of VRM Class I areas is to preserve the existing characteristics of the landscape, but allow for limited management activities where changes should be very low and must not attract the attention of the casual observer.

In VRM Class II areas, developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

In VRM Class IV areas, management actions would be taken to protect the Wild and Scenic River view shed and adjacent VRM Classes. Development activities would be designed to harmonize with the visually dominating elements of the surrounding landscape characteristics of line, form, color and texture. Major modification of the natural landscape would be allowed.

Alternative E Visual Resource Management Allocations for the Fortymile Subunit (Maps 18 and 47)			
Area	**RSC Class**	**VRM Class**	**Acres**
Middle Fork/Mosquito Fork Fortymile RMZ	Semi-Primitive	I	144,000
West Fork/ Main Fortymile RMZ	Backcountry	II	82,000
Logging Cabin Creek/O'Brian Creek RMZ	Middlecountry	III	11,000
Fortymile and Mosquito Flats ACECs	N/A	II	399,000
Wade Creek/Chicken RMZ	Frontcountry	IV	10,000
Eagle RMZ	Rural	IV	1,000
Remaining BLM lands	N/A	IV	1,230,000

2.7.2.4.1.4. Wetlands and Floodplains

In addition to the Water Resource decisions listed as Common To All Subunits in section 2.6.2.10, the following decisions would apply under Alternative E:

DECISIONS:

Within five years of signing the ROD or by management direction, undertake development of a step-down Watershed Management Plan (WMP) for the Fortymile Wild and Scenic River watershed. Watershed planning helps address water quality problems in a holistic manner by fully assessing the potential contributing causes and sources of pollution including uplands, then prioritizing restoration and protection strategies to address these problems. Site specific soil and water management determinations (e.g., watershed, floodplain-wetland, or riparian rehabilitation techniques, monitoring techniques and schedule, and the design and placement of improvements) will be developed in the interdisciplinary Watershed Management Planning phase for resource programs. The "Watershed Assessment Matrix" (Table I.1), depicting range of desired conditions for aquatic habitats would be incorporated in the Watershed Management Plan as well as other science-based watershed assessment tools. Relevant new science and new empirical water resource data would also be incorporated in the WMP. Additional SOPs and Fluid Mineral Leasing Stipulations for land uses may be developed through the step-down watershed management plan.

Restoration and enhancement of floodplain areas should be approached through management of the watershed rather than just focusing on a narrow floodplain-riparian zone. Prior to initiating restoration measures, a determination must be made of site potential and the primary causes of a degraded ecological condition. The natural recovery processes operating in an area should be evaluated prior to considering structural measures. While stream systems and watersheds are undergoing major geomorphic or hydrological adjustment, structural measures should not be initiated. Consider implementing structural measures only if (1) proper management prescriptions will not achieve management objectives within the desired time frame, (2) costs incurred to

achieve accelerated rehabilitation are justified by the benefits to be achieved, and (3) natural recovery has not progressed to a point that will stabilize stream banks and/or wetlands basins.

In setting reclamation priorities for floodplain-wetland areas, consider the extent to which the floodplain-wetland may deteriorate if restoration or improvement action is not immediately implemented. Floodplain-wetland areas that may suffer substantial further degradation and have high potential for improvement should be given top priority. Those that have been degraded but appear stable may be given lower priority for restoration and improvement. Other factors, such as special status species, water quality, competing water uses, fisheries, and recreation values should also be considered when establishing priorities.

2.7.2.4.1.5. Wilderness Characteristics

OBJECTIVE:

Reduce impacts of multiple-use activities to maintain naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 556,000 acres.

DECISIONS:

The BLM would manage 1,321,000 acres for other multiple uses as a priority over protecting wilderness characteristics.

The BLM would manage 556,000 acres to emphasize other resources values and multiple uses while applying management restrictions to reduce impacts to wilderness characteristics. These lands are located within the Fortymile and Mosquito Flats ACECs and the Semi-Primitive recreation management zone in the Fortymile WSR corridor. It also includes some of the Backcountry recreation management zones on the Fortymile WSR corridor. (Map 73).

The BLM would not manage any lands to protect wilderness characteristics as a priority over other resource values and multiple uses.

The types of activities/projects that could potentially affect wilderness characteristics would require further NEPA analysis. The BLM will monitor wilderness characteristics through this NEPA process. In addition, on-the-ground or aerial monitoring will be done in conjunction with monitoring for other resources.

RATIONALE: Under BLM Manual 6320 the BLM can manage areas to emphasize other resource values and multiple uses while applying management restrictions to protect wilderness characteristics. Given the large size of most of the wilderness inventory units in the Fortymile Subunit, many land uses could occur that would not impact naturalness, solitude, primitive recreation on a landscape scale, or the size of the units. Management for other resource drivers such as recreation, wild and scenic rivers, and wildlife are complementary to maintaining wilderness characteristics. Under Alternative E, management decisions to protect caribou habitat, riparian and high priority wetland habitat, and the Fortymile WSR would result in maintenance of wilderness characteristics in these areas. Additionally, when the RMP is implemented uses proposed in these areas would be further analyzed through the NEPA process for impacts to size, naturalness and solitude and stipulated mitigation measures would be applied where needed to minimize impacts.

2.7.2.4.1.6. Wildlife

In addition to the goals and decisions listed as Common To All Subunits in section 2.6.2.13, the following would apply under Alternative E:

GOAL:

Protect and maintain the value of crucial caribou and Dall sheep habitat and ungulate mineral licks.

DECISIONS:

Domestic sheep, goats, and camelids (including alpaca and llama) are prohibited in Dall sheep habitat and adjacent lands.

Delineate 685,000 acres as crucial caribou and Dall sheep habitat (Map 103) to protect values, which include: concentrated caribou calving and postcalving habitat for the Fortymile caribou herd, ungulate mineral licks, and Dall sheep habitat. Management of these areas will give priority to maintaining habitat effectiveness – the ability of habitats to support Dall sheep and caribou—including the following management:

Ungulate mineral licks: Within a distance of one mile of designated ungulate mineral licks, limit all permitted uses and development of facilities for permitted uses, from May 10 through August 31 to activities which would not reduce sheep use of licks.

Limit density of trails within crucial caribou and Dall sheep habitat to protect values for which they were designated.

Within crucial caribou and Dall sheep habitat cross-country winter use of vehicles weighing more than 1,500 pounds curb weight will not be allowed without a permit. Cross-country Summer OHV use will not be allowed without a permit. Summer OHV travel on BLM approved routes may be allowed where it is compatible with maintenance of caribou and Dall sheep habitat effectiveness. These approved routes will be determined through travel management planning.

Winter motorized use in Dall sheep habitat would be monitored and, if use begins to approach a level which may result in altered distribution of Dall sheep, such use may be restricted in the future (through alteration of maintained trails or, if necessary, limited closures, e.g., limited areas and/or time periods).

Additional management prescriptions in crucial caribou and Dall sheep habitat for activities requiring a permit from the BLM:

Applicants proposing to conduct surface-disturbing activities or other intensive activities will, at the determination of the AO, be required to submit an approved plan (Caribou and Dall Sheep Impact Assessment and Mitigation Plan) describing methods to minimize impacts to caribou and Dall sheep and their habitat. This plan must describe the proposed project, the design and mitigation alternatives considered, the amount and quality of habitat to be affected, the mitigation and restoration to be applied, the residual impacts predicted, and the monitoring to be undertaken to confirm mitigation success.

Permanent roads will generally not be allowed, although long-term temporary roads may be, and roads will generally not be open to the public. Decisions subject to the ANILCA Title XI process in the Fortymile WSR corridor will be made on a case-by-case basis pursuant to Title XI.

Roads will be of the lowest practical profile. Road use may be restricted during caribou calving, postcalving, or Dall sheep lambing. Road construction will not be permitted if other means of access is practical (such as aircraft or winter ice-road). Facilities within crucial caribou and Dall sheep habitat that require year-round access will be located in forested areas where practical.

Permitted aircraft will follow a minimum flight level of 1,500 feet above ground level, except at landing and takeoff and when it would compromise safety. The AO may allow exceptions to these access requirements where impacts to caribou and Dall sheep are adequately minimized and where other resource considerations are of higher priority.

The footprint of facilities will be minimized. Permittees may be required to co-locate facilities and access to minimize habitat loss.

Reclamation and revegetation of disturbed areas will be required to meet performance standards set in site-specific reclamation plans with a goal of restoration of caribou and/or Dall sheep habitat, such as a required plant cover (percent) within a certain number of years before a performance bond is released.

2.7.2.4.2. Resource Uses

2.7.2.4.2.1. Forest and Woodland Products

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.1, the following decisions would apply under Alternative E:

Personal use of timber would be allowed on all lands.

Commercial timber salvage sales would be allowed on all lands.

Commercial timber sales (large and small) would be allowed on all lands (992,000 acres), except within the Fortymile WSR Corridor, Eagle Recreational withdrawal, Fort Egbert Historic Site, crucial caribou habitat, Fortymile ACEC, and Mosquito Flats ACEC (884,000 acres).

Commercial use of forest products would be considered on all lands.

2.7.2.4.2.2. Land Tenure

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.2, the following decisions would apply under Alternative E. The criteria for land tenure zones is described in Appendix G, *Land Tenure*.

Zone 1 lands (lands identified for retention or acquisition):

Lands within the Fortymile WSR Corridor and the Fortymile ACEC (Map 63), Mosquito Flats ACEC, crucial caribou and Dall sheep habitat, and restoration watersheds would be retained, pending completion of conveyance to the State and Native corporations.

Consider acquisition of private land inholdings from willing sellers within areas identified as Zone 1, including land surrounded on three sides by the Fortymile WSR Corridor.

Zone 2 lands (all lands not identified as Zone 1 or 3):

Consider acquisition, or disposal, including exchange, of scattered parcels within the Fortymile Subunit for the purposes of consolidation.

Zone 3 lands (lands identified for disposal):

Consider the following lands for disposal. If needed, modify existing public land orders to allow for disposal.

- Scattered parcels within the North Star Borough and along the Alaska and Taylor highways;
- East of Salcha Hot Springs site (PLO 5389);
- Tanacross airfield parcel (PLO 1768);
- Remnants of PLO 5150 (TAPs), north and east of the Alaska Highway;
- Federal, School and Park Reserves (Delta Junction), USS 3293, Blocks 14, 15, 16, 17, 18, 19;
- Recommend retaining PLO 1613, Alaska Highway ROW width reduction, and make the remaining lots available for disposal;
- If federal mining claims surrounded by State lands become null and void and are not conveyed to the State of Alaska, consider these lands for disposal or exchange.
- Four Mile Lake, T. 18 N., R. 12 E., Tract A, Copper River Meridian

2.7.2.4.2.3. Land Use Authorizations

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.3, the following decisions would apply under Alternative E:

Long-term camping in the Fortymile WSR Corridor would be authorized by permit. Allow long-term camping in support of nearby state mining claims in the “wild,” “scenic,” and “recreational” segments of the Fortymile WSR. This is the same as Alternative D. There would be no right-of-way avoidance areas.

2.7.2.4.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals.

2.7.2.4.2.4.1. Fluid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.1, the following decisions would apply under Alternative E. Fluid leasable minerals are defined by the Mineral Leasing Act and include oil, gas, coalbed natural gas, and geothermal resources.

Approximately 745,000 acres in the following areas would be closed to fluid leasable minerals (Map 31):

- The Fortymile WSR Corridor (all segments)

- The Fortymile ACEC
- Mosquito Flats ACEC
- Riparian conservation areas and high-priority restoration watersheds
- BLM's Chicken and Eagle administrative sites, Fort Egbert Historic Site, and the Eagle Recreational withdrawal.

Approximately 201,000 acres of crucial caribou and Dall sheep habitat outside of the Fortymile ACEC would be open to fluid mineral leasing subject to minor constraints.

The remainder of the subunit, 932,000 acres, would be open to leasing, subject to Standard Lease Terms, Fluid Mineral Leasing Stipulations, and Standard Operating Procedures.

2.7.2.4.2.4.2. Solid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.2, the following decisions would apply under Alternative E. Solid leasable minerals are defined by the Mineral Leasing Act and include coal, oil shale, native asphalt, phosphate, sodium, potash, potassium, and sulfur.

The same areas that are closed to fluid leasable minerals, approximately 745,000 acres, would also be closed to solid leasable minerals (Map 31

Approximately 201,000 acres of crucial caribou and Dall sheep habitat outside of the Fortymile ACEC would be open to fluid mineral leasing subject to minor constraints.

The remainder of the subunit, 932,000 acres, would be open to leasing, subject to standard leasing stipulations and Standard Operating Procedures.

As stated in section 2.6.3.5.2 Common to All Alternatives, coal leasing is deferred because the coal screening process (as identified by 43 CFR 3420.1-4) has not been completed in the planning area. A RMP amendment would be needed before coal leasing could occur. Only those BLM-managed public lands that have development potential may be identified as acceptable for further consideration for coal leasing.

2.7.2.4.2.4.3. Locatable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.3, the following decisions would apply under Alternative E. Locatable minerals are minerals for which the right to explore, develop, and extract mineral resources is established by the staking of mining claims, under the General Mining Law of 1872. Examples of locatable minerals include gold, silver copper, zinc, certain limestones, and gypsum.

Approximately 745,000 acres in the following areas would be recommended closed to locatable mineral entry (Map 31):

- The Fortymile WSR Corridor (all segments)
- The Fortymile ACEC
- Mosquito Flats ACEC

- Riparian conservation areas and high-priority restoration watersheds
- BLM's Chicken and Eagle administrative sites, Fort Egbert Historic Site, and the Eagle Recreational Withdrawal.

All remaining lands in the Fortymile Subunit, approximately 1,132,000 acres, would be recommended open to locatable mineral entry.

2.7.2.4.2.4.4. Salable Minerals

DECISIONS:

In addition to the decisions listed as common to all alternatives in section 2.6.3.5.4, the following decisions would apply. Salable minerals, also called mineral materials, include sand, gravel, dirt, and rock.

Approximately 251,000 acres in the following areas would be closed to salable minerals:

- The “wild” and “scenic” segments of the Fortymile WSR Corridor
- Within one mile of ungulate mineral licks

All remaining lands in the Fortymile Subunit, approximately 1,625,00 acres, would be open to salable minerals.

2.7.2.4.2.5. Recreation

OBJECTIVES:

SRMA specific outcomes-focused objectives, proposed recreation setting characteristics and the management framework for each RMZ can be found in Appendix H.

DECISIONS:

In addition to the decisions Common To All Subunits listed in section 2.6.3.6, the following decisions would apply under Alternative E:

Designate 248,000 acres of lands located within the Fortymile WSR Corridor and lands surrounding the town of Eagle as the Fortymile SRMA. Under this alternative, the Fortymile SRMA would include five Recreation Management Zones (RMZs) displayed in the table below.

Table 2.9. Fortymile Recreation Management Zones, RSC Settings, and OHV Designations, Alternative E (Map 47)

Name	Acres	RSC Setting[a] [b]	OHV Designation
Middle Fork/Mosquito Fork Fortymile RMZ	144,000	Semi-Primitive	LIMITED
West Fork/Main Fortymile RMZ	82,000	Backcountry	LIMITED
Logging Cabin Creek/O'Brien Creek RMZ	11,000	Middlecountry	LIMITED
Chicken/Wade Creek RMZ	10,000	Frontcountry	LIMITED
Eagle RMZ	1,000	Rural	LIMITED
Other BLM lands	1,628,000	N/A	LIMITED

[a]Table 2.5

[b]RSC are descriptive conditions describing management parameters at the implementation level. These are not land use planning decisions

2.7.2.4.2.6. Travel Management

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative E.

DECISIONS:

The table above describes the Recreation Management Zones in the Fortymile SRMA under Alternative E (Map 47). Under this alternative, the SRMA includes the Fortymile WSR Corridor and lands surrounding the Davis Dome and the town of Eagle. The OHV prescriptions are described below.

A comprehensive travel management plan for Fortymile Subunit will be deferred until the completion of the RMP. Once the Record of Decision is signed for the RMP, additional data would be collected and a comprehensive travel management plan would be developed using a public process, allowing for additional public and agency input. This process will include publishing a *Federal Register* Notice, public scoping meetings and if any closures are proposed, a formal hearing to address the closure procedures under 43 CFR 36.11 (h) as well as limitations affecting ANILCA provisions listed in Title VIII and XI.

Interim management prescriptions until completion of the travel management plan: Current management outlined in Alternative A, No Action Alternative with the addition of the following:

1,000 pound curb weight and 50 inch width limitation for snowmobiles and a 1,500 pound curb weight and 64 inch width limitation on summer OHV use to replace 1,500 pound GVWR limitation within the Fortymile Wild and Scenic River Corridor. Travel limited to existing trails.

1,000 pound curb weight and 50 inch width limitation for snowmobiles and 1,500 pound curb weight and 64 inch width limitation for summer OHVs to replace 6,000 pound GWVR limitation outside the Fortymile Wild and Scenic Corridor. Cross-country travel allowed.

Fortymile WSR: Use of motorboats, hovercraft, and airboats is allowed without specific authorization.

Seasonal restriction on summer use of OHVs in the Mosquito Flats ACEC.

Limitations on Travel Management Planning:

The step-down travel management plan will be developed within 5 years of the Record of Decision. Wildlife and ACEC management decisions will set sideboards on what can be considered in the travel management plan.

Wildlife decisions identified in Alternative E include management prescriptions for non-motorized travel . Domestic sheep, goats, and camelids (including alpaca and llama) are prohibited in Dall sheep habitat and adjacent lands.

Alternative E designates the Fortymile and Mosquito Flats ACECs (Map 63) and also identifies areas of crucial caribou and Dall sheep habitat. In these areas management prescriptions include limitations on OHV use. Management prescriptions state cross-country summer OHV travel will not be allowed without a permit.

RATIONALE: Limiting the use of OHVs by weight, seasonal closure, and/or to existing routes or in some cases considering dispersed cross-country travel will help maintain the appropriate recreational setting, reduce impacts to stream beds, soil, water, vegetation, fish, and wildlife; scenic, scientific, and cultural resources. These decisions will be analyzed it in the travel management plan.

Weight limitation changes from pounds GVWR to curb weight allows for the same types and sizes of vehicles allowed under Alternative A. Curb weight is consistent with the generally allowed uses on adjacent State lands.

2.7.2.4.2.7. Withdrawals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.8, the following decisions would apply under Alternative E.

Recommend retaining BLM administrative site withdrawals, including PLO 753, Eagle administrative site (12.23 acres); PLO 1699, Chicken administrative site (11.35 acres); and, PLO 3943 West Fork and South Fork recreation sites (120 acres).

Modify PLO 3432 (816 acres) to allow for expansion of Eagle Gravel Pit.

Review the status of the Fort Egbert parcel. If it is not withdrawn recommend a new FLPMA withdrawal to protect historic structures and values on the site.

Recommend to the Secretary of the Interior that ANCSA 17(d)(1) withdrawals be partially revoked to open 1,130,000 acres to locatable mineral entry and mineral leasing laws in the areas shown on Map 31.

Recommend to the Secretary if the Interior that ANCSA 17(d)(1) withdrawals be retained in the following areas until a new FLPMA withdrawal from the mining laws is approved. Approximately 649,000 acres would be closed to locatable mineral entry in the following areas:

- The Fortymile ACEC to protect caribou calving/postcalving and Dall sheep habitat;
- Mosquito Flats ACEC to protect wetlands;
- The "wild," "recreational," and "scenic" segments of the Fortymile WSR, to include any lands within the river corridor that are not withdrawn under ANILCA and the WSR Act, for the purposes of protecting water quality and the Outstandingly Remarkable Values of the river.
- Resource conservation areas and restoration watersheds

RATIONALE: Withdrawing the entire Fortymile WSR corridor will allow the BLM to meet the required standard of protecting and enhancing the water quality and outstandingly remarkable values of the river. Retaining ANCSA withdrawals will allow the BLM to protect the relevant and important values of the ACECs until new withdrawals can be approved under the authority of FLPMA.

2.7.2.4.3. Special Designations

2.7.2.4.3.1. Areas of Critical Environmental Concern

Fortymile ACEC Alternative E (Proposed RMP)

GOALS

Maintain the value of the Fortymile ACEC as caribou and Dall sheep habitat and ungulate mineral licks.

Maintain habitat effectiveness – the ability of habitats to support Dall sheep and caribou – in the ACEC.

DECISIONS:

Designate 362,000 acres as the Fortymile ACEC (Map 63) to protect relevant and important values, which include: concentrated caribou calving and postcalving habitat for the Fortymile caribou herd, ungulate mineral licks, and Dall sheep habitat.

Ungulate mineral licks: Within a distance of one mile of designated ungulate mineral licks, limit all permitted uses and development of facilities for permitted uses, from May 10 through August 31 to activities which would not reduce sheep use of licks.

Limit density of trails within the ACECs to protect values for which they were designated.

Within the ACEC cross-country winter use of vehicles weighing more than 1,500 pounds curb weight will not be allowed without a permit. Cross-country Summer OHV use will not be allowed without a permit. Summer OHV travel on BLM approved routes may be allowed where it is compatible with maintenance of caribou and Dall sheep habitat effectiveness. These approved routes will be determined through travel management planning.

Winter motorized use in Dall sheep habitat would be monitored and, if use begins to approach a level which may result in altered distribution of Dall sheep, such use may be restricted in the future (through alteration of maintained trails or, if necessary, limited closures, e.g., limited areas and/or time periods).

The ACEC would be closed to locatable mineral entry and mineral leasing subject to valid existing rights.

Additional management prescriptions in the Fortymile ACEC for activities requiring a permit from the BLM:

Applicants proposing to conduct surface-disturbing activities or other intensive activities will, at the determination of the Authorized Officer, be required to submit an approved plan (Caribou and Dall Sheep Impact Assessment and Mitigation Plan) describing methods to minimize impacts to caribou and Dall sheep and their habitat. This plan must describe the proposed project, the design and mitigation alternatives considered, the amount and quality of habitat to be affected, the mitigation and restoration to be applied, the residual impacts predicted, and the monitoring to be undertaken to confirm mitigation success.

Permanent roads will generally not be allowed, although long-term temporary roads may be, and roads will generally not be open to the public. Decisions subject to the ANILCA Title XI process in the Fortymile WSR corridor will be made on a case-by-case basis pursuant to Title XI. Roads will be of the lowest practical profile. Road use may be restricted during caribou calving, postcalving, or Dall sheep lambing. Road construction will not be permitted if other means of access is practical (such as aircraft or winter ice-road). Facilities within the ACEC that require year-round access will be located in forested areas where practical.

Permitted aircraft will follow a minimum flight level of 1,500 feet above ground level, except at landing and takeoff and when it would compromise safety. The Authorized Officer may allow exceptions to these access requirements where impacts to caribou and Dall sheep are adequately minimized and where other resource considerations are of higher priority.

The footprint of facilities will be minimized. Permittees may be required to collocate facilities and access to minimize habitat loss.

Reclamation and revegetation of disturbed areas will be required to meet performance standards set in site-specific reclamation plans, such as a required plant cover (percent) within a certain number of years before a performance bond is released.

Mosquito Flats ACEC Alternative E (Proposed RMP)

GOALS:

Protect and maintain the value of wetland and aquatic habitats within the Mosquito Flats ACEC.

DECISIONS:

Designate 37,000 acres as the Mosquito Flats ACEC to protect relevant and important values including wetland and aquatic habitat diversity, moose calving habitat, and special status species (Map 63).

Limit all permitted uses and development of facilities for permitted uses to activities which would not degrade aquatic and wetland habitat within the ACEC.

Winter motorized use in the ACEC would be monitored and, if use begins to approach a level which may result in degradation of aquatic or wetland habitat , such use may be restricted in the future (through limited closures, e.g., limited areas and/or time periods).

Summer OHV travel would not be allowed within the ACEC except by permit. Permitted OHV use must not adversely impact aquatic or wetland habitat values of the ACEC.

The ACEC would be closed to locatable mineral entry and mineral leasing subject to valid existing rights. A mining Plan of Operations would be required on any mining activity within the ACEC (43 CFR 3809.11(c)(3)).

Annual monitoring would include fly-over inspections by the BLM or other federal agency personnel as well as site visits to document habitat condition of the ACEC. An annual monitoring program would be developed and modified as warranted by resource personnel in conjunction with and approval from the Authorized Officer.

2.7.2.4.3.2. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

Outstandingly remarkable values for the Fortymile WSR include scenic, recreation, geologic, historic, and wildlife. Specific ORVs are identified by river segment in Appendix E and in section 2.6.4.1.

Under Alternative E, no rivers would be recommended as suitable for designation under the Wild and Scenic Rivers Act in the Fortymile Subunit.

RATIONALE: Dome Creek possesses outstandingly remarkable historic values in that it exemplifies small-scale capitalized entrepreneurs or businesses in mining placer gold deposits in Interior Alaska from the 1910s to 1930s. There are 18 valid existing mining claims on Dome Creek. The BLM could not ensure that the historic ORV would be maintained. Gold Run flows into a stream that feeds the North Fork (classified as a "wild" river) but it is separated from the North Fork by approximately nine miles of streams under private ownership. In addition, there is not widespread federal, public, state, Tribal, local, or other interests in these designations. State and many local groups are opposed to designation. For these reasons, Dome Creek and Gold Run Creek were not recommended as suitable for designation under Alternative E.

2.7.3. Comparison of Alternatives: Fortymile Subunit

Table 2.10, "Fortymile Subunit: Summary of Action Alternatives" provides a **comparison of major allocation decisions and decisions which vary by action alternative (Alternatives B, C, D, and E)**. There are additional decisions that are common to all action alternatives that are not displayed in these tables. For decisions that do not vary by action alternative, see section 2.6. Decisions may be paraphrased to save space. All acreage figures are approximate and rounded to the nearest 1,000 acres. Under Alternative A, "not addressed" means that the Fortymile Management Framework Plan (BLM 1983) did not include any direction for the given resource or resource use. For the full text of all decisions, see section 2.6 Management Common to All Subunits and All Action Alternatives, section 2.7 Fortymile Subunit, Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*, and Appendix H, *Recreation Management Zones*.

Table 2.10. Fortymile Subunit: Summary of Action Alternatives

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Fish and Aquatic Species	Riparian Conservation Areas (RCA) not addressed.	Manage 10 watersheds as RCAs (Map 6).	Manage one watershed as a RCA (Map 7).	Manage one watershed as a RCA (Map 7).	Same as Alternative B (Map 6)
	Watershed assessments not addressed.	Complete watershed assessments before opening lands to mining.	Complete watershed assessments as necessary for management.		
	High Priority Restoration Watersheds not addressed.	Manage two watersheds as high priority for restoration (Maps 6 and 7).			
Visual Resources	VRM not addressed.	Assign all BLM-managed lands to VRM Classes. Manage according to the VRM class objectives described in section 2.6.2.9. Proposed VRM Classes are displayed on Maps 15, 16 , 17 and 18.			
	WSR managed as VRM Class I by policy.	144,000 acres VRM Class I ("wild" segments of the Fortymile WSR).			
	VRM not addressed.	913,000 acres VRM Class II ("scenic" segments Fortymile WSR, ACEC, and SRMA).	461,000 acres VRM Class II ("scenic" segments Fortymile WSR and core of ACEC).	0 acres VRM Class II.	481,000 acres VRM Class II
	VRM not addressed.	4,000 acres VRM Class III ("recreational" segments of the Fortymile WSR).	0 acres VRM Class III.	100,000 acres VRM Class III ("scenic" segments of the Fortymile WSR).	11,000 acres VRM Class III
	VRM not addressed.	815,000 acres VRM Class IV (other BLM lands).	1,271,000 acres VRM Class IV ("recreational" segments Fortymile WSR and other BLM lands).	1,631,000 acres VRM Class IV ("recreational" segments Fortymile WSR and other BLM lands).	1,241,000 acres VRM Class IV
Wetlands and Floodplains	Watershed management planning not addressed.	Within five years of signing the ROD, or by management direction, undertake development of a Watershed Management Plan for the Fortymile Wild and Scenic River watershed.			

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Wilderness Characteristics	**Areas managed to protect wilderness characteristics as a priority over other resource values and multiple uses**				
	Wilderness characteristics not addressed.	None	None	None	None
	Acres and Areas managed to emphasize other resource values and multiple uses while applying management restrictions to reduce impacts to wilderness characteristics				
	Wilderness characteristics not addressed.	949,000 acres (51%)	494,000 acres (26%)	53,000 acres (3%)	556,000 acres (30%)
		Fortymile ACEC; sections of the Fortymile WSR that are non-navigable and have no mining claims	Core of Fortymile ACEC; parts of the Fortymile WSR (Semi-Primitive recreation management zones and West Fork of the Fortymile Backcountry recreation management zone)	Middle Fork Fortymile WSR Semi-Primitive recreation management zone	Fortymile and Mosquito Flats ACECs and parts of the Fortymile WSR (Semi-Primitive and some Backcountry recreation management zones)
	Acres managed to emphasize other resource values and multiple uses as a priority over protecting wilderness characteristics				
	Wilderness characteristics not addressed.	927,000 acres (49%)	1,382,000 acres (74%)	1,823,000 acres (97%)	1,321,000 acres (70%)
Wildlife	Use of pack animals not addressed.	The use of domestic goats, alpacas, llamas, and other similar species in conjunction with BLM-authorized activities would not be allowed in Dall sheep habitat.			
	Use of pack animals not addressed.	Domestic sheep, goats, and camelids are not allowed in Dall sheep habitat.	Not addressed.		Domestic sheep, goats, and camelids are not allowed in Dall sheep habitat.
Forest and Woodland Products	BLM issues permits for personal use of timber, but not addressed in the MFP.	Personal use of timber would be allowed on all lands (1,627,000 acres), except within the Fortymile WSR Corridor, Eagle Recreational withdrawal, and Fort Egbert Historic Site (249,000 acres).	Personal use of timber would be allowed on all lands (1,730,000 acres), except within the "wild" segments of the Fortymile WSR Corridor, Eagle Recreational withdrawal, and the Fort Egbert Historic Site (146,000 acres).	Personal use timber would be allowed on all lands (1,875,000 acres), except within the Eagle Recreational withdrawal and Fort Egbert Historic Site (1,000 acres).	Personal use of timber would be allowed on all lands.
	Timber salvage sales not addressed by the MFP, but BLM considers applications for theses	Commercial timber salvage sales would be considered on all lands (1,627,000	Commercial timber salvage sales would be considered throughout the Fortymile Subunit. (1,876,000 acres)		

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	uses on a case-by-case basis.	acres), except within the Fortymile WSR Corridor, Eagle Recreational withdrawal, and Fort Egbert Historic Site (249,000 acres).			
	Commercial timber sales not addressed in the MFP, but BLM considers applications for theses uses on a case-by-case basis.	Commercial timber sales would be considered on all lands (1,627,000 acres), except within the Fortymile WSR Corridor, Eagle Recreational withdrawal, and Fort Egbert Historic Site (249,000 acres).			Commercial timber sales considered on 992,000 acres. Fortymile WSR, Eagle Recreational withdrawal, crucial habitat, Fort Egbert Historic Site, and ACECs closed (884,000 acres).
	Personal or commercial use of forest products not addressed in the MFP, but BLM considers applications for theses uses on a case-by-case basis.	Allow harvest of forest products for personal use on all lands throughout the subunit.			
		Commercial use of forest products would be considered on all lands (1,627,000 acres), except within the Fortymile WSR Corridor, Eagle Recreational withdrawal, and Fort Egbert Historic Site (249,000 acres).	Commercial use of forest products would be considered on all lands (1,730,000 acres), except within the "wild" segments of the Fortymile WSR Corridor, Eagle Recreational withdrawal, and Fort Egbert Historic Site (146,000 acres).	Commercial use of forest products would be considered on all lands (1,875,000 acres), except within the Fort Egbert Historic Site (1,000 acres).	Commercial use of forest products would be considered on all lands (1,876,000 acres).
Land Tenure	Disposal and retention of land is not addressed.	Lands identified in Appendix L would be available for disposal through sale or exchange. Lands within ACECs would be retained, subject to conveyance of state- and native-selected lands. The Fortymile WSR corridor would be retained. BLM would consider acquisition of parcels in these areas on a willing seller basis. On remaining lands, consider exchange for purposes of land consolidation.			

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Land Use Authorizations	BLM issues permits for long-term camping in support of nearby state mining claims in "scenic" and "recreational" segments of the Fortymile WSR. Not addressed in the MFP.	Do not allow long-term camping in support of nearby state mining claims in the "wild," "scenic," or "recreational" segments of the Fortymile WSR.	Same as Alternative A. Long-term camping in support of nearby state mining claims allowed by permit in the "scenic" and "recreational" segments of the Fortymile WSR.	Long-term camping in support of nearby state mining claims allowed by permit in the "wild," "scenic," and "recreational" segments of the Fortymile WSR.	Same as Alternative D.
	ROW avoidance areas are not addressed.	The Fortymile WSR Corridor and Fortymile ACEC would be ROW avoidance areas.	There would be no ROW avoidance areas.		
Fluid Leasable Minerals (e.g., oil and gas)	Fortymile Subunit is closed to mineral leasing through public land orders.	800,000 acres open with standard stipulations; 1,076,000 acres closed (Map 26)	155,000 acres open with minor constraints; 1,098,000 acres open with standard stipulations; 623,000 acres closed (Map 27).	515,000 acres open with minor constraints; 1,196,000 acres open with standard stipulations; 165,000 acres closed (Map 29).	201,000 acres open with minor constraints; 932,000 acres open with Standard Lease Terms and SOPs (Appendix A); 745,000 acres closed (Map 31).
Solid Leasable Minerals	Fortymile Subunit is closed to mineral leasing through public land orders.	800,000 acres open; 1,076,000 acres closed (Map 26).	155,000 acres open with minor constraints; 1,098,000 acres open with standard stipulations; 623,000 acres closed (Map 27).	515,000 acres open with minor constraints; 1,196,000 acres open with standard stipulations; 165,000 acres closed (Map 29).	201,000 acres open with minor constraints; 932,000 acres open with Standard Lease Terms and SOPs (Appendix A); 745,000 acres closed (Map 31).
		Coal leasing is deferred because the coal screening process (43 CFR 3420.1-4) has not been completed. A RMP amendment would be needed before coal leasing could occur. Only those BLM-managed public lands that have development potential may be identified as acceptable for further consideration for coal leasing.			
Locatable Minerals (e.g., gold)	Fortymile Subunit is withdrawn from mineral entry and locations by ANCSA17(d)(1) withdrawals.	800,000 acres recommended open to locatable minerals; 1,076,000 acres closed (Map 26).[a]	1,253,000 acres recommended open; 623,000 acres closed (Map 28).[a]	1,713,000 acres recommended open; 163,000 acres closed (Map 30).[a]	1,132,000 acres recommended open; 745,000 acres closed (Map 31).[a]
Salable Minerals (e.g., gravel)	MFP does not address salable minerals. No areas are closed to mineral sales.	1,625,000 acres open to salable minerals; 251,000 acres closed.		145,000 acres open to salable minerals; 1,731,000 acres closed.	Same as Alternatives B and C

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Recreation	Recreation management areas not addressed, although the BLM manages the Fortymile WSR corridor is as such.	Designate 798,000 acres as the Fortymile Special Recreation Management Area (SRMA) (Fortymile WSR and associated lands).	Designate 248,00 acres as the Fortymile SRMA (Fortymile WSR Corridor and lands surrounding the town of Eagle).		
	Recreation management zones not addressed.	Divide the SRMA into 7 Recreation Management Zones (Appendix H and Map 44).	Divide the SRMA into 9 Recreation Management Zones (Appendix H and Map 45).	Divide the SRMA into 10 Recreation Management Zones (Appendix H and Map 46).	Divide the SRMA into 5 Recreation Management Zones (Appendix H and Map 47)
Travel Management	MFP does not address OHV area designations.	OHV area designation of limited.			
	Fortymile WSR Corridor (248,000 acres): OHV use of vehicles greater than 1,500 pounds gross vehicle weight (GVWR) are prohibited with out a permit. Remainder (1,628,000 acres): Vehicles greater than 6,000 pounds GVWR a permit.	1,250,000 acres limited to existing routes, weight, and width (summer).	1,732,000 acres limited to existing routes, weight, and width (summer).	1,822,000 acres limited by width and weight (summer).	Interim management same as A except change from GVWR to curb weight and 1,500 pound curb weight limitation on lands outside the Fortymile WSR corridor. Winter only travel in the Mosquito Flats ACEC. Develop travel management plan within five years of the ROD.
		626,000 acres (Semi-Primitive RMZs) limited by season of use (no summer OHV use).	144,000 acres (Semi-Primitive RMZs) limited by season of use (no summer OHV use).	54,000 acres (Semi-Primitive RMZs) limited by season of use (no summer OHV use).	
		1,876,000 acres (all lands) limited by width and weight (winter).			
	Within the Fortymile WSR Corridor: Motorized boats not allowed on non-navigable "wild" segments, except for access to valid mining claims.	Fortymile WSR: Motorboat use allowed without authorization. Airboats, hovercraft, and personal watercraft would not be permitted in the following non-navigable river segments: the North Fork above the Kink, the Middle Fork, Champion Creek, Joseph Creek, Mosquito Fork above Ingle Creek, and Gold Creek.	Fortymile WSR: Motorboat use allowed without authorization. Airboats, hovercraft, and personal watercraft would not be permitted in the following non-navigable river segments: the North Fork above the Kink, the Middle Fork, Champion Creek, Joseph Creek, and Mosquito Fork above Ingle Creek.		Interim management same as A. Except motorboats, hovercraft, and airboats are allowed. Develop travel management plan within five years of the ROD.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Withdrawals	PLO 3432 not addressed.	Recommend retaining PLO 3432, Eagle Recreational withdrawal.	Recommend modifying PLO 3432 to allow expansion of Eagle Gravel Pit. Retain the remainder of the withdrawal. Review status of Fort Egbert parcel. If not withdrawn, recommend new FLPMA withdrawal of the historic site.	Recommend revoking PLO 3482 and make lands available for disposal.	Same as C
	Modification of ANCSA withdrawals is not addressed.	Recommend partial revocation of ANCSA withdrawals to open 812,000 acres to mining. Recommend retaining ANCSA withdrawals for 1,064,000 acres until a new FLPMA withdrawal is approved.	Recommend partial revocation of ANCSA withdrawals to open 1,266,000 acres to mining. Recommend retaining ANCSA withdrawals for 610,000 acres until a new FLPMA withdrawal is approved.	Recommend partial revocation of ANCSA withdrawals to open 1,727,000 acres to mining. Recommend retaining ANCSA withdrawals for 149,000 acres until a new FLPMA withdrawal is approved.	Recommend partial revocation of ANCSA withdrawals to open 1,130,000 acres to mining. Recommend retaining ANCSA withdrawals for 649,000 acres until a new FLPMA withdrawal is approved.
	No lands are identified for disposal.	Recommend modification of public land orders to allow for disposal of Land tenure Zone 3 lands (Appendix G) while keeping them closed to mineral entry and mineral leasing.			Recommend modification of PLOs as needed to open Land tenure Zone 3 lands to mining and leasing.
Areas of Critical Environmental Concern	No ACECs are designated.	Designate the Fortymile ACEC (690,000 acres).	Designate the Fortymile ACEC (554,000 acres).	Designate the Fortymile ACEC (554,000 acres).	Designate the Fortymile ACEC (362,000 acres) and the Mosquito Flats ACEC (37,000 acres).
Wild and Scenic Rivers	ORVs have not been identified.	Identify Outstandingly Remarkable Values (ORVs) for the Fortymile WSR as scenic, recreation, geologic, historic, and wildlife. Specific ORVs are identified by river segment in Appendix E.			
	Other rivers have not been studied for eligibility or suitability.	Gold Run (four miles) recommended suitable for classification as "wild."	No rivers recommended suitable.		
		Dome Creek (five miles) recommended suitable for classification as "recreational."	No rivers recommended suitable.		

[a]RMP recommends open or closed. To implement this recommendation requires action by the Secretary of the Interior

2.8. Steese Subunit

2.8.1. Alternative A: No Action Alternative

Current management in the Steese National Conservation Area is directed by the Record of Decision and Resource Management Plan for the Steese National Conservation Area (BLM 1986a) which was approved in February 1986. Throughout this section, this plan will be referred to as the Steese RMP (BLM 1986a). Additional management guidance is provided by special rules published in the *Federal Register* (FR 1988a) and the Birch Creek River Management Plan (BLM 1983b). Other lands within the Steese Subunit as defined in the Eastern Interior RMP (Map 3) are not currently covered by any land use plan. Current management is described in the following sections.

2.8.1.1. Resources

2.8.1.1.1. Cultural and Paleontological Resources

Class III site-specific archaeological inventories are generally conducted prior to any development action in order to identify, protect, or mitigate potentially adverse impacts to significant cultural resources. The likelihood of the presence of paleontological resources in such circumstances is evaluated, and recommendations for protecting or mitigating potentially adverse effects are provided.

2.8.1.1.2. Fish and Aquatic Species

Fish habitat will be managed to maintain the present quality of habitat in the tributary streams of Birch Creek that are largely undisturbed, including the South Fork of Birch Creek and its tributaries, Clums Fork, Sheep Creek, and Harrington Fork. Primary management emphasis will be placed on Arctic grayling. The primary management tool used to reduce the impact of development on the fishery resource is the enforcement of stipulations, which are attached to authorizing documents.

In cases where upland gravel sources are not available, or where their use would cause greater environmental damage than the use of riparian sources, riparian sources may be used. The gravel will be extracted in such a manner as to minimize the loss of fish and wildlife and their habitats.

Special stipulations will be placed on development activities in crucial habitats, such as fish spawning and overwintering areas (Table 2.11, "Crucial Wildlife and Fish Habitats in the Steese RMP, Alternative A"). These stipulations could require an alteration in the timing of activities to avoid disturbing or disrupting spawning activity, or the selection of an alternate site.

All surface-disturbing activities are required to meet State of Alaska Water Quality Standards.

All placer mines and other surface disturbances are required to be rehabilitated in such a way as to minimize future erosion.

2.8.1.1.3. Special Status Species

Inventories for sensitive and rare plants are conducted as needed for clearances of proposed surface-disturbing activities. Sites are protected by modifying proposed actions which threaten sensitive or rare plant habitats or by denying those actions which cannot be modified. If actions cannot be modified or denied, plant material salvage will be attempted.

2.8.1.1.4. Visual Resource Management

Scenic quality is maintained by adhering to visual resource management objectives while implementing a program of visual assessment of all surface-disturbing activities, such as, new access trails, mining activities, and recreational facilities. Current VRM classes for the Steese National Conservation Area are displayed on Map 19.

Birch Creek WSR is managed as VRM Class I and the river view shed is managed as VRM Class II. The Primitive Management Unit, inclusive of the Mount Prindle RNA, is managed as VRM Class II. The Semi-Primitive Motorized Restricted Management Unit, the Semi-Primitive Motorized Special Management Unit (inclusive of Big Windy Hot Springs RNA), and the Semi-Primitive Motorized Management Unit are managed as VRM Class III.

All BLM-managed lands not within the Steese National Conservation Area or Birch Creek WSR Corridor would require an inventory determination and management class identification for all surface-disturbing activities.

2.8.1.1.5. Water

One of the primary focuses of management is to improve water quality in Birch Creek. This would be accomplished by: (1) reducing the amount of sediment released into Birch Creek and its tributaries by placer mines, including those mines outside of the Steese National Conservation Area's boundaries and (2) requiring reclamation of ground disturbed by mining to prevent stream sedimentation caused by erosion.

The BLM cooperates closely with the ADEC and the U.S. Environmental Protection Agency for the purpose of establishing water quality standards and for preventing, eliminating or diminishing the pollution of state waters consistent with the Federal Clean Water Act, the purpose for which the Wild and Scenic Rivers were established under the Wild and Scenic Rivers Act, and State of Alaska Water Quality Standards.

Water quality is monitored to ensure that State of Alaska Water Quality Standards are met. The information gained is used to determine whether or not Fluid Mineral Leasing Stipulations attached to mining plans of operation are adequate to protect water quality and whether or not the operator is in compliance.

A sufficient instream flow will be maintained in Birch Creek to meet the purposes for which it was designated as a WSR. An instream flow study was completed and an application for Birch Creek Instream Flow Water Rights was submitted in January 2001 to the ADNR.

2.8.1.1.6. Wildland Fire Ecology and Management

Guidance for wildland fire management is provided by the BLM Alaska Land Use Plan Amendment for Wildland Fire and Fuels Management (BLM 2004b, 2005c). The decisions are described under section 2.6.2.12. Wildland Fire Ecology and Management, Management Common to All Subunits and Action Alternatives.

2.8.1.1.7. Wildlife

The primary emphasis of the wildlife habitat management program is habitat protection, maintenance and improvement. Priority species are caribou, Dall sheep, fish, and peregrine falcon. In the Steese National Conservation Area, present and historical caribou habitat is managed as a primary land use. The wildlife habitat management is implemented in cooperation with the ADF&G and USFWS.

Identification and monitoring of wildlife distribution, movements, and use areas is done, by the use of ground and aerial surveys. The information is used to assess the effects of various land use activities, to determine habitat condition and trends, and to formulate measures to mitigate possible adverse effects on wildlife from land uses such as mining, roads, and trails.

Habitat protection emphasizes the protection of crucial habitats (Table 2.11, "Crucial Wildlife and Fish Habitats in the Steese RMP, Alternative A"). Crucial habitats are protected by the avoidance or mitigation of possible adverse effects of land use activities and by closing specific areas to mineral development. The Steese RMP (BLM 1986a) recommended opening some areas to mineral entry. This decision was never implemented, so the entire Steese National Conservation Area is currently closed to mineral entry except on valid existing claims.

Table 2.11. Crucial Wildlife and Fish Habitats in the Steese RMP, Alternative A

Species/group	Crucial Use Area
Caribou	Caribou calving (present and historical), movement routes (present and historical)
Dall Sheep	Dall Sheep mineral licks, movement routes, lambing, associated escape terrain, winter range
Moose	Moose late winter range, mineral licks
Grizzly Bear/Black Bear	Grizzly Bear/Black Bear denning (winter), seasonal high use/high prey density
Peregrine Falcon/Other Raptor	Peregrine Falcon/other raptor nesting, prey gathering
Furbearer	Furbearer denning (reproduction), seasonal high use/high prey density
Waterfowl	Waterfowl nesting, overwintering (potential)
Small Game	Small game winter concentrations
Land/Shore Birds and Mammals	Land/shore birds and mammals concentrations which are crucial for predator/prey gathering
Fish	Fish spawning areas, overwintering areas

When land use actions are proposed, mitigating measures to avoid or minimize possible adverse effects are developed through the environmental assessment process. These sometimes result in the restriction or alteration of timing, location, and extent of a proposed land use activity in order to avoid or minimize adverse effects. Table 2.12, "Possible Surface Use and Occupancy Restrictions in Crucial Habitats, Alternative A" shows habitats and time frames where aerial and surface use restrictions may be required. Rehabilitation of disturbed areas will be required to facilitate stabilization and recovery of vegetation.

Caribou range was identified by Congress as a special value to be considered in planning and management of the Steese National Conservation Area. Emphasis is placed on managing the area to maintain the opportunity for the Fortymile caribou herd to utilize both present and historical use areas. In addition to previously mentioned habitat protection measures, future access routes, when feasible, will be consolidated with existing roads and trails within existing transportation corridors. These corridors will be intensively managed to minimize any potential "barrier effect" on caribou movements. Transportation corridors may also be subject to surface use restrictions to avoid conflicts with caribou movements at crucial times.

Habitat improvement for moose and other species is provided by management of wildfire. Prescribed burns may be used to reestablish or improve habitat for moose and other species.

Emphasis is placed on managing the Semi-Primitive Motorized Special Management Unit (Map 48), to maintain the opportunity for caribou and Dall sheep to utilize present and historical use areas. Proposals for land use within this area will be required to include a mitigation plan that describes discrete phases and actions for the proposed activity. Possible mitigating measures include restriction or alteration of the timing, location, and extent of the proposed land use activity.

Table 2.12. Possible Surface Use and Occupancy Restrictions in Crucial Habitats, Alternative A

Species	Crucial Use Area	Dates
Caribou	calving, migration routes	May 1 - June 15; August 15 - September 30
Dall Sheep	lambing, movements	May 1-31
Dall Sheep	mineral licks	May 15 - July 15
Dall Sheep	winter range	October 1 - May 1
Grizzly Bear/Black Bear	denning	November 1 - April 31
Peregrine Falcon/Other Raptor	nesting, prey gathering	May 1 - June 15
Furbearer	denning	May 1 - June 15
Fish	spawning	May 1 - September 1
Fish	overwintering	December 1 - April 15

2.8.1.2. Resource Uses

2.8.1.2.1. Forest Management

Forest products are reserved for local use only. No commercial timber harvest is allowed. Personal use of timber under a Free Use Permit is allowed throughout the subunit.

2.8.1.2.2. Lands and Realty Actions

Four transportation corridors were established by the Steese RMP in the Steese National Conservation Area (Map 19). There are two corridors In the North Steese National Conservation Area Unit. One corridor follows the existing Montana Creek trail to Preacher Creek, the other extends from the end of the Porcupine Creek Road to Loper Creek. There are also two corridors in the South Steese National Conservation Area Unit. The corridors were established to provide access to the south side of Birch Creek; one at Great Unknown Creek and one at Portage Creek/Buckley Bar. Both transportation corridors follow existing trails into the Birch Creek WSR Corridor and both cross the river.

In accordance with Section 1107 of ANILCA, any authorized transportation system within the river corridor must be compatible with WSR values and shall be constructed in a manner that does not interfere with or impede stream flow or transportation on the river. Location and construction techniques will be selected to minimize adverse effects on scenic, recreational, fish, and wildlife and other values of the river area.

In order to prevent proliferation of rights-of-way, all rights-of-way will, to the extent possible, be located in one of these four corridors. If it were to become necessary for a right-of-way to extend beyond a corridor, existing trails would be followed whenever possible. Several users might be required to use the same right-of-way and to jointly maintain it. Holders of rights-of-way for roads or trails will be required to allow public access for recreation, unless there is a compelling reason to deny such access.

Engineering studies for route selections within the transportation corridors will be conducted in order to identify road and trail locations, river crossings, geologic hazards and other important resource values prior to any construction.

Approximately 15,000 acres of State lands within the boundaries of the Steese National Conservation Area is identified for acquisition by exchange.

Other realty actions would be allowed if compatible with the land uses designated in the Steese RMP (BLM 1986a).

2.8.1.2.3. Minerals Management

All BLM-managed lands in the Steese National Conservation Area are currently withdrawn from mineral leasing and entry by a variety of PLOs and federal laws. The locatable mineral withdrawal enacted in Section 402(b) of ANILCA will remain in effect. The Birch Creek WSR Corridor (within one-half mile of the banks) is withdrawn from mineral entry and leasing under ANILCA 606(a)(2) and administered pursuant to the Wild and Scenic Rivers Act. Other lands in the subunit are withdrawn by PLOs or segregated (closed to mining) due to State- or Native-selections. Mining is occurring on some valid existing claims that existed before the withdrawals were enacted.

No lands within the Steese Subunit are open to leasing of either fluid minerals (oil and gas) or solid minerals (coal). There are no existing mineral leases.

Locatable mineral activity is limited to valid existing claims. The following requirements apply to valid existing claims:

- Each operator in the Steese National Conservation Area will be required to file a Plan of Operation or notice depending on location and acreage disturbed.
- An operator who disturbs more than five acres per year or who is operating in an area closed to further mineral location is required to file a Plan of Operation.
- A reclamation plan must be included as a part of the Plan of Operation or Notice of Intent.
- All operations in the Steese National Conservation Area must be reclaimed to the satisfaction of the Authorized Officer (AO).

Within the Steese National Conservation Area, wintertime cross-country moves are preferred for the transport of equipment onto claims. Any cross-country movement of heavy equipment must be approved in advance by the AO.

All operators producing water-borne effluent must obtain a National Pollutant Discharge Elimination System permit and meet the requirements of that permit. The BLM monitors water quality in cooperation with ADEC and the Environmental Protection Agency (EPA) to ensure compliance with permits.

Disposal of sand, gravel, rock, and other salable minerals is considered, and is based on need and on conformance with the Steese RMP (BLM 1986).

2.8.1.2.4. Recreation

In the Steese Subunit, the Eastern Interior Field Office follows the BLM program direction for managing recreation on public lands. Recreation management is focused on the Steese National Conservation Area and Birch Creek WSR.

The BLM provides public outreach in a variety of ways, including the establishment and maintenance of information kiosks; maintenance of a website; and use of volunteers to provide visitor contact assistance.

The BLM issues special recreation permits as appropriate for commercial, competitive, and special events.

Established waysides and trails are maintained. Periodic accessibility, safety, and condition assessments are conducted at developed recreation sites and available funding prioritized to resolve maintenance needs.

2.8.1.2.5. Travel Management

The current OHV area designation for the Steese National Conservation Area is Limited, except for Research Natural Areas (RNAs), which are Closed (Map 48). A Notice of designated OHV areas for the Steese National Conservation Area was published in the *Federal Register* July 15, 1988.

All forms of non-motorized use are allowed. Aircraft use is unrestricted.

The use of hovercraft or airboats is prohibited in the Steese National Conservation Area (FR 1988a).

The Steese National Conservation Area contains the following management units (Map 48): Primitive, Semi-Primitive Motorized Restricted, Semi-Primitive Motorized Special, Semi-Primitive Motorized, and Birch Creek WSR Corridor. Limitations on motorized use for each management unit are described below.

Pinnell Mountain National Recreation Trail: The Pinnell Mountain Trail is closed to motorized use.

Primitive Management Unit: This management unit (73,000 acres) is closed to summer use of OHVs. Authorization is required for the use of any motorized vehicle other than a snowmobile off a valid right-of-way. The use of snowmobiles of less than 1,500 pounds GVWR is allowed without authorization.

Semi-Primitive Management Unit: In the Semi-Primitive Management Unit (1,066,000 acres) no permit is required for vehicles of less than 1,500 pounds GVWR. A permit is required for the use of OHVs of greater than 1,500 pounds GVWR off a valid right-of-way.

The use of vehicles of greater than 1,500 pounds GWVR off a valid ROW is allowed by authorization only. Such authorization is generally given only when necessary to provide access to inholdings or for other purposes, based on analysis of need and compatibility with the Steese RMP (BLM 1986a). Approval is subject to conditions designed to minimize the impact to the environment or other land uses.

The use of vehicles of greater than 1,500 pounds GVWR off a valid existing right-of-way is limited to winter months with adequate snow cover and is limited to existing trails, where practical. Under certain circumstances, the AO may authorize summer moves. These include (but are not limited to) the following when:

1. A winter move would be impractical;
2. A summer move would not result in undue or unnecessary impacts to other resources as defined in 43 CFR 3809;
3. An existing trail would be used, and the proposed use would not damage the trail to the extent that it becomes unusable by recreational OHVs;
4. Specialized equipment such as low ground pressure vehicles would be used which would minimize impacts to within acceptable limits; and,
5. A specified limited number of trips over a trail would result in impacts within acceptable limits.

Permanent use restrictions on OHVs require an order signed by the AO and publication in the *Federal Register*. Where the AO determines that OHVs are causing, or will cause, considerable adverse effects on resource values or other authorized uses, he/she shall immediately close the area or route/trail/road affected to the type of vehicle causing the adverse effect until that effect is eliminated and measures have been implemented to prevent a recurrence, in accordance with 43 CFR 8341.2.

Birch Creek WSR Corridor: The Steese RMP (BLM 1986a) amended the Birch Creek River Management Plan related to OHV use within the river corridor. OHV use is prohibited within the Birch Creek WSR Corridor, except:

1. During the winter months, when snowmobiles of less than 1,500 pounds GVWR are allowed;
2. For OHVs used to access inholdings, which can be authorized under a mining plan of operation, with permit, or by other appropriate means.
3. If there are no economically feasible and prudent alternatives for crossing the corridor.

Use of motorized boats is allowed without specific authorization. Hovercraft and airboats will not be allowed.

Research Natural Areas: The Mount Prindle and Big Windy Hot Springs research natural areas are closed to OHV use (3,000 acres).

2.8.1.2.6. Withdrawals

The entire subunit is closed to locatable mineral entry and mineral leasing by various withdrawals and segregations. The primary PLOs affecting this subunit are PLO 5179, 5180, and 5184. There are approximately 2,000 acres of valid existing federal mining claims outside the National

Conservation Area that predate the PLOs. Mining is occurring on some of these claims. There are numerous other withdrawals for other federal agencies. Existing withdrawals are described in section 3.3.8 Withdrawals.

The Steese National Conservation Area (including those portions of Birch Creek within the National Conservation Area) is closed to locatable mineral entry and leasing under Section 402(b) of ANILCA. There are approximately 5,000 acres of existing federal mining claims within the Steese National Conservation Area that predate ANILCA and the PLOs. Mining is occurring on some of these claims. The Birch Creek WSR Corridor (within one-half mile of the banks) is closed to mineral entry and leasing by ANILCA pursuant to the Wild and Scenic Rivers Act.

2.8.1.3. Special Designations

The two designated Research Natural Areas (RNAs) are: the Mount Prindle RNA (2,800 acres) and Big Windy Hot Springs RNA (150 acres). With the exception of hiking trails, no surface-disturbing activities are allowed, except BLM-authorized research projects. These areas are closed to OHVs and camping to avoid disturbing research projects. Natural processes, including wildfire, are allowed to continue with as little interference as possible. Primitive campsites could be established outside the RNA boundaries. Access into the RNA can then be gained by developed trails and helispots. Hiking, hunting, and nature appreciation are allowed. The RNAs are closed to mineral entry.

Birch Creek WSR is covered by an approved River Management Plan, which became effective May 1, 1984. The Birch Creek River Management Plan (BLM 1984b) provides a detailed description of the boundaries of the corridor, major issues and concerns for management of the corridor, and management actions. Part III of the River Management Plan, entitled The Management Program, is the multiple use management prescription. The prescription is designed to preserve the river and its immediate environment in its natural, Primitive condition, in accordance with the Wild and Scenic Rivers Act (P.L. 90-542). The Steese RMP amended the Birch Creek River Management Plan as it relates to OHV use within the river corridor (section 2.8.1.2.5 Travel Management). The river corridor is closed to mineral leasing and location.

One eligible river in the Steese subunit has been identified in the Wild and Scenic Rivers Classification Findings for Eligible Rivers (Table E.3). Big Windy Creek is found to have characteristics eligible for a tentative classification of Wild. This tentative classification would be maintained through mitigation standards through NEPA review until suitability can be evaluated.

2.8.1.4. Subsistence

The BLM analyzes all proposed actions to ensure compliance with Section 810 of ANILCA. Measures to reduce impacts to subsistence are developed on a project-specific basis. Subsistence values in the Steese National Conservation Area include the Birch Creek fishery and the Fortymile caribou herd.

2.8.2. Action Alternatives Steese Subunit

The following sections list decisions for Alternatives B, C, and D.

2.8.2.1. Alternative B: Steese Subunit

2.8.2.1.1. Resources

2.8.2.1.1.1. Cave and Karst Resources

GOAL: Manage significant cave and karst systems to protect and maintain their resource, educational, scientific, and recreational values in accordance with the Federal Caves Resource Protection Act of 1988 and 43 CFR 37.11.

DECISIONS:

Manage Sheep Cave, #AK-028-003, as a significant cave.

Management objective: Preserve Sheep Cave, #AK-028-003, for scientific use and values.

Setting Prescription: Primitive

Administrative designation: Located within the Steese ACEC (Map 64). No additional designation recommended.

2.8.2.1.1.2. Cultural Resources

DECISIONS:

All cultural sites are designated for scientific use.

2.8.2.1.1.3. Fish and Aquatic Species

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.3, the following decisions would apply under Alternative B:

The following 21 watersheds would be managed as RCAs (Map 8).

1. Birch Creek (HUC # 190404020207)
2. Birch Creek (HUC # 190404020212)
3. Birch Creek (HUC # 190404020601)
4. Birch Creek (HUC # 190404020606)
5. Fourteenmile Creek-Yukon River (HUC # 190404011906)
6. George Creek-Birch Creek (HUC # 190404020903)
7. Headwaters North Fork Preacher Creek (HUC # 190404021102)
8. Loper Creek (HUC # 190404021201)
9. Lower North Fork Preacher Creek (HUC # 190404021105)
10. McLean Creek-Birch Creek (HUC # 190404020401)
11. Middle Preacher Creek (HUC # 190404021202)
12. Middle North Fork Preacher Creek (HUC # 190404021104)
13. Ninety-eight Pup-Preacher Creek (HUC # 190404021009)
14. Pitkas Bar (HUC # 190404020408)
15. Preacher Creek (HUC # 190404021005)

16. Puzzle Gulch (HUC # 190404020506)
17. Sheep Creek (HUC # 190404020407)
18. Thomas Creek-Birch Creek (HUC # 190404020403)
19. Upper North Fork Preacher Creek (HUC # 190404021103)
20. Yukon River (HUC # 190404011903)
21. Yukon River (HUC # 190404011904)

The following watersheds would be identified as High Priority Restoration Watersheds and be managed for active restoration.

1. Harrison Creek (HUC # 190404020406)
2. Twelve-mile Creek (HUC # 190404020205)
3. North Fork Birch Creek (HUC # 190404020206)
4. Volcano-Clums Fork (HUC # 190404020306)

Management of High Priority Restoration and Conservation Watersheds is described in section 2.6.2.3 Fish and Aquatic Species.

Complete watershed assessments Section I.5, "Watershed Assessment Process"prior to opening lands to locatable mineral location and entry, using the following priorities:

1. Watersheds containing areas of high/moderate locatable mineral potential.
2. Watersheds identified as RCAs.
3. Other watersheds.

2.8.2.1.1.4. Visual Resources

Proposed VRM classes for Alternative B are displayed on Map 20. Recreation Management Zones are displayed on Map 49. Areas where wilderness characteristics would be maintained are displayed on Map 74.

DECISIONS:

Birch Creek RMZ (inclusive of Birch Creek WSR) with an RSC Class of Semi-Primitive would be managed as VRM Class I. The Pinnell Mountain, Mount Prindle RNA, and Big Windy RNA RMZs with a RSC Class of Primitive would also be managed as VRM Class I. Management of VRM Class I areas is to preserve the existing characteristics of the landscape, but allow for limited management activities where changes should be very low and must not attract the attention of the casual observer.

The Preacher Creek and Wolf Creek RMZs with a RSC Class of Primitive and Harrison Creek RMZ with a RSC of Backcountry would be managed as VRM Class II. In VRM Class II areas, developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

Areas to be managed for wilderness characteristics associated with Birch Creek, Pinnell Mountain, Mount Prindle RNA and Big Windy RNA RMZs would be managed as VRM Class I while those associated with Preacher Creek and Wolf Creek RMZs would be managed as VRM Class II.

All remaining BLM lands not within the Steese Recreation Management Area (inclusive of the Steese National Conservation Area and Birch Creek WSR Corridor) would be assigned a VRM Class IV. In VRM Class IV areas, management actions would be taken to protect the wild and

scenic river view shed and adjacent VRM Classes. Development activities would be designed to harmonize with the visually dominating elements of the surrounding landscape characteristics of line, form, color and texture. Major modification of the natural landscape would be allowed.

2.8.2.1.1.5. Wilderness Characteristics

OBJECTIVE:

Allow for multiple use while maintaining naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 1,199,000 acres so that these lands retain their wilderness characteristics for the life of the RMP.

DECISIONS:

Consistent with allocation decisions in the RMP, allow other multiple-uses on lands where wilderness characteristics would be maintained, while applying management restrictions (such as conditions of use or mitigation measures) to avoid or minimize impacts to wilderness characteristics and meet the objective retaining wilderness characteristics over the life of the RMP.

Under Alternative B, wilderness characteristics would be maintained on 1,199,000 acres (95 percent of the lands with wilderness characteristics in this subunit). These lands include the Steese National Conservation Area and upper Birch Creek WSR Corridor (Map 74).

RATIONALE: Wilderness characteristics would be maintained by decisions in this alternative to close these areas to mineral leasing and to retain existing ANILCA mining closures, manage for VRM class I or II, retain lands in federal management, manage for Primitive and Semi-Primitive recreation settings, and set OHV designations. Additionally, BLM-authorized uses would be further analyzed through the NEPA process for impacts to size, naturalness, primitive recreation, and solitude, and stipulated mitigation measures would be applied where needed to minimize impacts. Management of the Steese National Conservation Area to protect Birch Creek and caribou range, while emphasizing Primitive, Semi-Primitive, and Backcountry recreational opportunities would be consistent with maintenance of wilderness characteristics.

2.8.2.1.1.6. Wildlife

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.13, the following decisions would apply under Alternative B. Additional wildlife related decisions are found in section 2.8.2.1.3 Special Designations.

In the Steese National Conservation Area, manage present and historical caribou habitat as a primary land use. Emphasis would be placed on managing the area to maintain the opportunity for the Fortymile caribou herd to utilize both present and historical use areas.

Domestic sheep, goats, and camelids (including alpaca & llama) are not allowed in Dall sheep habitat.

In caribou winter range, plan travel management and development of facilities (such as maintained trails and cabins), in a manner that would result in a level of off-trail over-snow vehicular travel that would maintain continued availability of the area for use by wintering caribou. Develop

adaptive management standards and strategies. Monitor over-snow motorized use in these areas and, if it approaches a level which may result in reduced use by wintering caribou, implement changes in maintained trails. If necessary, limited area or season closures may be enacted.

Manage the caribou migration corridor on BLM-managed lands (Map 68) as follows:

- Closed to mineral location, entry, and leasing.
- Limit summer motorized travel to existing routes or designated trails. Route density would be limited to ensure free movement of caribou between upper Birch Creek, the north Steese National Conservation Area, and the White Mountains NRA.
- Consider impacts of developments in the corridor, including state and private land, and ensure it does not significantly impact the ability of caribou to migrate to historically used and biologically important habitats. Through activity level planning, develop a management threshold density goal for BLM lands, limiting linear disturbance per unit area. Propose a cooperative effort with ADNR and ADF&G to develop a plan to maintain connectivity of habitat in the area.

2.8.2.1.2. Resource Uses

2.8.2.1.2.1. Forest and Woodland Products

In addition to the decisions listed as Common To All Subunits in section 2.6.3.1, the following decisions would apply under Alternative B:

DECISIONS:

Personal use of timber would be allowed on all lands, except within the Steese SRMA (inclusive of the Steese National Conservation Area and Birch Creek WSR).

Commercial timber salvage sales would be allowed on all lands, except within the Steese SRMA (inclusive of the Steese National Conservation Area and Birch Creek WSR).

Commercial timber sales (large or small) would be allowed on all lands, except within the Steese SRMA (inclusive of the Steese National Conservation Area and Birch Creek WSR).

Commercial use of forest products (such as mushrooms, berries, or bark) would be allowed on all lands, except within the Steese SRMA (inclusive of the Steese National Conservation Area and Birch Creek WSR).

2.8.2.1.2.2. Land Tenure

In addition to the decisions listed as Common To All Subunits in section 2.6.3.2, the following decisions would apply under Alternative B:

DECISIONS:

Zone 1 lands (lands identified for retention or acquisition):

Lands within the Steese National Conservation Area would be retained in accordance with Section 402(b) of ANILCA; Recommend retaining Birch Creek WSR Corridor and Central Administrative Site (PLO 519).

Consider acquisition of private land inholdings from willing sellers within areas identified as Zone 1.

Consider acquisition of state inholdings within the proclaimed boundary of the Steese National Conservation Area, including approximately 15,000 acres of State lands located within the boundaries of the Steese National Conservation Area (FM, T. 7N., R.8E., and FM, T. 10N., R. 13E.).

Consider acquisition of lands conveyed to the State between the southern boundary of the North Steese National Conservation Area Unit and the Pinnell Mountain Trail (FM, T. 7N, R. 9E., T.8N., R. 9E., and T. 8N, R.10E).

Zone 2 lands:

Consider acquisition, or disposal, including exchange, of scattered parcels around Circle for the purposes of consolidation.

Zone 3 lands (lands identified for disposal):

If federal mining claims located outside of the Steese National Conservation Area and Birch Creek WSR Corridor become null and void, and are not conveyed to the State, consider these lands for disposal or exchange. If needed, modify existing public land orders to allow for disposal.

2.8.2.1.2.3. Land Use Authorizations

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.3, the following decisions would apply under Alternative B:

Retain two of the existing transportation and right-of-way corridors in the Steese National Conservation Area and manage consistent with BLM Manual 6220: the Montana Creek to Preacher Creek Corridor in the North Steese National Conservation Area Unit and the Great Unknown Creek Corridor in the South Steese National Conservation Area Unit (Map 49).

In order to prevent proliferation of rights-of-way, all rights-of-way would, as far as possible, be located in one of these two corridors. If it were to become necessary for a right-of-way to extend beyond a corridor, existing trails would be followed whenever possible. Several users might be required to use the same right-of-way and to jointly maintain it. Holders of rights-of-way for roads or trails would be required to allow public access for recreation, unless there is a compelling reason to deny such access.

The Steese ACEC, Mount Prindle RNA, Big Windy Hot Springs RNA, and Birch Creek WSR Corridor would be designated as rights-of-way avoidance areas, except within the designated transportation corridors.

2.8.2.1.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals.

2.8.2.1.2.4.1. Fluid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.1, the following decisions would apply under Alternative B:

Approximately 1,233,000 acres in the following areas would be closed to fluid leasable minerals (Map 33):

- The Steese SRMA (inclusive of the Steese National Conservation Area and Birch Creek WSR)
- Zone 3 disposal land (federal mining claims outside Steese National Conservation Area and Birch Creek WSR)
- BLM's Central Administrative Site

Approximately 31,000 acres would be open to fluid mineral leasing, subject to major constraints, such as no surface occupancy (Map 33).

The remainder of the subunit, approximately 3,000 acres, would be open to leasing, subject to Standard Lease Terms.

2.8.2.1.2.4.2. Solid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.2, the following decisions would apply under Alternative B:

The same areas that are closed to fluid leasable minerals, approximately 1,233,000 acres, would also be closed to solid leasable minerals (Map 33):

Approximately 31,000 acres would be open to solid mineral leasing, subject to major constraints, such as no surface occupancy (Map 33).

The remainder of the subunit, approximately 3,000 acres, would be open to leasing, subject to standard leasing stipulations.

2.8.2.1.2.4.3. Locatable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.3, the following decisions would apply under Alternative B:

Approximately 1,233,000 acres in the following areas would be closed to locatable mineral entry (Map 32):

- The Steese SRMA (inclusive of the Steese National Conservation Area and Birch Creek WSR)
- Zone 3 disposal land (federal mining claims outside the Steese National Conservation Area and Birch Creek WSR)
- BLM's Central Administrative Site

All remaining lands in the Steese Subunit, approximately 34,000 acres, would be open to locatable mineral entry. This includes scattered parcels near Circle.

2.8.2.1.2.4.4. Salable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.4, the following decisions would apply under Alternative B:

The Steese Special Recreation Management Area (Map 44) would be closed to salable minerals (1,233,000 acres).

All remaining lands in the Steese Subunit would be open to salable minerals.

2.8.2.1.2.5. Recreation

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.6, the following decisions would apply under Alternative B:

Recreation Management Areas

The Steese SRMA would include 1,246,000 acres of lands including the Steese National Conservation Area, the Birch Creek WSR, and lands adjacent to the WSR corridor (Map 49). The SRMA includes approximately 15,000 acres of state inholdings. Under this alternative, the Steese SRMA would include seven Recreation Management Zones (RMZ), the management of which are described in Section H.2.1, "Steese Alternative B".

Table 2.13. Steese Recreation Management Zones, RSC Settings and OHV Designations, Alternative B

Name	Acres	RSC Setting[a] [b]	OHV Designation
Birch Creek RMZ	87,000	Semi-Primitive	LIMITED
Pinnell Mountain Trail RMZ	16,000	Primitive	LIMITED
Mount Prindle RNA RMZ	3,000	Primitive	CLOSED
Big Windy RNA RMZ	160	Primitive	CLOSED
Preacher Creek RMZ	519,000	Primitive	LIMITED
Harrison Creek RMZ	124,000	Backcountry	LIMITED
Wolf Creek RMZ	497,000	Primitive	LIMITED
Other BLM lands	36,000	N/A	LIMITED

[a]Table 2.5

[b]RSC are descriptive conditions describing management parameters at the implementation level. These are not land use planning decisions

2.8.2.1.2.6. Travel Management

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative B.

DECISIONS:

Under Alternative B, the entire Steese Subunit would be delineated as a Travel Management Area. For lands within the SRMA, specific Travel Management Zones (TMZs) have also been delineated and are the same polygons used to define the Recreation Management Zones (RMZs) and subsequent Recreation Opportunity Spectrum (RSC) settings for this alternative. Each TMZ also contains a specific OHV designation of Open, Limited, or Closed (Table 2.13, "Steese Recreation Management Zones, RSC Settings and OHV Designations, Alternative B").

It is not practical to define and delineate a comprehensive travel management network for the Steese subunit in this plan due to incomplete route data, size and the complexity of the area. A map of preliminary (existing) routes (Map 49) and interim management prescriptions would be utilized (see below) until such time as a Comprehensive Travel Management Plan could be completed.

Accurate route information is needed to complete a comprehensive travel management network. This data would be acquired utilizing a combination of methods, including overflights and on-the-ground mapping with GPS. Once the signed ROD for the RMP is released, additional data would be collected and a Comprehensive Travel Management Plan would be completed through interagency and public collaboration.

The OHV prescriptions vary by Recreation Management Zone and are described below. Under this alternative, snowmobiles are limited to 50 inches or less in width and 1,000 pounds or less curb weight.

Interim Travel Management Prescriptions Common to All Lands

Two transportation and rights-of-way corridors would be utilized (Montana Creek to Preacher Creek Corridor and Great Unknown Creek Corridor).

All forms of non-motorized use would be allowed, except for the use of pack goats in Dall Sheep habitat.

Aircraft use would be unrestricted (except in Primitive Zones), with the following provisions: Minimal clearing of rocks, downed logs, and brush would be allowed; and use of gravel bars and winter snow areas would be allowed, subject to reasonable provisions to protect the values of "wild" river segments; construction or formal improvements of landing areas would require a permit.

New restrictions could be developed for the purposes of site protection, visitor safety, and/or enhancing recreational opportunities, experiences and outcomes.

In areas designated as Limited, subject to reasonable regulations and with a free permit, Federally Qualified Subsistence Users may be permitted to use OHVs 50 inches or less in width, and 1,000 pounds curb weight and less for subsistence purposes (ANILCA 811) during the summer. Permits would be free and widely available.

Interim Travel Management Prescriptions for All Primitive Zones

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles 50 inches or less in width, and weighing 1,000 pounds curb weight and less would be allowed, except in Research Natural Areas which are closed to OHV use.

A permit or approved Plan of Operations would be required for all other OHV use.

The Pinnell Mountain National Recreation Trail is closed to motorized use. BLM has installed trail structures along the trail, such as boardwalks and switchbacks, to facilitate hikers in the summer. These structures could be damaged by OHV use.

Aircraft landings would be allowed within the Primitive Zones, with the following provisions: No clearing of vegetation would be allowed without a permit.

The use of hovercraft, airboats, and personal watercraft would not be allowed.

In areas with a Closed OHV designation (Research Natural Areas) subject to reasonable regulations, a free permit may be issued for access via snowmobiles for traditional activities and for travel to and from villages and homesites (ANILCA Sec. 1110). Similarly, federally Qualified Subsistence Users, subject to reasonable regulations and with a free permit, can use snowmobiles or other means of surface transportation traditionally employed for subsistence purposes (ANILCA Sec. 811) in areas with use limitations for casual users. Free permits may be obtained in person, by mail, and by phone from the BLM Fairbanks District Office and other appropriate locations.

RATIONALE: The federal government established a system of Research Natural Areas (RNAs) in 1927. RNAs are tracts of federal land and water established and managed for the primary purpose of research and education (43 CFR 8223.0-1). RNAs were selected to contain examples of significant natural ecosystems, areas suitable for ecological study, and rare species of plants and animals. Federal and state agencies have cooperated in Alaska since 1973 in selecting, documenting, and describing RNAs.

Four RNAs were designated in the planning area in 1986 (BLM 1986a and 1986b). The RNAs were designated to provide areas where natural ecosystems and processes are undisturbed so that they can be studied and understood, and to provide an undisturbed area for comparison with other areas so that effects of management and use can be assessed. The principle of maintaining reference conditions for scientific comparison is basic to the purposes of the system of RNAs.

Motorized vehicle access in the RNAs, including snowmobile use in winter, has the potential to damage vegetation, geologic structures, and soils. Any such disturbance has the potential to reduce the value of the area for future research by altering natural conditions. Although specific natural features were identified prior to designation and in reports for each RNA, other features could be equally valuable in future research. In other words, it is not possible now to identify what resources will be most valuable later for scientific study.

Although snow cover and frozen ground is considered adequate to protect vegetation and soils from snowmobiles in most areas, effects on vegetation do often occur from such use. Shrubs and small trees near or above the snow surface can be damaged and broken. The spinning of a snowmobile track can quickly remove considerable snow cover, especially high-power machines with paddle tracks. On steep slopes (typical in many of the RNAs), high snow depths may be required to avoid impacting low vegetation and ground cover. Repeated travel on trails can pack snowcover, decreasing insulation value of the snow, and in some places cause subsurface water flow to occur on the surface and “glaciering” to occur. The later melt of this ice in spring can impact vegetation growth and change vegetation type.

Interim Travel Management Prescriptions for All Semi-Primitive, and Backcountry Zones

Same as Management Common to All Lands, with the following additions:

All forms of non-motorized use allowed. Motorboat use allowed without specific authorization consistent with ANILCA Sections 1110(a) and 811. However, airboats, hovercraft, and personal watercraft would not be permitted on non-navigable segments above the confluence of Birch Creek and an unnamed creek in T. 6N., R. 17E., Section 8.

Cross-country winter use (October 15 through April 30) of snowmobiles 50 inches or less in width, and weighing 1,000 pounds curb weight and less would be allowed, except in Research Natural Areas which are closed to OHV use.

A permit or approved Plan of Operations would be required for all other OHV use.

RATIONALE: The Wild and Scenic Rivers Act states that rivers classified as "wild" are generally inaccessible except by trail, and are to represent vestiges of primitive America (Wild and Scenic Rivers Act, Section 2). Birch Creek WSR has outstandingly remarkable recreational value as an accessible, freshwater and whitewater, wild river providing a multi-day Primitive floating and camping experience which is considered unique. Birch Creek has been managed for a primitive experience for the past 30 years since its designation and classification as a "wild" river. Airboats, hovercraft and personal watercraft generate noise levels which are disruptive to some recreationists and would diminish the Semi-Primitive experience managed for and expected by those recreationists on a "wild" river. These types of use are not considered compatible with the values for which the "wild" river is to be managed.

Birch Creek has outstandingly remarkable fish values due to its high species diversity and high quality habitat. Prohibiting the use of hovercraft, airboats, and personal watercraft would protect and enhance these outstandingly remarkable values. It would also reduce disturbance of sensitive wildlife species, such as nesting peregrine falcons.

Prohibiting the use of hovercraft, airboats, and personal watercraft in the Steese National Conservation Area would also help protect Semi-Primitive and Backcountry recreational settings by reducing noise and motorized use levels.

Interim Travel Management Prescriptions for Other BLM lands Outside the SRMA

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles 50 inches or less in width, and weighing 1,000 pounds curb weight and less would be allowed, except in Research Natural Areas which are closed to OHV use.

A permit or approved Plan of Operations would be required for all other OHV use.

2.8.2.1.2.7. Withdrawals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.8, the following decisions would apply under Alternative B:

Recommend retaining PLO 519, for a BLM administrative site (7.11 acres) at Central, Alaska.

Recommend retaining the ANILCA withdrawal in the Steese National Conservation Area, keeping the area closed to locatable mineral entry and mineral leasing.

Outside of the Steese National Conservation Area, approximately 1,600 acres would be closed to locatable mineral entry to include any lands that are within the Birch Creek WSR Corridor that are not withdrawn under ANILCA or by the WSR Act, for the purposes of protecting the water quality and Outstandingly Remarkable Values of the river.

Outside of the Steese National Conservation Area, approximately 16,400 acres would be closed to locatable mineral entry in those parts of the Birch Creek, Pinnell Mountain Trail, and Preacher Creek RMZs that are outside of the ANILCA withdrawals.

Land tenure Zone 3 lands (Appendix G, *Land Tenure*) will be closed to mineral leasing and location to prevent encumbrance. As needed, recommend modification of public land orders to allow for disposal of these parcels while keeping them closed to mineral entry and mineral leasing.

2.8.2.1.3. Special Designations

2.8.2.1.3.1. Areas of Critical Environmental Concern

DECISIONS:

Approximately 924,000 acres would be designated as the Steese ACEC (Map 64) to protect the relevant and important values, which include current and historical calving and postcalving habitat for the Fortymile caribou herd and Dall Sheep habitat. This is the same area designated in Alternative C. Management of the area, however, varies from that proposed in Alternative C.

The ACEC would remain closed to locatable and leasable mineral entry subject to valid existing rights. A mining Plan of Operations would be required on any mining activity within an ACEC (43 CFR 3809.11).

Ungulate mineral licks: Within a distance of one mile of designated ungulate mineral licks, limit all permitted uses and development of facilities for permitted uses, from May 10 through August 31 to activities which would not reduce sheep use of licks.

Allowed uses would be managed to maintain caribou and Dall sheep habitat. The area is and would remain generally free of summer motorized vehicle use (May 1 through October 14 sheep habitat; May 10 through July 15 remainder). (For example, summer motorized vehicle use, in the few areas of the ACEC where allowed, would be restricted to a limited set of trails.) In locations where summer motorized use is currently allowed and vehicle trails are currently established, motorized vehicle use would be limited to select existing routes (or as determined through future travel management planning). Where the ACEC overlays Middlecountry RMZs and OHV trail construction and other development may be planned; manage the area to maintain its value as caribou and Dall sheep habitat as well as to meet the objectives for that RMZ. Designated trails and other developments may be established in this Zone if limited in density and compatible with caribou and Dall sheep habitat.

Winter motorized use in Dall sheep habitat is currently minimal, but would be monitored and, if use begins to approach a level which may result in altered distribution of Dall sheep, such use may be restricted in the future through alteration of maintained trails or, if necessary, closures of limited areas and/or time periods.

SUMMARY OF MANAGEMENT IN THE ACEC

The following summarizes other management decisions that would apply within the ACEC. No salable mineral disposal would be authorized within the ACEC. The ACEC would be retained in federal land status (land tenure Zone 1) and would be a right-of-way avoidance area. Land use permits and leases would be considered, subject to constraints for ungulate mineral licks. Standard Operating Procedures (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would apply to activities requiring a permit from BLM.

The ACEC includes Primitive, Semi-Primitive, and Backcountry RMZs. The OHV designation is closed in the Primitive Zones and limited in the other zones. No motorized use is allowed in the Primitive Zones except by permit. Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed in Semi-Primitive and Backcountry Zones. Summer use of OHVs would not be allowed in the Semi-Primitive and Backcountry Zones except by permit. A full description of the OHV limitations can be found in section 2.8.2.1.2.6 Travel Management.

2.8.2.1.3.2. Research Natural Areas

DECISIONS:

Under Alternative B, the two existing Research Natural Areas (RNAs) would be maintained: the Mount Prindle RNA (2,800 acres) and Big Windy Hot Springs RNA (160 acres).

Management would be similar to Alternative A with the following additions: RNAs would be designated as rights-of-way avoidance areas and closed to salable minerals. As in Alternative A, the RNAs would be closed to off-road vehicles and camping to avoid disturbing research projects. Natural processes, including wildland fire, would be allowed to continue with as little interference as possible. Primitive campsites could be established outside the RNA boundaries. Access into the RNA could then be gained by developed trails. Hiking, hunting, and nature appreciation would be allowed. The RNAs would be closed to mineral entry and mineral leasing. No surface-disturbing activities allowed except BLM-authorized research projects and primitive hiking trails.

2.8.2.1.3.3. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

The outstandingly remarkable values for Birch Creek WSR are scenic, recreation, and fish as described in Section E.2.1, "Outstanding Remarkable Values for Birch Creek".

Under Alternative B, Big Windy Creek would be recommended as suitable for designation according to its eligibility class.

River Name	Classification	Outstandingly Remarkable Values	Miles
Big Windy Creek	"wild"	scenic, wildlife, and geologic	14

RATIONALE: Big Windy Creek is free-flowing and possesses outstandingly remarkable values as described in Section E.1.1, "Determining Eligibility". All eligible rivers are recommended suitable in one alternative for the purpose of analyzing impacts of designation.

2.8.2.2. Alternative C: Steese Subunit

2.8.2.2.1. Resources

2.8.2.2.1.1. Cave and Karst Resources

GOAL: Manage significant cave and karst systems to protect and maintain their resource, educational, scientific, and recreational values in accordance with the Federal Caves Resource Protection Act of 1988 and 43 CFR 37.11.

DECISIONS:

Manage Sheep Cave, AK-028-003, as a significant cave.

Management objective: Preserve Sheep Cave for scientific use and values.

Setting Prescription: Semi-Primitive

Administrative designation: Located within the Steese ACEC (Map 64). No additional designation recommended.

2.8.2.2.1.2. Cultural Resources

DECISIONS:

Same as Alternative B, all cultural sites are designated for scientific use.

2.8.2.2.1.3. Fish and Aquatic Species

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.3, the following decisions would apply under Alternative C:

The following 18 watersheds would be managed as RCAs (Map 9):

1. Birch Creek (HUC # 190404020212)
2. Birch Creek (HUC # 190404020207)
3. Birch Creek (HUC # 190404020601)
4. Birch Creek (HUC # 190404020606)
5. Fourteenmile Creek-Yukon River (HUC # 190404011906)
6. George Creek-Birch Creek (HUC # 190404020903)
7. Headwaters North Fork Preacher Creek (HUC # 190404021102)
8. Lower North Fork Preacher Creek (HUC # 190404021105)
9. McLean Creek-Birch Creek (HUC # 190404020401)

10. Middle Preacher Creek (HUC # 190404021202)
11. Middle North Fork Preacher Creek (HUC # 190404021104)
12. Ninety-eight Pup-Preacher Creek (HUC # 190404021009)
13. Pitkas Bar (HUC # 190404020408)
14. Preacher Creek (HUC # 190404021005)
15. Thomas Creek-Birch Creek (HUC # 190404020403)
16. Upper North Fork Preacher Creek (HUC # 190404021103)
17. Yukon River (HUC # 190404011903)
18. Yukon River (HUC # 190404011904)

Same as Alternative B, the following watersheds would be identified as a High Priority Restoration Watershed and be emphasized for active restoration.

1. Harrison Creek (HUC # 190404020406)
2. Twelve-mile Creek (HUC # 190404020205)
3. North Fork Birch Creek (HUC # 190404020206)
4. Volcano-Clums Fork (HUC # 190404020306)

Complete watershed assessments Section I.5, "Watershed Assessment Process"as necessary for management.

2.8.2.2.1.4. Visual Resources

Proposed VRM classes for Alternative C are displayed on Map 21. Recreation Management Zones are displayed on Map 50. Areas where wilderness characteristics would be maintained are displayed on Map 75.

DECISIONS:

Birch Creek RMZ (inclusive of Birch Creek WSR) with an RSC Class of Semi-Primitive would be managed as VRM Class I. The Mount Prindle RNA, and Big Windy RNA RMZs with a RSC Class of Primitive would also be managed as VRM Class I. Management of VRM Class I areas is to preserve the existing characteristics of the landscape, but allow for limited management activities where changes should be very low and must not attract the attention of the casual observer.

The Pinnell Mountain, Wolf Creek and Rock Creek RMZs with a RSC Class of Semi-Primitive would be managed as VRM Class II. The Rocky Mountain Uplands RMZ (RSC of Backcountry) would also be managed as VRM Class II. In VRM Class II areas, developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

The Preacher Creek and Clums RMZs with a RSC Class of Middlecountry and Harrison Creek RMZ with a RSC Class of Frontcountry would be managed as VRM Class IV.

Areas to be managed for wilderness characteristics associated with Birch Creek, Mount Prindle RNA and Big Windy RNA RMZs would be managed as VRM Class I; while those areas associated with Pinnell Mountain, Wolf Creek, Rock Creek and Rocky Mountain Uplands would be managed as VRM Class II.

All remaining BLM-managed lands not within the Steese Special Recreation Management Area (inclusive of the Steese National Conservation Area and Birch Creek WSR Corridor) would be assigned a VRM Class IV. In VRM Class IV areas, management actions would be taken to protect

the Wild and Scenic River view shed and adjacent VRM Classes. Development activities would be designed to harmonize with the visually dominating elements of the surrounding landscape characteristics of line, form, color and texture. Major modification of the natural landscape would be allowed.

2.8.2.2.1.5. Wilderness Characteristics

OBJECTIVE:

Allow for multiple use while maintaining naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 647,000 acres so that these lands retain their wilderness characteristics for the life of the RMP.

DECISIONS:

Consistent with allocation decisions in the RMP, allow other multiple-uses on lands where wilderness characteristics would be maintained, while applying management restrictions (such as conditions of use or mitigation measures) to avoid or minimize impacts to wilderness characteristics and meet the objective retaining wilderness characteristics over the life of the RMP.

Wilderness characteristics would be maintained on 647,000 acres (51 percent of the lands with wilderness characteristics in this subunit). These lands occur within the Primitive, Semi-Primitive, and Backcountry Recreation Management Zones within the Steese National Conservation Area and upper Birch Creek WSR Corridor (Map 75).

RATIONALE: Wilderness characteristics would be maintained by decisions in this alternative to close these areas to mineral leasing, retain existing ANILCA mining closures, manage for VRM class I or II, retain lands in federal management, manage for Primitive, Semi-Primitive and Backcountry recreational settings, and set OHV designations. Additionally, BLM-authorized uses would be further analyzed through the NEPA process for impacts to size, naturalness, primitive recreation, and solitude, and stipulated mitigation measures would be applied where needed to minimize impacts. Management of these areas to protect Birch Creek and caribou range, while emphasizing primitive, semi-primitive, and backcountry recreational opportunities would be consistent with maintenance of wilderness characteristics. Due to the high cost of resource extraction and limited access in the Steese Subunit, it is likely that wilderness characteristics would remain on more than 51 percent of the lands over the life of the plan.

2.8.2.2.1.6. Wildlife

In addition to the decisions listed as Common To All Subunits in section 2.6.2.13, the following decisions would apply under Alternative C. Additional wildlife related decisions are found in section 2.8.2.2.3 Special Designations.

DECISIONS:

Same as Alternative B, except for the following:

Only portions of the caribou migration corridor are closed to mineral location, entry, and leasing.

Casual use of domestic sheep, goats, and camelids (including alpaca & llama), would not be prohibited in Dall sheep habitat.

2.8.2.2.2. Resource Uses

2.8.2.2.2.1. Forest and Woodland Products

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.1, the following decisions would apply under Alternative C:

Personal use of timber would be allowed on all lands, except within the Birch Creek WSR Corridor, Mount Prindle RNA, and Big Windy Hot Springs RNA.

Commercial timber salvage sales would be allowed on all lands (including the Steese National Conservation Area).

Commercial timber sales (large or small) would be allowed on all lands, except within the Birch Creek WSR Corridor, Mount Prindle RNA, and Big Windy Hot Springs RNA.

Commercial use of forest products would be allowed on all lands, except within the Mount Prindle and Big Windy Hot Springs RNAs.

2.8.2.2.2.2. Land Tenure

DECISIONS:

Land tenure decisions would be the same as Alternative B.

2.8.2.2.2.3. Land Use Authorizations

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.3, the following decisions would apply under Alternative C:

Same as Alternative B, two transportation corridors would be retained and manage consistent with BLM Manual 6220: the Montana Creek to Preacher Creek Corridor in the North Steese National Conservation Area Unit and the Great Unknown Creek Corridor in the South Steese National Conservation Area Unit.

There would be no rights-of-way avoidance areas.

2.8.2.2.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals.

2.8.2.2.2.4.1. Fluid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.1, the following decisions would apply under Alternative C:

Approximately 993,000 acres in the following areas would be closed to fluid leasable minerals (Map 35):

- The Mount Prindle and Big Windy Hot Springs RNAs
- The Birch Creek, Rock Creek, Wolf Creek, Pinnell Mountain Trail, and Rocky Mountain Uplands RMZs
- That portion of the Clums RMZ that overlaps with the Steese ACEC
- The Bachelor Creek portion of the Preacher Creek RMZ
- The Steese ACEC
- All Riparian Conservation Areas
- Zone 3 disposal land (federal mining claims outside the Steese National Conservation Area and Birch Creek WSR Corridor)
- BLM's Central Administrative Site

Approximately 203,000 acres would be open to leasing, subject to minor constraints. This includes that portion of the Clums RMZ that does not overlap with the Steese ACEC, that portion of the Preacher RMZ that is not closed, and lands near Circle (Map 35).

All remaining lands, approximately 71,000 acres, would be open to leasing, subject to Standard Lease Terms. This includes part of the Harrison RMZ (Map 35).

2.8.2.2.2.4.2. Solid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.2, the following decisions would apply under Alternative C:

The same areas that are closed to fluid leasable minerals under this alternative, approximately 993,000 acres, would also be closed to solid leasable minerals (Map 35). The same areas open to fluid leasable minerals, would also be open to solid leasable minerals subject to the same constraints.

2.8.2.2.2.4.3. Locatable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.3, the following decisions would apply under Alternative C:

Approximately 993,000 acres in the following areas would be closed to locatable mineral entry (Map 34):

- The Mount Prindle and Big Windy Hot Springs RNAs
- The Birch Creek, Rock Creek, Wolf Creek, Pinnell Mountain Trail, and Rocky Mountain Uplands RMZs
- That portion of the Clums RMZ that overlaps with the Steese ACEC
- The Bachelor Creek portion of the Preacher Creek RMZ
- The Steese ACEC
- All Riparian Conservation Areas

- Zone 3 disposal land (federal mining claims outside the Steese National Conservation Area and Birch Creek WSR Corridor)
- BLM's Central Administrative Site
- Harrison Creek reclamation area

All remaining lands in the Steese Subunit, approximately 274,000 acres, would be open to locatable mineral entry. Within the Steese National Conservation Area, this includes most of the Harrison RMZ, part of Preacher Creek RMZ, and Clums RMZ (except that part that is within the Steese ACEC).

2.8.2.2.2.4.4. Salable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.4, the following decisions would apply under Alternative C:

Approximately 69,000 acres in the Birch Creek WSR Corridor would be closed to salable mineral.

All remaining lands in the Steese Subunit, 1,198,000 acres including the Steese National Conservation Area outside of the river corridor, would be open to salable minerals.

2.8.2.2.2.5. Recreation

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.6, the following decisions would apply under Alternative C:

The Steese SRMA would include 1,246,000 acres of lands including the Steese National Conservation Area, the Birch Creek WSR Corridor and lands adjacent to the WSR corridor (Map 50). The SRMA includes 15,000 acres of state inholdings. Under this alternative, the SRMA would include 10 Recreation Management Zones (RMZs), the management of which are described in Section H.2.2, "Steese Alternative C".

Table 2.14. Steese Recreation Management Zones, RSC Settings and OHV Designations, Alternative C

Name	Acres	RSC Setting[a] [b]	OHV Designation
Birch Creek RMZ	99,000	Semi-Primitive	LIMITED
Pinnell Mountain Trail RMZ	16,000	Semi-Primitive	LIMITED
Mount Prindle RNA RMZ	3,000	Primitive	CLOSED
Big Windy RNA RMZ	160	Primitive	CLOSED
Preacher Creek RMZ	282,000	Middlecountry	LIMITED
Harrison Creek RMZ	114,000	Frontcountry	LIMITED
Wolf Creek RMZ	325,000	Semi-Primitive	LIMITED
Rock Creek RMZ	83,000	Semi-Primitive	LIMITED
Clums RMZ	170,000	Middlecountry	LIMITED
Rocky Mountain Uplands RMZ	154,000	Backcountry	LIMITED
Other BLM lands	36,000	N/A	LIMITED

[a]Table 2.5

[b]RSC are descriptive conditions describing management parameters at the implementation level. These are not land use planning decisions

2.8.2.2.2.6. Travel Management

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative C.

DECISIONS:

Under Alternative C, the entire Steese Subunit would be delineated as a Travel Management Area. For lands within the SRMA, specific Travel Management Zones (TMZs) have also been delineated and are the same polygons defining Recreation Management Zones (RMZ) and Recreation Opportunity Spectrum (RSC) settings for this alternative. Each TMZ also contains a specific OHV designation of Open, Limited, or Closed (Table 2.14, "Steese Recreation Management Zones, RSC Settings and OHV Designations, Alternative C").

It is not practical to define and delineate a comprehensive travel management network for the Steese Subunit in this plan due to incomplete route data, size and the complexity of the area. Instead, a map of preliminary (existing) routes (see Map 50) and interim management prescriptions would be utilized until such time as a Comprehensive Travel Management Plan could be completed.

Accurate route information is needed to complete a comprehensive travel management network. This data would be acquired utilizing a combination of methods, including overflights and on-the-ground mapping with GPS. Once the signed ROD for the RMP is released, additional data would be collected and a Comprehensive Travel Management Plan would be completed, using interagency and public collaboration.

The OHV prescriptions vary by Recreation Management Zone and are described below. Under this alternative, snowmobiles are limited to 50 inches or less in width and 1,000 pounds or less curb weight.

Interim Travel Management Prescriptions Common to All Lands

Two transportation and right-of-way corridors would be utilized (Montana Creek to Preacher Creek Corridor and Great Unknown Creek Corridor).

All forms of non-motorized use would be allowed.

Aircraft use would be unrestricted (except in Primitive Zones), with the following provisions: Minimal clearing of rocks, downed logs, and brush would be allowed; construction or formal improvement of landing areas would occur by permit only; and use of gravel bars and winter snow areas would be allowed, subject to reasonable provisions to protect the values of "wild" river segments.

New restrictions could be developed for the purposes of site protection, visitor safety, and/or enhancing recreational opportunities, experiences and outcomes.

Interim Travel Management Prescriptions for All Primitive Zones

Same as Management Common to All Lands, with the following additions:

A permit or approved Plan of Operations would be required for all OHV use.

Aircraft landings would be allowed within the Primitive Zones, with the following provisions: No clearing of vegetation would be allowed without a permit.

The use of hovercraft, airboats, and personal watercraft would not be allowed.

In areas with a Closed OHV designation (Research Natural Areas) subject to reasonable regulations, a free permit may be issued for access via snowmobiles for traditional activities and for travel to and from villages and homesites (ANILCA Sec. 1110). Similarly, federally Qualified Subsistence Users, subject to reasonable regulations and with a free permit, can use snowmobiles or other means of surface transportation traditionally employed for subsistence purposes (ANILCA Sec. 811) in areas with use limitations for casual users. Free permits may be obtained in person, by mail, and by phone from the BLM Fairbanks District Office and other appropriate locations.

RATIONALE: The federal government established a system of Research Natural Areas (RNAs) in 1927. RNAs are tracts of federal land and water established and managed for the primary purpose of research and education (43 CFR 8223.0-1). RNAs were selected to contain examples of significant natural ecosystems, areas suitable for ecological study, and rare species of plants and animals. Federal and state agencies have cooperated in Alaska since 1973 in selecting, documenting, and describing RNAs.

Four RNAs were designated in the planning area in 1986 (BLM 1986a and 1986b). The RNAs were designated to provide areas where natural ecosystems and processes are undisturbed so that they can be studied and understood, and to provide an undisturbed area for comparison with other areas so that effects of management and use can be assessed. The principle of maintaining reference conditions for scientific comparison is basic to the purposes of the system of RNAs.

Motorized vehicle access in the RNAs, including snowmobile use in winter, has the potential to damage vegetation, geologic structures, and soils. Any such disturbance has the potential to reduce the value of the area for future research by altering natural conditions. Although specific natural features were identified prior to designation and in reports for each RNA, other features could be equally valuable in future research. In other words, it is not possible now to identify what resources will be most valuable later for scientific study.

Although snow cover and frozen ground is considered adequate to protect vegetation and soils from snowmobiles in most areas, effects on vegetation do often occur from such use. Shrubs and small trees near or above the snow surface can be damaged and broken. The spinning of a snowmobile track can quickly remove considerable snow cover, especially high-power machines with paddle tracks. On steep slopes (typical in many of the RNAs), high snow depths may be required to avoid impacting low vegetation and ground cover. Repeated travel on trails can pack snowcover, decreasing insulation value of the snow, and in some places cause subsurface water flow to occur on the surface and "glaciering" to occur. The later melt of this ice in spring can impact vegetation growth and change vegetation type.

Interim Travel Management Prescriptions for All Semi-Primitive and Backcountry Zones

Same as Management Common to All Lands, with the following addition:

Same as Alternative B, all forms of non-motorized use allowed. Motorboat use allowed without specific authorization consistent with ANILCA Sections 1110(a) and 811. However, airboats,

hovercraft, and personal watercraft would not be permitted on non-navigable segments above the confluence of Birch Creek and an unnamed creek in T. 6N., R. 17E., Section 8.

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

The Pinnell Mountain Trail is closed to motorized use.

RATIONALE: The Wild and Scenic Rivers Act (16 U.S.C. 1271-1287; P.L. 90-542 as amended) classifies rivers as "wild" which are generally inaccessible except by trail and are to represent vestiges of primitive America (Wild and Scenic Rivers Act, Section 2). Birch Creek WSR has outstandingly remarkable recreational value as a "wild' river. It is an accessible, freshwater, and whitewater river providing a unique multi-day Primitive floating and camping experience. Birch Creek has been managed for a Primitive experience for the past 30 years, since Congress designated it as a Wild and Scenic River and classified it as a "wild" river. Airboats, hovercraft and personal watercraft generate noise levels which are disruptive to some recreationists and would diminish the Semi-Primitive experience managed for and expected by those recreationists on a "wild" river. These types of use are not considered compatible with the values for which the "wild" river is to be managed.

Birch Creek has outstandingly remarkable fish values due to its high species diversity and high quality habitat. Prohibiting the use of hovercraft, airboats, and personal watercraft would protect and enhance these outstandingly remarkable values. It would also reduce disturbance of sensitive wildlife species, such as nesting peregrine falcons.

Prohibiting the use of hovercraft, airboats, and personal watercraft in the Steese National Conservation Area would also help protect Semi-Primitive and Backcountry recreational settings by reducing noise and motorized use levels.

Interim Travel Management Prescriptions for All Middlecountry, and Frontcountry Zones

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

Summer use (May 1 through October 14) of OHVs up to 50 inches in width, and weighing 1,000 pounds curb weight and less would be allowed on existing routes only (Map 50), except for game retrieval.

Summer use (May 1 through October 14) of highway vehicles weighing up to 10,000 pounds curb weight would be allowed on existing roads only (Map 50).

A permit or approved Plan of Operations would be required for all other OHV use (new user-created routes and cross-country travel off existing routes for any other purpose than game retrieval would not be allowed).

The use of hovercraft, airboats, and personal watercraft would not be allowed.

Interim Travel Management Prescriptions for Other BLM lands Outside the SRMA

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

Summer use (May 1 through October 14) of OHVs up to 50 inches in width, and weighing 1,000 pounds curb weight and less would be allowed on existing routes only (Map 50), except for game retrieval.

Summer use (May 1 through October 14) of highway vehicles weighing up to 10,000 pounds curb weight would be allowed on existing roads only (Map 50).

A permit or approved Plan of Operations would be required for all other OHV use (new user-created routes and cross-country travel off existing routes for any other purpose than game retrieval would not be allowed).

RATIONALE: Limiting the use of OHVs by weight, seasonal closure, and/or to existing routes would help maintain the appropriate recreational setting, reduce impacts to stream beds, soil, water, vegetation, fish, and wildlife; and, would help protect the National Conservation Area's scenic, scientific, and cultural resources. Prohibiting the use of hovercraft, airboats, and personal watercraft in the Steese National Conservation Area would also help protect Primitive and Backcountry recreational settings by reducing noise and motorized use.

2.8.2.2.2.7. Withdrawals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.8, the following decisions would apply under Alternative C:

Recommend retaining the ANILCA withdrawal in the Steese National Conservation Area in the following areas (Map 34), keeping approximately 993,000 acres closed to locatable mineral entry and mineral leasing:

- Big Windy Hot Springs and Mount Prindle Research Natural Areas
- Birch Creek, Pinnell Mountain Trail, Wolf Creek, Rock Creek, and Rocky Mountains Uplands RMZs
- Steese ACEC, including that portion of the ACEC that overlaps with the Clums RMZ
- Bachelor Creek portion of the Preacher Creek RMZ
- All Riparian Conservation Areas
- 3,500 acres in the following areas in Harrison Creek to avoid new mining disturbance to lands that have been reclaimed by the BLM.
  - FM, T. 6N., R.13 E., Sec. 1, SE ¼; Sec. 10 SW ¼ and E ½; Secs. 11-12; Sec. 14 N ½ ; and Sec. 15 NE ¼.
  - FM, T. 6N., R. 14E., Sec. 5 W ½ and E ½ E ½; Sec. 6 SW ¼ and E ½; and Sec. 7 NW ¼.

Pursuant to ANILCA 402(b) recommend opening approximately 274,000 acres to locatable mineral entry and mineral leasing in the Steese National Conservation Area (Map 34).

Outside of the Steese National Conservation Area, approximately 1,600 acres would be closed to locatable mineral entry to include any lands that are within the Birch Creek WSR Corridor,

that are not withdrawn under ANILCA or by the WSR Act, for the purposes of protecting the water quality and Outstandingly Remarkable Values of the river.

Outside of the Steese National Conservation Area, approximately 16,400 acres would be recommended for withdrawal from locatable mineral entry in those parts of Birch Creek, Pinnell Mountain Trail, and Rock Creek RMZs that are outside of the ANILCA withdrawals.

Land tenure Zone 3 lands (Appendix G, *Land Tenure*) would be closed to mineral leasing and recommended for withdrawal from mineral location to prevent encumbrance. As needed, recommend modification of public land orders to allow for disposal of these parcels while keeping them closed to mineral entry and mineral leasing.

RATIONALE: Section 402(b) of ANILCA (43 U.S.C. 1716) allows the Secretary of the Interior to open lands in the Steese National Conservation Area to mineral leasing and development and mineral entry and location where consistent with the land use plan for the area. ANILCA 402(c) further states that mining shall be subject to reasonable regulations to assure that mining will, to the extent practicable, be consistent with the protection of the scenic, scientific, cultural, and other resources of the area. ANILCA 401(b) identifies caribou range and Birch Creek as two special values of the Steese National Conservation Area to be considered in planning and management of the area. Under Alternative C, these values would be protected by a variety of planning decisions.

The Birch Creek Recreation Management Zone (RMZ), which includes the entire Birch Creek WSR Corridor and approximately 15,000 acres of adjacent lands, would be closed to mineral entry, location, and leasing and managed for a Semi-Primitive recreational setting (Map 50). The RMZ would be managed as a VRM Class I area (Map 21). Caribou range would be protected by the designation of the Steese ACEC (Map 65), which includes current and recent historic calving and postcalving habitat for the Fortymile caribou herd and current habitat for the White Mountains caribou herd. The ACEC would remain closed to mineral entry, location, and leasing (subject to valid existing rights) and managed for a Semi-Primitive to Backcountry recreation setting. Mining activities would be subject to reasonable regulations, including the Standard Operating Procedures and Fluid Mineral Leasing Stipulations (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) to protect caribou range and Birch Creek.

2.8.2.2.3. Special Designations

2.8.2.2.3.1. Areas of Critical Environmental Concern

DECISIONS:

Under Alternative C, approximately 457,000 acres would be designated as the Steese ACEC (Map 65) to protect relevant and important values which include current and recent historic calving and postcalving habitat for the Fortymile caribou herd and Dall sheep habitat.

The ACEC would be closed to locatable mineral entry and mineral leasing subject to valid existing rights. A mining Plan of Operations would be required on any mining activity within an ACEC (43 CFR 3809.11(c)(3)).

Ungulate mineral licks: Within a distance of one mile of designated ungulate mineral licks, limit all permitted uses and development of facilities for permitted uses, from May 10 through August 31 to activities which would not reduce sheep use of licks.

Allowed uses would be managed to maintain caribou and Dall sheep habitat. The area is (and would remain) generally free of summer motorized vehicle use (May 1 through October 14 sheep habitat; May 10 through July 15 remainder). (For example, summer motorized vehicle use in the few areas of the ACEC where allowed (Middlecountry RMZ), would be restricted to a limited set of trails.) In locations where summer motorized use is currently allowed and vehicle trails are currently established, motorized vehicle use would be limited to select existing routes (or as determined through future travel management planning). Where the ACEC overlays Middlecountry RMZs (and OHV trail construction and other development may be planned), manage the area to maintain its value as caribou and Dall sheep habitat as well as to meet the objectives for that RMZ. Designated trails and other developments may be established in this Zone if limited in density and compatible with caribou and Dall sheep habitat.

Winter motorized use in Dall sheep habitat is currently minimal, but would be monitored and, if it begins to approach a level which may result in altered distribution of Dall sheep, such use may be restricted in the future (through alteration of maintained trails or, if necessary, closures of limited areas and/or time periods).

SUMMARY OF MANAGEMENT IN THE ACEC

The following is a summary of other management decisions that would apply within the ACEC. Salable mineral disposal could be authorized within the ACEC. The ACEC would be retained in federal land status (land tenure Zone 1). Land use permits and leases would be considered, subject to constraints for ungulate mineral licks. Standard Operating Procedures (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would apply to activities requiring a permit from BLM.

The ACEC includes Primitive, Semi-Primitive, Backcountry, and Middlecountry Recreation Management Zones (RMZs). The OHV designation is closed in the Primitive Zones and limited in the other zones. No motorized use is allowed in the Primitive Zones (the RNAs) except by permit. Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed in all other zones. Summer use of OHVs would not be allowed in the Semi-Primitive and Backcountry Zones except by permit. Summer use (May 1 through October 14) of OHVs weighing 1,000 pounds curb weight and less would be allowed on existing routes only (Map 50). A full description of the OHV limitations can be found in section 2.8.2.2.2.6 Travel Management.

2.8.2.2.3.2. Research Natural Areas

DECISIONS:

Under Alternative C, the two designated Research Natural Areas (RNAs) are: the Mount Prindle RNA (2,800 acres) and Big Windy Hot Springs RNA (160 acres).

Management would be similar to Alternative A. The RNAs would be closed to off-road vehicles. Natural processes, including wildland fire, would be allowed to continue with as little interference as possible. Hiking, hunting, and nature appreciation would be allowed. The RNAs would be closed to mineral entry and mineral leasing. No surface-disturbing activities allowed except BLM-authorized research projects and primitive hiking trails.

Under this alternative Primitive camping and hiking trails would be allowed in the RNAs.

2.8.2.2.3.3. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

Under Alternative C, no river segments would be recommended as suitable for designation.

RATIONALE: There is no known federal, public, state, Tribal, local, or other interests in the designation. The State is opposed to the designation. Big Windy is within the Steese National Conservation Area and in all alternatives in this EIS, this area would be closed to mineral entry and would have a suite of management decisions that would protect the ORVs of this river. Because of these reasons, Big Windy has been determined to be not suitable for designation under Alternatives C and D.

2.8.2.3. Alternative D: Steese Subunit

2.8.2.3.1. Resources

2.8.2.3.1.1. Cave and Karst Resources

GOAL: Manage significant cave and karst systems to protect and maintain their resource, educational, scientific, and recreational values in accordance with the Federal Caves Resource Protection Act of 1988 and 43 CFR 37.11.

DECISIONS:

Manage Sheep Cave, #AK-028-003, as a significant cave.

Management objective: Preserve Sheep Cave #AK-028–003 for scientific use and values.

Setting Prescription: Backcountry

Administrative designation: Located within the Steese ACEC (at a mineral lick). No additional designation is recommended.

2.8.2.3.1.2. Cultural Resources

DECISIONS:

Same as Alternative B.

2.8.2.3.1.3. Fish and Aquatic Species

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.3, the following decisions would apply under Alternative D:

The following eight watersheds would be managed as Riparian Conservation Areas (Map 10):

1. Birch Creek (HUC # 190404020212)

2. Birch Creek (HUC # 190404020601)
3. Birch Creek (HUC # 190404020606)
4. Birch Creek (HUC # 190404020207)
5. George Creek-Birch Creek (HUC # 190404020903)
6. McLean Creek-Birch Creek (HUC # 190404020401)
7. Pitkas Bar (HUC # 190404020408)
8. Thomas Creek-Birch Creek (HUC # 190404020403)

Same as Alternative B, the following watersheds would be identified as High Priority Restoration Watersheds and be emphasized for active restoration.

1. Harrison Creek (HUC # 190404020406)
2. Twelve-mile Creek (HUC # 190404020205)
3. North Fork Birch Creek (HUC # 190404020206)
4. Volcano-Clums Fork (HUC # 190404020306)

Complete watershed assessments Section I.5, "Watershed Assessment Process"as necessary for management.

2.8.2.3.1.4. Visual Resources

Proposed VRM classes for Alternative D are displayed on Map 22. Recreation Management Zones (RMZ) are displayed on Map 51. Areas where wilderness characteristics would be maintained are displayed on Map 76.

DECISIONS:

Birch Creek RMZ (inclusive of Birch Creek WSR) with an RSC Class of Semi-Primitive would be managed as VRM Class I. The Mount Prindle RNA, and Big Windy RNA RMZs with a RSC Class of Primitive would also be managed as VRM Class I. Management of VRM Class I areas is to preserve the existing characteristics of the landscape, but allow for limited management activities where changes should be very low and must not attract the attention of the casual observer.

The Pinnell Mountain RMZ with a RSC Class of Semi-Primitive would be managed as VRM Class II. The Rocky Mountain Uplands and Wolf Creek RMZs with a RSC of Backcountry would also be managed as VRM Class II. In VRM Class II areas, developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

The Preacher Creek and Clums RMZs with a RSC Class of Middlecountry and Harrison Creek RMZ with a RSC Class of Frontcountry would be managed as VRM Class IV.

Areas to be managed for wilderness characteristics associated with Birch Creek, Mount Prindle and Big Windy RNA RMZs would be managed as VRM Class I; while those associated with the Pinnell Mountain, Rocky Mountain Uplands and Wolf Creek RMZs would be managed as VRM Class II.

All remaining BLM-managed lands not within the Steese Special Recreation Management Area (inclusive of the Steese National Conservation Area and Birch Creek WSR Corridor) would be assigned a VRM Class IV. In VRM Class IV areas, management actions would be taken to protect the Wild and Scenic River view shed and adjacent VRM Classes. Development activities would be designed to harmonize with the visually dominating elements of the surrounding landscape

characteristics of line, form, color and texture. Major modification of the natural landscape would be allowed.

2.8.2.3.1.5. Wilderness Characteristics

OBJECTIVE:

Allow for multiple use while maintaining naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 483,000 acres so that these lands retain their wilderness characteristics for the life of the RMP.

DECISIONS:

Consistent with allocation decisions in the RMP, allow other multiple-uses on lands where wilderness characteristics would be maintained, while applying management restrictions (such as conditions of use or mitigation measures) to avoid or minimize impacts to wilderness characteristics and meet the objective retaining wilderness characteristics over the life of the RMP.

Under Alternative D, Wilderness characteristics would be maintained on 483,000 acres (38 percent of the lands with wilderness characteristics in this subunit). These lands occur within the Primitive, Semi-Primitive and Backcountry Recreation Management Zones in the Steese National Conservation Area (Map 76).

RATIONALE: Wilderness characteristics would be maintained by decisions in this alternative to close these areas to mineral leasing, retain existing ANILCA closures to mining, manage for VRM class I or II, retain lands in federal management, manage for Primitive, Semi-Primitive and Backcountry recreational settings, and set OHV designations. Management to protect Birch Creek and caribou range, while providing for semi-primitive and backcountry recreational opportunities would be consistent with maintenance of wilderness characteristics. Due to the high cost of resource extraction and limited access in the Steese Subunit, it is likely that wilderness characteristics would remain on more than 38 percent of the lands over the life of the plan.

2.8.2.3.1.6. Wildlife

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.13, the following decisions would apply under Alternative D. Additional wildlife related decisions are found in section 2.8.2.3.3 Special Designations.

Management of the caribou migration corridor (Map 68) on BLM lands would be the same as Alternative C, except the corridor would be maintained by addressing potential effects on caribou migration prior to BLM authorizations for use within the corridor, rather than limiting motorized use to existing or designated routes or developing management threshold density goals and a cooperative plan to maintain connectivity of the corridor as described in Alternative B.

2.8.2.3.2. Resource Uses

2.8.2.3.2.1. Forest and Woodland Products

In addition to the decisions listed as Common To All Subunits in section 2.6.3.1, the following decisions would apply under Alternative D:

DECISIONS:

Personal use of timber would be allowed on all lands (including the Steese National Conservation Area).

Commercial timber salvage sales would be allowed on all lands (including the Steese National Conservation Area).

Commercial timber sales (large or small) would be allowed on all lands, except within the Birch Creek WSR Corridor, Mount Prindle RNA, and Big Windy Hot Springs RNA.

Commercial use of forest products would be allowed on all lands, except within the Mount Prindle and Big Windy Hot Springs RNAs.

2.8.2.3.2.2. Land Tenure

DECISIONS:

Same as Alternative B.

2.8.2.3.2.3. Land Use Authorizations

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.3, the following decisions would apply under Alternative D:

There would be no rights-of-way avoidance areas or designated transportation corridors under this alternative.

2.8.2.3.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals.

2.8.2.3.2.4.1. Fluid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.1, the following decisions would apply under Alternative D:

Approximately 585,000 acres in the following areas would be closed to fluid leasable minerals (Map 37).

- The Mount Prindle and Big Windy Hot Springs RNAs
- The Birch Creek, Wolf Creek, Pinnell Mountain Trail, and Rocky Mountain Uplands RMZs
- The Steese ACEC/ungulate mineral licks
- Zone 3 disposal land (federal mining claims outside Steese National Conservation Area and Birch Creek WSR Corridor)
- BLM's Central Administrative Site

Approximately 524,000 acres would be open to leasing, subject to minor constraints. Within the Steese National Conservation Area, this includes that portion of the Clums RMZ that does not overlap with the Steese ACEC and the Preacher RMZ (Map 37).

All remaining lands, approximately 158,000 acres, would be open to leasing, subject to Standard Lease Terms. This includes the Harrison RMZ, BLM lands near Circle, and any remaining lands.

2.8.2.3.2.4.2. Solid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.2, the following decisions would apply under Alternative D:

The same areas that are closed to fluid leasable minerals under this alternative, approximately 585,000 acres, would also be closed to solid leasable minerals (Map 37). The same areas that are open to fluid leasable minerals, 682,000 acres, would also be open to solid leasable minerals subject to the same constraints.

2.8.2.3.2.4.3. Locatable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.3, the following decisions would apply under Alternative D:

Approximately 585,000 acres in the following areas would be closed to locatable mineral entry (Map 36).

- The Mount Prindle and Big Windy Hot Springs RNAs
- The Birch Creek, Wolf Creek, Pinnell Mountain Trail, and Rocky Mountain Uplands RMZ
- The Steese ACEC/ungulate mineral licks
- Zone 3 disposal land (federal mining claims outside Steese National Conservation Area and Birch Creek WSR Corridor)
- BLM's Central Administrative Site

All remaining lands in the Steese Subunit, approximately 682,000 acres, would be open to locatable mineral entry. Within the Steese National Conservation Area, this includes Harrison RMZ, Preacher Creek RMZ, and the Clums RMZ (except that portion that is within the Steese ACEC).

2.8.2.3.2.4.4. Salable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.4, the following decisions would apply under Alternative D:

The entire subunit, approximately 1,267,000 acres would be open to salable minerals.

2.8.2.3.2.5. Recreation

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.6, the following decisions would apply under Alternative D:

Recreation Management Areas

The Steese SRMA would include 1,246,000 acres of lands including the Steese National Conservation Area, the Birch Creek WSR Corridor and lands adjacent to the WSR corridor (Map 51). The SRMA includes approximately 15,000 acres of state inholdings. Under this alternative, the Steese SRMA would include nine Recreation Management Zones (RMZs), the management of which are described in Section H.2.3, "Steese Alternative D".

Table 2.15. Steese Recreation Management Zones, RSC Settings and OHV Designations, Alternative D

Name	Acres	RSC Setting[a] [b]	OHV Designation
Birch Creek RMZ	87,000	Semi-Primitive	LIMITED
Pinnell Mountain Trail RMZ	16,000	Semi-Primitive	LIMITED
Mount Prindle RNA RMZ	3,000	Primitive	CLOSED
Big Windy RNA RMZ	160	Primitive	CLOSED
Preacher Creek RMZ	437,000	Middlecountry	LIMITED
Harrison Creek RMZ	124,000	Frontcountry	LIMITED
Wolf Creek RMZ	325,000	Backcountry	LIMITED
Clums RMZ	172,000	Middlecountry	LIMITED
Rocky Mountain Uplands RMZ	82,000	Backcountry	LIMITED
Other BLM lands	36,000	N/A	LIMITED

[a]Table 2.5

[b]RSC are descriptive conditions describing management parameters at the implementation level. These are not land use planning decisions

2.8.2.3.2.6. Travel Management

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative D.

DECISIONS:

Under Alternative D, the entire Steese Subunit would be delineated as a Travel Management Area. For lands within the SRMA, specific Travel Management Zones (TMZs) have also been delineated and are the same polygons used for Recreation Management Zone (RMZ) delineations and subsequent Recreation Opportunity Spectrum (RSC) settings for this alternative. Each TMZ also contains a specific OHV designation of Open, Limited, or Closed (Table 2.15, "Steese Recreation Management Zones, RSC Settings and OHV Designations, Alternative D").

It is not practical to define and delineate a comprehensive travel management network for the Steese subunit in this plan due to incomplete route data, size and the complexity of the area. Instead, a map of preliminary (existing) routes (see Map 51) and interim management prescriptions would be utilized until such time as a Comprehensive Travel Management Plan could be completed.

Accurate route information is needed to complete a comprehensive travel management network. This data would be acquired utilizing a combination of methods, including overflights and on-the-ground GPS mapping. Once the signed ROD for the RMP is released, additional data would be collected and a Comprehensive Travel Management Plan would be completed, using interagency and public collaboration.

The OHV prescriptions vary by Recreation Management Zone and are described below. Under this alternative, snowmobiles are limited to 50 inches or less in width and 1,000 pounds or less curb weight.

Interim Travel Management Prescriptions Common to All Lands

All forms of non-motorized use would be allowed.

Aircraft use would be unrestricted (except in Primitive Zones), with the following provisions: Minimal clearing of rocks, downed logs, and brush would be allowed; Construction or formal improvement of landing areas would occur by permit only; Use of gravel bars and winter snow areas would be allowed, subject to reasonable provisions to protect the values of "wild," river segments.

New restrictions could be developed for the purposes of site protection, visitor safety, and/or enhancing recreational opportunities, experiences and outcomes.

Interim Travel Management Prescriptions for All Primitive Zones

Same as Management Common to All Lands, with the following additions:

A permit or approved Plan of Operations would be required for all OHV use.

Aircraft landings would be allowed within the Primitive Zones, with the following provisions: No clearing of vegetation would be allowed without a permit.

The use of hovercraft, airboats, and personal watercraft would not be allowed.

In areas with a Closed OHV designation (Research Natural Areas) subject to reasonable regulations, a free permit may be issued for access via snowmobiles for traditional activities and for travel to and from villages and homesites (ANILCA Sec. 1110). Similarly, federally Qualified Subsistence Users, subject to reasonable regulations and with a free permit, can use snowmobiles or other means of surface transportation traditionally employed for subsistence purposes (ANILCA Sec. 811) in areas with use limitations for casual users. Free permits may be obtained in person, by mail, and by phone from the BLM Fairbanks District Office and other appropriate locations.

RATIONALE: The federal government established a system of Research Natural Areas (RNAs) in 1927. RNAs are tracts of federal land and water established and managed for the primary purpose of research and education (43 CFR 8223.0-1). RNAs were selected to contain examples of significant natural ecosystems, areas suitable for ecological study, and rare species of plants

and animals. Federal and state agencies have cooperated in Alaska since 1973 in selecting, documenting, and describing RNAs.

Four RNAs were designated in the planning area in 1986 (BLM 1986a and 1986b). The RNAs were designated to provide areas where natural ecosystems and processes are undisturbed so that they can be studied and understood, and to provide an undisturbed area for comparison with other areas so that effects of management and use can be assessed. The principle of maintaining reference conditions for scientific comparison is basic to the purposes of the system of RNAs.

Motorized vehicle access in the RNAs, including snowmobile use in winter, has the potential to damage vegetation, geologic structures, and soils. Any such disturbance has the potential to reduce the value of the area for future research by altering natural conditions. Although specific natural features were identified prior to designation and in reports for each RNA, other features could be equally valuable in future research. In other words, it is not possible now to identify what resources will be most valuable later for scientific study.

Although snow cover and frozen ground is considered adequate to protect vegetation and soils from snowmobiles in most areas, effects on vegetation do often occur from such use. Shrubs and small trees near or above the snow surface can be damaged and broken. The spinning of a snowmobile track can quickly remove considerable snow cover, especially high-power machines with paddle tracks. On steep slopes (typical in many of the RNAs), high snow depths may be required to avoid impacting low vegetation and ground cover. Repeated travel on trails can pack snowcover, decreasing insulation value of the snow, and in some places cause subsurface water flow to occur on the surface and "glaciering" to occur. The later melt of this ice in spring can impact vegetation growth and change vegetation type.

Interim Travel Management Prescriptions for All Semi-Primitive and Backcountry Zones

Same as Management Common to All Lands, with the following additions:

Same as Alternative B, all forms of non-motorized use allowed. Motorboat use allowed without specific authorization consistent with ANILCA Sections 1110(a) and 811. However, airboats, hovercraft, and personal watercraft would not be permitted on non-navigable segments above the confluence of Birch Creek and an unnamed creek in T. 6N., R. 17E., Section 8.

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

The Pinnell Mountain Trail is closed to motorized use.

RATIONALE: The Wild and Scenic Rivers Act states that rivers classified as "wild" are generally inaccessible except by trail, and are to represent vestiges of primitive America (Wild and Scenic Rivers Act, Section 2). Birch Creek WSR has outstandingly remarkable recreational value as an accessible, freshwater and whitewater, wild river providing a multi-day Primitive floating and camping experience which is considered unique. Birch Creek has been managed for a Primitive experience for the past 30 years since its designation and classification as a "wild" river. Airboats, hovercraft and personal watercraft generate noise levels which are disruptive to some recreationists and would diminish the Semi-Primitive experience managed for and expected by those recreationists on a "wild" river. These types of use are not considered compatible with the values for which the "wild" river is to be managed.

Birch Creek has outstandingly remarkable fish values due to its high species diversity and high quality habitat. Prohibiting the use of hovercraft, airboats, and personal watercraft would protect and enhance these outstandingly remarkable values. It would also reduce disturbance of sensitive wildlife species, such as nesting peregrine falcons.

Prohibiting the use of hovercraft, airboats, and personal watercraft in the Steese National Conservation Area would also help protect Semi-Primitive and Backcountry recreational settings by reducing noise and motorized use levels.

Interim Travel Management Prescriptions for All Middlecountry, and Frontcountry Zones

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

Cross-country summer use (May 1 through October 14) of OHVs 50 inches or less in width, and weighing 1,000 pounds curb weight and less would be allowed.

Highway vehicles weighing up to 10,000 pounds curb weight would be allowed on existing roads (Map 51).

A permit or approved Plan of Operations would be required for all other OHV use.

The use of hovercraft, airboats, and personal watercraft would not be allowed.

Interim Travel Management Prescriptions for Other BLM lands Outside the SRMA

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

Cross-country summer use (May 1 through October 14) of OHVs 50 inches or less in width, and weighing 1,000 pounds curb weight and less would be allowed.

Highway vehicles weighing up to 10,000 pounds curb weight would be allowed on existing roads (Map 51).

A permit or approved Plan of Operations would be required for all other OHV use.

RATIONALE: Limiting the use of OHVs by weight, seasonal closure, and/or to existing routes would help maintain the appropriate recreational setting. Allowing for cross-country travel by ATV would increase impacts to natural resources but would provide additional opportunity for motorized recreation, consistent with recreation opportunity settings. Prohibiting the use of hovercraft, airboats, and personal watercraft in the Steese National Conservation Area would also help protect recreational settings by reducing noise and motorized use. Additionally, limitations on the types of motorized use would reduce impacts to stream bed, soil, water, vegetation, fish, and wildlife; and, would help protect the National Conservation Area's scenic, scientific, and cultural resources.

2.8.2.3.2.7. Withdrawals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.8, the following decisions would apply under Alternative D:

Recommend retaining the ANILCA withdrawal in the Steese National Conservation Area in the following areas (Map 36), keeping approximately 585,000 acres closed to locatable mineral entry and mineral leasing:

- Birch Creek, Wolf Creek, Pinnell Mountain Trail, Rock Creek, and Rocky Mountain Uplands RMZs
- Big Windy Hot Springs and Mount Prindle RNAs
- Steese ACEC, including that portion of the ACEC that overlaps with the Clums RMZ

Pursuant to ANILCA 402(b), recommend opening approximately 646,000 acres to locatable mineral entry and mineral leasing in the Steese National Conservation Area in the following areas (Map 36).

- Harrison RMZ
- Preacher Creek RMZ
- Clums RMZ (except that part within the Steese ACEC)

Outside of the National Conservation Area, approximately 1,600 acres would be recommended withdrawn from locatable mineral entry, to include lands within the Birch WSR Corridor that are not withdrawn under ANILCA or the WSR Act, for the purposes of protecting the water quality and Outstandingly Remarkable Values of the river.

Outside of the National Conservation Area, approximately 15,200 acres would be recommended withdrawn from locatable mineral entry in those parts of Birch Creek and Pinnell Mountain Trail RMZs that are not withdrawn under ANILCA.

Land tenure Zone 3 lands (Appendix G, *Land Tenure and Withdrawals*) would be closed to mineral leasing and recommended withdrawn from location to prevent encumbrance. As needed, recommend modification of public land orders to allow for disposal of these parcels while keeping them closed to mineral entry and mineral leasing.

RATIONALE: Under Alternative D, caribou range and Birch Creek would be protected by a variety of planning decisions. The Birch Creek RMZ, which includes the entire Birch Creek WSR Corridor and 15,130 acres of adjacent lands, would be closed to mineral entry, location, and leasing and managed for a Semi-Primitive recreational setting (Map 51). The RMZ would be managed as a VRM Class I area (Map 22). Caribou range would be protected by the designation of the Steese ACEC (Map 66), which includes current and recent historic calving and postcalving habitat for the Fortymile caribou herd and current habitat for the White Mountains caribou herd. The ACEC would remain closed to mineral entry, location, and leasing (Maps 36 and 37) and would be managed for a Backcountry recreation setting (Map 51). Mining activities would be subject to reasonable regulations, including the Standard Operating Procedures and Fluid Mineral Leasing Stipulations (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) to protect caribou range and Birch Creek.

2.8.2.3.3. Special Designations

2.8.2.3.3.1. Areas of Critical Environmental Concern

DECISIONS:

Under Alternative D, approximately 193,000 acres would be designated as the Steese ACEC (Map 66) to protect relevant and important values which include core current and Clums Fork calving habitat for the Fortymile caribou herd and Dall sheep mineral licks.

The ACEC would remain closed to locatable and leasable mineral entry subject to valid existing rights. A mining Plan of Operations would be required on any mining activity within an ACEC (43 CFR 3809.11(c)(3)).

Ungulate mineral licks: Within a distance of one-half mile of designated ungulate mineral licks, limit all permitted uses and development of facilities for permitted uses, from May 10 through August 31 to activities which would not reduce sheep use of licks.

Allowed uses would be managed to maintain caribou and Dall sheep habitat. The majority of the ACEC is and would remain generally free of summer motorized vehicle use (May 1 through October 14 sheep habitat; May 10 through July 15 remainder), i.e., summer motorized vehicle use, in the few areas of the ACEC where allowed (Middlecountry RMZ), would be restricted to a limited set of trails. In locations where summer motorized use is currently allowed and vehicle trails are currently established, motorized vehicle use would be limited to select existing routes (or as determined through future travel management planning). Where the ACEC overlays Middlecountry RMZs (and OHV trail construction and other development may be planned), manage the area to maintain its value as caribou and Dall sheep habitat as well as to meet the objectives for that RMZ. Designated trails and other developments may be established in this Zone if limited in density and compatible with caribou and Dall sheep habitat.

Winter motorized use in Dall sheep habitat is currently minimal, but would be monitored and, if use begins to approach a level which may result in altered distribution of Dall sheep, such use may be restricted in the future (through alteration of maintained trails or, if necessary, closures of limited areas and/or time periods).

SUMMARY OF MANAGEMENT IN THE ACEC

The following is a summary of other management decisions that would apply within the ACEC.

Salable mineral disposal could be authorized within the ACEC. The ACEC would be retained in federal land status (land tenure Zone 1). Land use permits and leases would be considered, subject to constraints for ungulate mineral licks. Standard Operating Procedures (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would apply to activities requiring a permit from BLM.

A full description of the OHV limitations can be found in section 2.8.2.3.2.6 Travel Management. The OHV designation is Limited. The ACEC includes Backcountry and Middlecountry Recreation Management Zones (RMZs). Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed in all zones. Summer use of OHVs would not be allowed in the Backcountry Zones (Map 51) except by

permit. Summer use (May 1 through October 14) of OHVs weighing 1,000 pounds curb weight and less would be allowed in the Middlecountry Zones.

2.8.2.3.3.2. Research Natural Areas

DECISIONS:

Under Alternative D, the two existing Research Natural Areas (RNAs) would be maintained: the Mount Prindle RNA (2,800 acres) and Big Windy Hot Springs RNA (160 acres). Management of the RNAs would be the same as Alternative C.

2.8.2.3.3.3. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

RATIONALE: There is no known federal, public, state, Tribal, local, or other interests in the designation. The State is opposed to the designation. Big Windy is within the Steese National Conservation Area and in all alternatives in this EIS, this area would be closed to mineral entry and would have a suite of management decisions that would protect the ORVs of this river. Because of these reasons, Big Windy has been determined to be not suitable for designation under Alternative D

2.8.2.4. Alternative E (Proposed RMP): Steese Subunit

2.8.2.4.1. Resources

2.8.2.4.1.1. Cave and Karst Resources

GOAL: Manage significant cave and karst systems to protect and maintain their resource, educational, scientific, and recreational values in accordance with the Federal Caves Resource Protection Act of 1988 and 43 CFR 37.11.

DECISIONS:

Manage Sheep Cave, AK-028-003, as a significant cave.

Management objective: Preserve Sheep Cave for scientific use and values.

Setting Prescription: Semi-Primitive

Administrative designation: Located within the Steese National Conservation Area (Map 67). No additional designation recommended.

2.8.2.4.1.2. Cultural Resources

DECISIONS:

Same as Alternative B.

2.8.2.4.1.3. Fish and Aquatic Species

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.3, the following decisions would apply under Alternative E:

The following watersheds would be managed as RCAs (Map 8). These are the same as Alternative B.

1. Birch Creek (HUC # 190404020207)
2. Birch Creek (HUC # 190404020212)
3. Birch Creek (HUC # 190404020601)
4. Birch Creek (HUC # 190404020606)
5. Fourteenmile Creek-Yukon River (HUC # 190404011906)
6. George Creek-Birch Creek (HUC # 190404020903)
7. Headwaters North Fork Preacher Creek (HUC # 190404021102)
8. Loper Creek (HUC # 190404021201)
9. Lower North Fork Preacher Creek (HUC # 190404021105)
10. McLean Creek-Birch Creek (HUC # 190404020401)
11. Middle Preacher Creek (HUC # 190404021202)
12. Middle North Fork Preacher Creek (HUC # 190404021104)
13. Ninety-eight Pup-Preacher Creek (HUC # 190404021009)
14. Pitkas Bar (HUC # 190404020408)
15. Preacher Creek (HUC # 190404021005)
16. Puzzle Gulch (HUC # 190404020506)
17. Sheep Creek (HUC # 190404020407)
18. Thomas Creek-Birch Creek (HUC # 190404020403)
19. Upper North Fork Preacher Creek (HUC # 190404021103)
20. Yukon River (HUC # 190404011903)
21. Yukon River (HUC # 190404011904)

The following watersheds would be identified as a High Priority Restoration Watershed and be emphasized for active restoration.

1. Harrison Creek (HUC # 190404020406)
2. Twelve-mile Creek (HUC # 190404020205)
3. North Fork Birch Creek (HUC # 190404020206)
4. Volcano Creek-Clums Fork (190404020306)

Complete watershed assessments Section I.5, "Watershed Assessment Process"as necessary for management.

2.8.2.4.1.4. Visual Resources

Proposed VRM classes for Alternative E are displayed on Map 23. Recreation Management Zones are displayed on Map 52.

DECISIONS:

Management of VRM Class I areas is to preserve the existing characteristics of the landscape, but allow for limited management activities where changes should be very low and must not attract the attention of the casual observer.

In VRM Class II areas, developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

In VRM Class IV areas, management actions would be taken to protect the Wild and Scenic River view shed and adjacent VRM Classes. Development activities would be designed to harmonize with the visually dominating elements of the surrounding landscape characteristics of line, form, color and texture. Major modification of the natural landscape would be allowed.

Alternative E Visual Resource Management Allocations for the Steese Subunit (Maps 23 and 52)			
Area	**RSC Class**	**VRM Class**	**Acres**
Mount Prindle RNA, and Big Windy RNA RMZs	Primitive	I	3,000
Birch Creek RMZ (inclusive of Birch Creek WSR)	Semi-Primitive	I	100,000
Pinnell Mountain and Wolf Creek RMZs	Semi-Primitive	II	421,000
Preacher Creek RMZ	Backcountry	II	488,000
Bachelor Creek and Clums RMZs	Middlecountry	IV	120,000
Harrison Creek RMZ	Frontcountry	IV	114,000
Remaining BLM lands	N/A	IV	36,000

2.8.2.4.1.5. Wetlands and Floodplains

In addition to the Water Resource decisions listed as Common To All Subunits in section 2.6.2.10, the following decisions would apply under Alternative E:

DECISIONS:

Within five years of signing the ROD or by management direction, undertake development of a step-down Watershed Management Plan (WMP) for Birch Creek Wild and Scenic River watershed, Steese South National Conservation Area, and Preacher Creek watershed, Steese North National Conservation Area. Watershed planning helps address water quality problems in a holistic manner by fully assessing the potential contributing causes and sources of pollution including uplands, then prioritizing restoration and protection strategies to address these problems. Site specific soil and water management determinations (e.g., watershed, floodplain-wetland, or riparian rehabilitation techniques, monitoring techniques and schedule, and the design and placement of improvements) will be developed in the interdisciplinary Watershed Management Planning phase for resource programs. The "Watershed Assessment Matrix" (Table I.1), depicting range of desired conditions for aquatic habitats would be incorporated in the Watershed Management Plan as well as other science-based watershed assessment tools. Relevant new science and new empirical water resource data would also be incorporated in the WMPs. Additional SOPs and Fluid Mineral Leasing Stipulations for land uses may be developed through the step-down watershed management plan.

Restoration and enhancement of floodplain areas should be approached through management of the entire watershed rather than just focusing on a narrow floodplain-riparian zone. Prior to initiating restoration measures, a determination must be made of site potential and the primary causes of a degraded ecological condition. The natural recovery processes operating in an area should be evaluated prior to considering structural measures. While stream systems and watersheds are undergoing major geomorphic or hydrological adjustment, structural measures

should not be initiated. Consider implementing structural measures only if (1) proper management prescriptions will not achieve management objectives within the desired time frame, (2) costs incurred to achieve accelerated rehabilitation are justified by the benefits to be achieved, and (3) natural recovery has not progressed to a point that will stabilize stream banks and/or wetlands basins.

In setting reclamation priorities for floodplain-wetland areas, consider the extent to which the floodplain-wetland may deteriorate if restoration or improvement action is not immediately implemented. Floodplain-wetland areas that may suffer substantial further degradation and have high potential for improvement should be given top priority. Those that have been degraded but appear stable may be given lower priority for restoration and improvement. Other factors, such as special status species, water quality, competing water uses, fisheries, and recreation values should also be considered when establishing priorities.

2.8.2.4.1.6. Wilderness Characteristics

OBJECTIVE: Reduce impacts of multiple-use activities to maintain naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on approximately 1,009,000 acres.

DECISIONS:

The BLM would manage approximately 258,000 acres for other multiple uses as a priority over protecting wilderness characteristics.

The BLM would manage approximately 1,009,000 acres to emphasize other resources values and multiple uses while applying management restrictions to reduce impacts to wilderness characteristics. These lands are located within the crucial caribou and Dall sheep habitat, and Primitive, Semi-Primitive, and Backcountry recreation management zones (Map 77).

The BLM would not manage any lands to protect wilderness characteristics as a priority over other resource values and multiple uses.

The types of activities/projects that could potentially affect wilderness characteristics would require further NEPA analysis. The BLM will monitor wilderness characteristics through this NEPA process. In addition, on-the-ground or aerial monitoring will be done in conjunction with monitoring for other resources.

RATIONALE: Under BLM Manual 6320 the BLM can manage areas to emphasize other resource values and multiple uses while applying management restrictions to protect wilderness characteristics. Given the large size of most of wilderness inventory units in the Steese Subunit, many land uses could occur that would not impact naturalness, solitude, or primitive recreation on a landscape scale, or the size of the units. Management for other resource drivers such as recreation, wild and scenic rivers, and wildlife are complementary to maintaining wilderness characteristics. Under Alternative E, management decisions to protect caribou and Dall sheep habitat, riparian habitat, and Birch Creek WSR would result in maintenance of wilderness characteristics in these areas. Additionally, when the RMP is implemented uses proposed in these areas would be further analyzed through the NEPA process for impacts to size, naturalness and solitude and stipulated mitigation measures would be applied where needed to minimize impacts.

2.8.2.4.1.7. Wildlife

In addition to the goals and decisions listed as Common to All Subunits in section 2.6.2.13, the following would apply under Alternative E.

GOALS: Priority will be given to maintaining the value of crucial caribou and Dall sheep habitat and ungulate mineral licks.

DECISIONS:

Decisions are the same as in Alternative B, with the addition of the following decisions.

Manage the caribou migration corridor on BLM-managed lands (Map 68) as follows:

- Closed to mineral location, entry, and leasing.
- Manage OHV use to ensure free movement of caribou between upper Birch Creek, the north Steese National Conservation Area, and the White Mountains NRA.
- Consider impacts of developments in the corridor, including state and private land, and ensure it does not significantly impact the ability of caribou to migrate to historically used and biologically important habitats. Through activity level planning, develop a management threshold density goal for BLM lands, limiting linear disturbance per unit area. Propose a cooperative effort with ADNR and ADF&G to develop a plan (such as a Habitat Management Plan) to maintain connectivity and effectiveness of habitat in the area.

Domestic sheep, goats, and camelids (including alpaca and llama) are prohibited in Dall sheep habitat and adjacent lands.

Delineate approximately 457,000 acres as crucial caribou and Dall sheep habitat (map 67) to protect caribou calving and postcalving habitat, Dall sheep habitat, and ungulate mineral licks. Management of these areas will give priority to maintaining habitat effectiveness—the ability of habitats to support Dall sheep and caribou—including the following management:

Ungulate mineral licks: Within a distance of one mile of designated ungulate mineral licks, limit all permitted uses and development of facilities for permitted uses, from May 10 through August 31 to activities which would not reduce sheep use of licks.

Limit density of trails within crucial caribou and Dall sheep habitat to protect values for which they were designated.

Within crucial caribou and Dall sheep habitat cross-country winter use of vehicles weighing more than 1,500 pounds curb weight will not be allowed without a permit. Cross-country Summer OHV use will not be allowed without a permit. Summer OHV travel on BLM approved routes may be allowed where it is

compatible with maintenance of caribou and Dall sheep habitat effectiveness. These approved routes will be determined through travel management planning.

Winter motorized use in Dall sheep habitat would be monitored and, if use begins to approach a level which may result in altered distribution of Dall sheep, such use may be restricted in the future (through alteration of maintained trails or, if necessary, limited closures, e.g., limited areas and/or time periods).

Additional management prescriptions in crucial caribou and Dall sheep habitat for activities requiring a permit from the BLM:

Applicants proposing to conduct surface-disturbing activities or other intensive activities will, at the determination of the AO, be required to submit an approved plan (Caribou and Dall Sheep Impact Assessment and Mitigation Plan) describing methods to minimize impacts to caribou and Dall sheep and their habitat. This plan must describe the proposed project, the design and mitigation alternatives considered, the amount and quality of habitat to be affected, the mitigation and restoration to be applied, the residual impacts predicted, and the monitoring to be undertaken to confirm mitigation success.

Permanent roads will generally not be allowed, although long-term temporary roads may be, and roads will generally not be open to the public. Decisions subject to the ANILCA Title XI process in the Steese National Conservation Area will be made on a case-by-case basis pursuant to Title XI. Roads will be of the lowest practical profile. Road use may be restricted during caribou calving, postcalving, or Dall sheep lambing. Road construction will not be permitted if other means of access is practical (such as aircraft or winter ice-road). Facilities within crucial caribou and Dall sheep habitat that require year-round access will be located in forested areas where practical.

Permitted aircraft will follow a minimum flight level of 1,500 feet above ground level, except at landing and takeoff and when it would compromise safety. The AO may allow exceptions to these access requirements where impacts to caribou and Dall sheep are adequately minimized and where other resource considerations are of higher priority.

The footprint of facilities will be minimized. Permittees may be required to co-locate facilities and access to minimize habitat loss.

Reclamation and revegetation of disturbed areas will be required to meet performance standards set in site-specific reclamation plans with a goal of restoration of caribou and/or Dall sheep habitat, such as a required plant cover (percent) within a certain number of years before a performance bond is released.

2.8.2.4.2. Resource Uses

2.8.2.4.2.1. Forest and Woodland Products

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.1, the following decisions would apply under Alternative E:

Personal use of timber would be allowed on all lands.

Commercial timber salvage sales would be allowed on all lands (including the Steese National Conservation Area).

Commercial timber sales (large or small) would be allowed on all lands, except within the Birch Creek WSR Corridor, Mount Prindle RNA, Big Windy Hot Springs RNA, and crucial caribou and Dall sheep habitat (Map 67).

Commercial use of forest products would be considered on all lands.

2.8.2.4.2.2. Land Tenure

In addition to the decisions listed as Common To All Subunits in section 2.6.3.2, the following decisions would apply under Alternative E. This is the same as Alternative B.

DECISIONS:

Zone 1 lands (lands identified for retention or acquisition):

Lands within the Steese National Conservation Area would be retained in accordance with Section 402(b) of ANILCA; Recommend retaining Birch Creek WSR Corridor and Central Administrative Site (PLO 519).

Consider acquisition of private land inholdings from willing sellers within areas identified as Zone 1.

Consider acquisition of state inholdings within the proclaimed boundary of the Steese National Conservation Area, including approximately 15,000 acres of State lands located within the boundaries of the Steese National Conservation Area (FM, T. 7N., R.8E., and FM, T. 10N., R. 13E.).

Consider acquisition of lands conveyed to the State between the southern boundary of the North Steese National Conservation Area Unit and the Pinnell Mountain Trail (FM, T. 7N, R. 9E., T.8N., R. 9E., and T. 8N, R.10E).

Zone 2 lands:

Consider acquisition, or disposal, including exchange, of scattered parcels around Circle for the purposes of consolidation.

Zone 3 lands (lands identified for disposal):

If federal mining claims located outside of the Steese National Conservation Area and Birch Creek WSR Corridor become null and void, and are not conveyed to the State, consider these lands for disposal or exchange. If needed, modify existing public land orders to allow for disposal.

2.8.2.4.2.3. Land Use Authorizations

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.3, the following decisions would apply under Alternative E.

No transportation corridors would be retained in the Steese National Conservation Area.

There would be no rights-of-way avoidance areas.

2.8.2.4.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals.

2.8.2.4.2.4.1. Fluid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.1, the following decisions would apply under Alternative E. Fluid leasable minerals are defined by the Mineral Leasing Act and include oil, gas, coalbed natural gas, and geothermal resources.

Approximately 1,237,000 acres in the Steese National Conservation Area, Birch Creek WSR, and riparian conservation areas would be closed to fluid leasable minerals (Map 38):

All remaining lands, approximately 30,000 acres, would be open to leasing, subject to Standard Lease Terms, Fluid Mineral Leasing Stipulations, and Standard Operating Procedures.

2.8.2.4.2.4.2. Solid Leasable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.2, the following decisions would apply under Alternative E. Solid leasable minerals are defined by the Mineral Leasing Act and include coal, oil shale, native asphalt, phosphate, sodium, potash, potassium, and sulfur.

The same areas that are closed to fluid leasable minerals under this alternative, approximately 1,237,000 acres, would also be closed to solid leasable minerals (Map 38), including coal.

The remainder of the subunit, 30,000 acres would be open to solid leasable minerals subject to leasing stipulations and standard operating procedures.

As stated in section 2.6.3.5.2 Common to All Alternatives, coal leasing is deferred because the coal screening process (as identified by 43 CFR 3420.1-4) has not been completed in the planning area. A RMP amendment would be needed before coal leasing could occur. Only those BLM-managed public lands that have development potential may be identified as acceptable for further consideration for coal leasing.

2.8.2.4.2.4.3. Locatable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.3, the following decisions would apply under Alternative E. Locatable minerals are minerals for which the right to explore, develop, and extract mineral resources is established by the staking of mining claims, under the General Mining Law of 1872. Examples of locatable minerals include gold, silver copper, zinc, certain limestones, and gypsum.

Approximately 1,237,000 acres in the Steese National Conservation Area, Birch Creek WSR, and riparian conservation areas would remain closed to locatable mineral entry (Map 38).

All remaining lands in the Steese Subunit, approximately 30,000 acres, would be open to locatable mineral entry.

2.8.2.4.2.4.4. Salable Minerals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.5.4, the following decisions would apply under Alternative E. Salable minerals, also called mineral materials, include sand, gravel, dirt, and rock.

Approximately 69,000 acres in the Birch Creek WSR Corridor would be closed to salable mineral.

All remaining lands in the Steese Subunit, including the Steese National Conservation Area outside of the river corridor, would be open to salable minerals.

2.8.2.4.2.5. Recreation

OBJECTIVE:

SRMA specific outcomes-focused objectives, proposed recreation setting characteristics and the management framework for each RMZ can be found in Appendix H.

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.6, the following decisions would apply under Alternative E:

Designate 1,246,000 acres of lands including the Steese National Conservation Area, the Birch Creek WSR Corridor and lands adjacent to the WSR corridor as the Steese SRMA (Map 52). The SRMA includes 15,000 acres of state inholdings. Under this alternative, the SRMA would include nine Recreation Management Zones (RMZs).

Table 2.16. Steese Recreation Management Zones, RSC Settings and OHV Designations, Alternative E (Map 52)

Name	Acres	RSC Setting[a] [b]	OHV Designation
Birch Creek RMZ	100,000	Semi-Primitive	LIMITED
Pinnell Mountain Trail RMZ	16,000	Semi-Primitive	LIMITED
Mount Prindle RNA RMZ	3,000	Primitive	LIMITED
Big Windy RNA RMZ	160	Primitive	LIMITED
Preacher Creek RMZ	488,000	Backcountry	LIMITED
Harrison Creek RMZ	114,000	Frontcountry	LIMITED
Wolf Creek RMZ	405,000	Semi-Primitive	LIMITED
Bachelor Creek RMZ	31,000	Middlecountry	LIMITED
Clums RMZ	89,000	Middlecountry	LIMITED
Other BLM lands	36,000	N/A	LIMITED

[a]Table 2.5

[b]RSC are descriptive conditions describing management parameters at the implementation level. These are not land use planning decisions

2.8.2.4.2.6. Travel Management

The table above describes the Recreation Management Zones in the Steese SRMA under Alternative E (Map 52). The OHV prescriptions are described below.

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative E.

DECISIONS:

A comprehensive travel management plan for the Steese Subunit will be deferred until the completion of the RMP. Once the ROD for the RMP is released, additional data would be collected and a comprehensive travel management plan would be developed using a public process, allowing for additional public and agency input. This process will include publishing a *Federal Register* Notice, public scoping meetings and if any closures are proposed, a formal hearing to address the closure procedures under 43 CFR 36.11 (h) as well as limitations affecting ANILCA provisions listed in Title VIII and Title XI.

Interim management prescriptions until completion of the Travel Management Plan: Current management outlined in Alternative A, No Action Alternative with the addition of the following:

1,000 pound curb weight and 50 inch width limitation for snowmobiles to replace 1,500 pound GVWR limitation in the Steese National Conservation Area and Birch Creek WSR corridor.

1,000 pound curb weight limitation and 50 inch width for summer OHVs to replace 1,500 pound GVWR limitation in the Steese National Conservation Area .

Birch Creek WSR: Use of motorboats, hovercraft, and airboats is allowed without specific authorization.

The Mount Prindle and Big Windy Hot Springs RNAs include limitations on OHV use (Map 52). The OHV area designation would change from Closed to Limited in this alternative. The RNAs would be limited to winter OHV use only by snowmobiles 1,000 pounds or less in weight and 50 inches or less in width.

Limitations on Travel Management Planning:

The step-down travel management plan will be developed within 5 years of the Record of Decision. Wildlife management decisions will set sideboards on what can be considered in the travel management plan.

Wildlife management prescriptions in crucial caribou and Dall sheep habitat (Map 67) include limitations on OHV use. These will be implemented through travel management planning. Cross-country summer OHV use will not be allowed without a permit.

Wildlife decision identified in Alternative E have management prescriptions that include non-motorized travel management prescriptions. Domestic sheep, goats and camelids (including alpaca and llama) are prohibited in Dall sheep habitat and adjacent lands.

Rationale: Limiting the use of OHVs by weight, seasonal closure, and/or to existing routes or in some cases considering dispersed cross-country travel will help maintain the appropriate recreational setting, reduce impacts to stream beds, soil, water, vegetation, fish and wildlife, scenic, scientific and cultural resources. These decisions will be analyzed in the travel management plan.

Weight limitation changes from pounds GVWR to curb weight allows for the same types and sizes of vehicles allowed under Alternative A. Curb weight is consistent with the generally allowed uses on adjacent State lands.

2.8.2.4.2.7. Withdrawals

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.8, the following decisions would apply under Alternative E (Map 93).

Recommend retaining the ANILCA section 404 (b) withdrawal in the Steese National Conservation Area, keeping this area withdrawn from location, entry, and patent under the U.S. mining laws.

Recommend to the Secretary of the Interior that ANCSA 17(d)(1) withdrawals within the Steese National Conservation Area be partially revoked to remove duplicate withdrawals.

Recommend to the Secretary of the Interior that ANCSA 17(d)(1) withdrawals be retained on 24,000 acres in the following areas until a new FLPMA withdrawal from the mining laws is approved.

- Approximately 17,000 acres on upper and lower Birch Creek including all lands that are within the Birch Creek WSR Corridor, but outside of the one-half mile withdrawn by the WSR Act pursuant to ANILCA and areas of lower Birch Creek outside the WSR Corridor.
- Approximately 6,000 acres within riparian conservation areas.
- Parcels adjacent to the Steese National Conservation Area that are within the special recreation management area, 1,000 acres.

Recommend to the Secretary of the Interior that ANCSA 17(d)(1) withdrawals be partially revoked to open approximately 28,000 acres outside the Steese National Conservation Area to locatable mineral entry and mineral leasing laws in the areas shown on Map 38.

2.8.2.4.3. Special Designations

2.8.2.4.3.1. Areas of Critical Environmental Concern

DECISIONS:

No ACECs would be designated.

2.8.2.4.3.2. Research Natural Areas

DECISIONS:

Under Alternative E, the two designated Research Natural Areas (RNAs) are: the Mount Prindle RNA (2,800 acres) and Big Windy Hot Springs RNA (160 acres).

The RNAs would be limited to winter OHV use only; summer use of OHVs is prohibited. Natural processes, including wildland fire, would be allowed to continue with as little interference as possible. Hiking, hunting, and nature appreciation would be allowed. The RNAs would be closed to mineral entry and mineral leasing. No surface-disturbing activities allowed except BLM-authorized research projects and primitive hiking trails.

Under this alternative primitive camping and hiking trails would be allowed in the RNAs.

2.8.2.4.3.3. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

Same as Alternative C, no river segments would be recommended as suitable for designation.

RATIONALE: There is no known federal, public, state, Tribal, local, or other interests in the designation. The State is opposed to the designation. Big Windy is within the Steese National Conservation Area and in all alternatives in this EIS, this area would be closed to mineral entry and would have a suite of management decisions that would protect river values of this river. Because of these reasons, Big Windy has been determined to be not suitable for designation under Alternatives C, D, and E.

2.8.3. Comparison of Alternatives: Steese Subunit

Table 2.17, "Steese Subunit: Summary of Alternatives" provides a **comparison of major allocation decisions and decisions which vary by action alternative (Alternatives B, C, D, and E)**. There are additional decisions that are common to all action alternatives that are not displayed in these tables. For decisions that do not vary by action alternative, see section 2.6. Decisions may be paraphrased to save space. All acres are approximate and rounded to the nearest 1,000 acres. For the full text of all decisions, see Management Common to All Subunits and All Action Alternatives, section 2.6 Steese Subunit, Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*, and Appendix H, *Recreation Management Zones*.

Table 2.17. Steese Subunit: Summary of Alternatives

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Fish and Aquatic Species	Riparian Conservation Areas (RCAs) not addressed.	Manage 21 watersheds (Map 8) as RCAs.	Manage 18 watersheds (Map 9) as RCAs.	Manage eight watersheds (Map 10) as RCAs.	Same as Alternative B.
	Watershed assessments not addressed.	Complete watershed assessments prior to opening lands to mining.	Complete watershed assessments as necessary for management.		
	high priority restoration watersheds not addressed.	Manage four watersheds as high priority for restoration (Map 8).			
Visual Resources	Assign all BLM-managed lands to VRM Classes. Manage according to the VRM class objectives described in section 2.6.2.9 Proposed VRM Classes are displayed on Maps 20, 21, 22, and 23.				
	69,000 acres VRM Class I (Birch Creek WSR Corridor)	106,000 acres VRM Class I (Birch Creek RMZ, Pinnell Mountain. Trail and RNAs).	102,000 acres VRM Class I (Birch Creek RMZ and RNAs).	90,000 acres VRM Class I (Birch Creek RMZ and RNAs).	Same as C; 102,000 acres
	76,000 acres VRM Class II (RNAs and Primitive Management Unit). Also view shed of Birch Creek.	1,140,000 acres VRM Class II (remainder Steese National Conservation Area).	578,000 acres VRM Class II (Backcountry and Semi-Primitive RMZs in the Steese National Conservation Area).	423,000 acres VRM Class II (Backcountry and Semi-Primitive RMZs in the Steese National Conservation Area).	910,000 acres VRM Class II (Semi-Primitive and Backcountry RMZ in the Steese National Conservation Area).
	1,066,000 acres VRM Class III (Semi-Primitive Management Units)	0 acres VRM Class III.			
	Lands outside of the Steese National Conservation Area and Birch Creek no VRM classes identified (approximately 36,000 acres).	36,000 acres VRM Class IV (other BLM lands)	602,000 acres VRM Class IV (Middlecountry and Frontcountry RMZs in the Steese National Conservation Area and other BLM lands).	769,000 acres VRM Class IV (Middlecountry and Frontcountry RMZs in the Steese National Conservation Area, and other BLM lands).	270,000 acres VRM Class IV (Middlecountry and Frontcountry RMZs in the Steese National Conservation Area, and other BLM lands).
Wetlands and Floodplains	Watershed management planning not addressed.	Within five years of signing the ROD, or by management direction, undertake development of a Watershed Management Plan for the Steese Wild and Scenic River watershed.			

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Wilderness Characteristics	**Areas managed to protect wilderness characteristics as a priority over other resource values and multiple uses**				
	Wilderness characteristics not addressed.	None	None	None	None
	Acres and Areas managed to emphasize other resource values and multiple uses while applying management restrictions to reduce impacts to wilderness characteristics				
	Wilderness characteristics not addressed.	1,199,000 acres (94%)	647,000 acres (51%)	483,000 acres (38%)	1,009,000 acres (80%)
		Steese National Conservation Area	Steese ACEC, and Primitive, Semi-Primitive, and Backcountry recreation management zones	Steese ACEC and Primitive, Semi-Primitive, and Backcountry recreation management zones	Crucial caribou and Dall sheep habitat, and Primitive, Semi-Primitive, and Backcountry recreation management zones
	Acres managed to emphasize other resource values and multiple uses as a priority over protecting wilderness characteristics				
	Wilderness characteristics not addressed.	68,000 acres (6%)	620,000 acres (49 %)	784,000 acres (62%)	258,000 acres (20%)
Wildlife	Use of pack animals not addressed. No limits on types of pack animals for either casual or permitted use.	The use of domestic goats, alpacas, llamas, and other similar species would not be allowed in conjunction with BLM-authorized activities in Dall sheep habitat.			
		Domestic sheep, goats, and camelids (including alpaca and llama) are not allowed in Dall sheep habitat.	No prohibitions on casual use of Domestic sheep, goats, and camelids (including alpaca and llama).		Domestic sheep, goats, and camelids are not allowed in Dall sheep habitat.
	Motorized use in caribou winter habitat not addressed.	In caribou winter range, plan travel management and development of facilities (such as maintained trails and cabins), in a manner that would result in a level of off-trail over-snow vehicular travel that would maintain continued availability of the area for use by wintering caribou. Develop adaptive management standards and strategies. Monitor over-snow motorized use in these areas and, if it approaches a level which may result in reduced use by wintering caribou, implement changes in maintained trails. If necessary, limited area or season closures may be enacted.			
	Caribou migration areas identified as crucial habitat and protected by the avoidance or mitigation of possible adverse effects of land use activities. Caribou range identified by Congress as a special value	The caribou migration corridor on BLM lands (Map 68) remains closed to mineral location, entry, and leasing. Limit summer motorized travel to existing routes or designated trails. Limit route density to ensure	Management of the caribou migration corridor on BLM lands would be the same as Alternative B, except only portions of the corridor on BLM lands would be closed to mineral location, entry, and leasing.	Management of the caribou migration corridor on BLM lands would be the same as Alternative C, except the corridor would be maintained by addressing potential effects on caribou migration prior to	Management of the caribou migration corridor on BLM lands would be the same as Alternative B, except route designation would be deferred to a travel management plan.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	considered in Steese National Conservation Area. Emphasis is placed on managing the area to maintain the opportunity for the Fortymile caribou herd to utilize both present and historical use areas. When feasible consolidate future access routes with existing roads and trails within transportation corridors. These corridors will be intensively managed to minimize potential "barrier effect" on caribou movements. Transportation corridors may also be subject to surface use restrictions to avoid conflicts with caribou movements at crucial times.	free movement of caribou between upper Birch Creek, the north Steese, and the White Mountains. Consider impacts of developments in the corridor, including state and private land, and ensure it does not significantly impact the ability of caribou to migrate to historically used and biologically important habitats. Develop a management threshold density goal for BLM lands, limiting linear disturbance per unit area. Propose a cooperative effort with State of Alaska to develop a plan to maintain connectivity of habitat in the area.		BLM authorizations for use within the corridor, rather than limiting motorized use to existing or designated routes or developing management threshold density goals and a cooperative plan to maintain connectivity of the corridor as described in Alternative B.	
Forest and Woodland Products	Personal use of timber is allowed on all lands.	Personal use of timber: allowed on 36,000 acres; not allowed within the Steese SRMA (1,231,000 acres), including the Steese National Conservation Area	Personal use of timber: allowed on 1,195,000 acres including most of the Steese National Conservation Area; not allowed within the Birch Creek WSR Corridor and RNAs (72,000 acres).	Personal use of timber: allowed on all lands, including the Steese National Conservation Area (1,267,000 acres).	
	No commercial timber harvest is allowed within the Steese National Conservation Area. Not prohibited outside the National Conservation Area.	Commercial timber salvage sales: considered on 36,000 acres; not allowed within the Steese SRMA (1,231,000 acres), including the Steese National Conservation Area.	Commercial timber salvage sales: considered on all lands (1,267,000 acres), including the Steese National Conservation Area.		

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	No commercial timber harvest is allowed within the Steese National Conservation Area. Not prohibited outside the National Conservation Area.	Commercial timber sales: considered on 36,000 acres; not allowed within the Steese SRMA (1,231,000 acres), including the Steese National Conservation Area.	Commercial timber sales: considered on 1,195,000 acres, including most of the Steese National Conservation Area; not allowed within the Birch Creek WSR Corridor and RNAs (72,000 acres).		Commercial timber sales would be considered on 741,000 acres; Not allowed within the Birch Creek WSR Corridor, research natural areas, and crucial caribou and Dall sheep habitats (526,000 acres).
	Forest products are reserved for local use within the Steese National Conservation Area.	Allow harvest of forest products for personal use on all lands throughout the subunit.			
	Consider commercial use of forest products outside the Steese National Conservation Area.	Commercial use of forest products: Considered on 36,000 acres; not allowed within the Steese SRMA (1,231,000 acres), including the Steese National Conservation Area.	Commercial use of forest products: Considered on 1,264,000 acres including most of the Steese National Conservation Area; not allowed within the RNAs (3,000 acres).		Commercial use of forest products: Considered on all lands (1,267,000 acres).
Land Tenure	Consider land exchange to acquire approximately 15,000 acres of State lands within the boundaries of the National Conservation Area.	Retain lands in the Steese National Conservation Area and Birch Creek. Consider acquisition of inholdings in these areas. Consider acquisition of lands conveyed to the State between the southern boundary of the North Steese National Conservation Area Unit and the Pinnell Mountain Trail. Consider acquisition, or disposal, including exchange, of scattered parcels around Circle for the purposes of consolidation. If federal mining claims located outside of the Steese National Conservation Area and Birch Creek WSR Corridor become null and void, and are not conveyed to the State, consider these lands for disposal or exchange.			
Land Use Authorizations	Four transportation corridors are identified. Two in the North Steese and two in the South Steese (Map 19)	Retain the Montana Creek to Preacher Creek Transportation Corridor in the North Steese National Conservation Area and the Great Unknown Creek Corridor in the South Steese National Conservation Area (Map 50).		None of the existing transportation corridors would be retained and no new transportation corridors would be designated.	
	No ROW avoidance areas are identified.	The Steese ACEC, RNAs, and Birch Creek WSR Corridor would be ROW avoidance areas.	There would be no ROW avoidance areas.		

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Fluid Leasable Minerals (e.g., oil and gas)	The Steese subunit (1,267,000 acres) is closed to mineral leasing by public land orders. 1986 RMP recommended opening some areas, but decision was not implemented.	31,000 acres open with no surface occupancy; 3,000 acres open with standard stipulations; 1,233,000 acres closed (Map 33). The Steese National Conservation Area would be closed.	203,000 acres open with minor constraints; 71,000 acres open with standard stipulations; 993,000 acres closed (Map 35). 80% of the Steese National Conservation Area would be closed.	524,000 acres open with minor constraints; 158,000 acres open with standard stipulations; 585,000 acres closed (Map 37). 54% of the Steese National Conservation Area would be closed.	30,000 acres open; 1,237,000 acres closed, subject to Standard Lease Terms, Fluid Mineral Leasing Stipulations, and Standard Operating Procedures. (Map 38)
Solid Leasable Minerals	The Steese subunit (1,267,000 acres) is closed to mineral leasing by public land orders. 1986 RMP recommended opening some areas, but decision was not implemented.	34,000 acres open to solid leasable minerals; 1,233,000 acres closed (Map 33). The Steese National Conservation Area would be closed.	274,000 acres open; 993,000 acres closed (Map 35). 80% of the Steese National Conservation Area would be closed.	682,000 acres open; 585,000 acres closed (Map 37). 54% of the Steese National Conservation Area would be closed.	30,000 acres open; 1,237,000 acres closed. (Map 38)
		Coal leasing is deferred because the coal screening process (43 CFR 3420.1-4) has not been completed. A RMP amendment would be needed before coal leasing could occur. Only those BLM-managed public lands that have development potential may be identified as acceptable for further consideration for coal leasing.			
Locatable Minerals (e.g., gold)	The Steese subunit (1,267,000 acres) is withdrawn from mineral entry and location by of public land orders and the Steese National Conservation Area is closed by ANILCA.	34,000 acres open; 1,233,000 acres closed (Map 32). The Steese National Conservation Area would be closed.	274,000 acres open; 993,000 acres closed (Map 34). 80% of the Steese National Conservation Area would be closed.	682,000 acres open; 585,000 acres closed (Map 36). 54% of the Steese National Conservation Area would be closed.	30,000 acres open; 1,237,000 acres closed. The Steese National Conservation Area and Birch Creek WSR corridor would be closed (Map 38).
Salable Minerals (e.g., gravel)	1,267,000 acres open to disposal of sand, gravel, rock, and other saleable minerals if compatible with other provisions of the plan.	34,000 acres open to salable minerals; 1,233,000 acres closed.	1,198,000 acres open; 69,000 acres closed (Birch Creek WSR corridor).	1,276,000 acres open; 0 acres closed.	Same as Alternative C

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Recreation	Plan does not identify the Steese National Conservation Area as a SRMA, but it is managed as such.	Designate 1,246,000 acres as the Steese Special Recreation Management Area (Steese National Conservation Area and Birch Creek). Establish desired recreation setting character classes (Table 2.5, "Recreation Setting Character Matrix for the Eastern Interior Planning Area").			
	Four recreation management units: Primitive, Semi-Primitive Motorized, Wild and Scenic River, and Research Natural Areas (Map 48)	Divide the SRMA into seven Recreation Management Zones (Appendix H and Map 49).	Divide the SRMA into 10 Recreation Management Zones (Appendix H and Map 50).	Divide the SRMA into nine Recreation Management Zones (Appendix H and Map 51).	Divide the SRMA into nine Recreation Management Zones (Appendix H and Map 52).
Travel Management	OHV area designations: 3,000 acres Closed; 1,210,000 acres Limited; 54,000 acres undesignated	OHV area designations: 3,000 acres Closed; 1,264,000 acres Limited			OHV area designations: 1,267,000 acres Limited
	Research Natural Areas (RNAs) in the Steese National Conservation Area (3,000 acres) closed to motorized OHV use, including snowmobiles.				Interim Management same as A except: change from GVWR to curb weight; RNAs classified as LIMITED and open to winter snowmobile travel; airboats and hovercraft allowed. Deferred to Travel Management Plan within five years of the ROD.
	142,000 acres (Birch Creek, and Primitive management units – Map 48) limited by season of use (no summer OHV use).	All BLM–managed lands– 1,267,000 acres (Primitive, Semi-Primitive, Backcountry RMZs in the Steese National Conservation Area and Birch Creek, and other BLM lands outside the SRMA) limited by season of use (no summer OHV use).	680,000 acres (Primitive, Semi-Primitive and Backcountry RMZs in the Steese National Conservation Area and Birch Creek) limited by season (no summer OHV use).	513,000 acres (Primitive, Semi-Primitive and Backcountry RMZs in the Steese National Conservation Area and Birch Creek) limited by season (no summer OHV use).	
	1,066,000 acres (Semi-Primitive motorized unit –Map 48) limited by weight (summer). Cross-country use of vehicles 1,500 pounds gross vehicle weight rating (GVWR) allowed.	Not applicable	566,000 acres limited to existing trails (summer), including the Middlecountry and Frontcountry RMZs in the Steese National Conservation Area and other BLM lands outside the SRMA.	733,000 acres (Middlecountry, Frontcountry RMZs and other BLM lands outside the SRMA) limited by weight (summer).	

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	Winter OHV use limited to snowmobiles 1,500 pounds or less GVWR.	Winter OHV use limited to snowmobiles weighing 1,000 pounds or less on 1,264,000 acres; all areas except research natural areas (3,000 acres).			
	Birch Creek WSR: All forms of non-motorized use allowed. Motorboat use allowed without specific authorization.				
	Airboats and hovercraft prohibited in Steese National Conservation Area.	Airboats, hovercraft, and personal watercraft would not be permitted on non-navigable segments above the confluence of Birch Creek and an unnamed creek in T. 6N., R. 17E., Section 8.			Airboats and hovercraft allowed under interim management.
Withdrawals	100% of the Steese National Conservation Area withdrawn by ANILCA and additional public land orders under ANCSA.	Recommend retaining the ANILCA withdrawal on 100% of the Steese National Conservation Area.	Recommend retaining the ANILCA withdrawal on 80% of the Steese National Conservation Area; recommend issuing an opening order for 241,000 acres (20% of the National Conservation Area).	Recommend retaining the ANILCA withdrawal on 46% of the Steese National Conservation Area; recommend issuing an opening order for 646,000 acres (54% of the National Conservation Area).	Same as Alternative B
		Recommend partial revocation of ANCSA withdrawals to remove overlapping withdrawals within the Steese National Conservation Area.			
	All lands currently withdrawn by ANCSA withdrawals. Revocation or modification of withdrawals not addressed.	Recommend partial revocation of ANCSA withdrawals to open 36,000 acres to mining outside of the Steese National Conservation Area.			Recommend partial revocation of ANCSA withdrawals to open 28,000 acres to mining outside of the Steese National Conservation Area
		In addition to lands withdrawn under ANILCA pursuant to the WSR Act, an additional 1,600 acres within the Birch Creek WSR Corridor would be recommended for withdrawal from the mining laws under the authority of FLPMA.			
	All lands currently withdrawn by ANCSA withdrawals. Revocation or modification of withdrawals not addressed.	Approximately 16,400 acres outside of the Steese National Conservation Area but adjacent to the Birch Creek WSR Corridor would be recommended for withdrawal from the mining laws under the authority of FLPMA.		Approximately 15,200 acres outside of the Steese National Conservation Area would be recommended for withdrawal from the mining laws under the authority of FLPMA.	Approximately 33,000 acres outside of the Steese National Conservation Area would be recommended for withdrawal from the mining laws under the authority of FLPMA.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	Modification of these public land orders for land disposal not addressed	Recommend modification of public land orders to allow for disposal of Land tenure Zone 3 lands (Appendix G) while keeping them closed to mineral entry and mineral leasing.			Recommend modification of public land orders to allow for disposal and revoke ANCSA withdrawals on these lands.
Areas of Critical Environmental Concern	No ACECs are designated.	Designate the Steese ACEC (924,000 acres) within the Steese National Conservation Area.	Designate the Steese ACEC (457,000 acres) within the Steese National Conservation Area.	Designate the Steese ACEC (193,000 acres) within the Steese National Conservation Area.	No ACECs designated.
Research Natural Areas	Big Windy Hot Springs (160 acres) and Mount Prindle (2,800 acres) within the Steese National Conservation Area are designated as RNAs. These areas would be managed to maintain a Primitive recreation setting and would be closed to mineral location and mineral leasing.				
	No surface-disturbing activities allowed except BLM-authorized research projects. RNAs would be closed to camping. Primitive campsites may be established outside the RNA boundaries and improved access in the form of trails could be developed. Closed to OHV use.		No surface-disturbing activities allowed except BLM-authorized research projects and primitive hiking trails. Primitive camping would be allowed in the RNAs. Closed to OHV use.		No surface-disturbing activities allowed except BLM-authorized research projects and primitive hiking trails. Primitive camping would be allowed. Limited to winter OHV use; no summer OHV use.
Wild and Scenic Rivers	ORVs are not identified for Birch Creek.	Identify Outstandingly Remarkable Values (ORVs) for Birch Creek WSR as scenic, recreation, and fisheries.			
	Other rivers in area have not been studied for eligibility or suitability.	Big Windy Creek (14 miles) recommended suitable for classification as "wild."	No rivers recommended suitable.		

2.9. Upper Black River Subunit

2.9.1. Alternative A: No Action Alternative

There is no existing land use plan for the Upper Black River Subunit. Applications for activities or use of BLM-managed lands are considered on a case-by-case basis. The entire subunit is currently withdrawn from mineral location and mineral leasing pursuant to ANCSA 17(d)(1). There are no existing federal mining claims or mineral leases. Existing withdrawals in the planning area are described more fully in section 3.3.8 Withdrawals.

There are no OHV designations in place and the use of motorized vehicles and mechanized equipment, motorized water craft, and aircraft is unrestricted. No recreation management areas have been identified. The subunit is extremely remote and ongoing uses of BLM-managed lands consist primarily of subsistence or casual recreational use.

Visual resource management is considered on a project-specific basis as applications for development or permits activities or use of BLM-managed lands are received.

There are no special designations such as ACECs, or WSRs within the subunit. One eligible river in the Upper Black River subunit has been identified in the Wild and Scenic Rivers Classification Findings for Eligible Rivers (Table E.3). Salmon Fork of the Black River is found to have characteristics eligible for a tentative classification of Wild. This tentative classifications would be maintained through mitigation standards through NEPA review until suitability can be evaluated.

Guidance for wildland fire management is provided by the BLM Alaska Land Use Plan Amendment for Wildland Fire and Fuels Management (BLM 2004b, 2005c). The decisions are described under section 2.6.2.12 Wildland Fire Ecology and Management, Management Common to All Subunits and Action Alternatives.

2.9.2. Action Alternatives: Upper Black River Subunit

In addition to those decisions listed as Common To All Subunits under section 2.6, the following decisions would apply under the Upper Black River Subunit.

2.9.2.1. Alternative B: Upper Black River Subunit

2.9.2.1.1. Resources

2.9.2.1.1.1. Cave and Karst Resources

GOAL: Manage significant cave and karst systems to protect and maintain their resource, educational, scientific, and recreational values.

DECISIONS:

There are two significant caves in the Upper Black River Subunit: Fort Creek Cave (#AK-028-001) and Cave #AK-028-002. These caves are within the proposed Salmon Fork ACEC and no additional administrative designation is recommended.

Setting Prescription: Primitive

Management Objectives: Significant caves would be managed to prevent resource damage and to provide for visitor health and safety.

2.9.2.1.1.2. Cultural Resources

DECISIONS:

In addition to those decision listed as Common To All Subunits in section 2.6.2.2, the following decision would apply under Alternative B:

All cultural sites are designated for scientific use.

2.9.2.1.1.3. Fish and Aquatic Species

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.3, the following decisions would apply under Alternative B:

The following 28 watersheds would be managed as RCAs (Map 11).

1. Bear Mountain Creek (HUC # 190402040404)
2. Black River (HUC # 190402040802)
3. Big Duck Lake-Black River (HUC # 190402040804)
4. Big Sitdown Creek (HUC # 190404010903)
5. Fourteenmile Creek-Yukon River (HUC # 190404011906)
6. Grayling Fork Black River (HUC # 190402040504)
7. Grayling Fork Black River (HUC # 190402040502)
8. Grayling Fork Black River (HUC # 190402040705)
9. Grayling Fork Black River (HUC # 190402040701)
10. Headwaters Little Black River (HUC # 190402060105)
11. Headwaters Kandik River (HUC # 190404010902)
12. Indian Grave Creek (HUC # 190404010906)
13. Kandik River (HUC # 190404010908)
14. Little Black River (HUC # 190402060106)
15. Little Black River (HUC # 190402060109)
16. Little Black River (HUC # 190402060404)
17. Lower Kevinjik Creek (HUC # 190402041309)
18. Outlet Runt Creek (HUC # 190402041005)
19. Salmon Fork Black River (HUC # 190402041107)
20. Salmon Fork Black River (HUC # 190402041403)
21. Salmon Fork Black River (HUC # 190402041105)
22. Tetthajik Creek (HUC # 190402041207)
23. Unnamed Tributary - Upper Black River (HUC # 190402040704)
24. Unnamed Tributary - Upper Black River (HUC # 190402040702)
25. Unnamed Tributary - Upper Black River (HUC # 1190402040703)
26. Unnamed Tributary - Kandik (HUC # 190404010901)
27. Yukon River (HUC # 190404011903)
28. Yukon River (HUC # 190404011904)

Complete watershed assessments Section I.5, "Watershed Assessment Process"based on the following priorities.

1. Watersheds containing areas of high/moderate locatable mineral potential.
2. Watersheds identified as RCAs.
3. Other watersheds.

2.9.2.1.1.4. Visual Resources

DECISIONS:

Under Alternative B, the entire subunit would be managed as a VRM Class II. Any developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

2.9.2.1.1.5. Wilderness Characteristics

OBJECTIVE:

Allow for multiple use while maintaining naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 2,360,000 acres so that these lands retain their wilderness characteristics for the life of the RMP.

DECISIONS:

Consistent with allocation decisions in the RMP, allow other multiple-uses on lands where wilderness characteristics would be maintained, while applying management restrictions (such as conditions of use or mitigation measures) to avoid or minimize impacts to wilderness characteristics and meet the objective retaining wilderness characteristics over the life of the RMP.

Wilderness characteristics would be maintained on 2,360,000 acres (all of the lands with wilderness characteristics in this subunit) (Map 78).

RATIONALE: Wilderness characteristics would be maintained because of decisions in this alternative to designate the Salmon Fork ACEC, close the subunit to mineral leasing and mining, retain lands in federal management, and set OHV designations. Although cross-country OHV is allowed in many areas, the low level of summer OHV use, limitations on vehicle weight, and lack of access would allow for maintenance of wilderness characteristics including naturalness, and opportunities for solitude or primitive and unconfined recreation. Additionally, BLM-authorized uses would be further analyzed through the NEPA process for impacts to size, naturalness, primitive recreation, and solitude, and stipulated mitigation measures would be applied where needed to minimize impacts.

2.9.2.1.1.6. Wildlife

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.13, the following decision would apply under Alternative B:

Domestic sheep, goats, and camelids (including alpaca and llama) are not allowed in Dall sheep habitat.

2.9.2.1.2. Resource Uses

2.9.2.1.2.1. Forest and Woodland Products

DECISIONS:

In addition to those decision listed as Common To All Subunits in section 2.6.3.1, the following decisions would apply under Alternative B:

Personal use of timber products would be allowed on all lands.

Commercial timber sales, including salvage sales, would not be allowed.

Commercial use of forest products would be allowed on all lands.

2.9.2.1.2.2. Land Tenure

DECISIONS:

In addition to those decisions listed as Common To All Subunits in section 2.6.3.2, the following decisions would apply under Alternative B:

The Upper Black River Subunit, with the exception of lands around Circle, is identified as Zone 1 for retention. Consider acquisition of private inholdings from willing sellers.

The remaining lands are identified as Zone 2. Consider acquisition or disposal including exchange of scattered parcels around Circle for the purposes of consolidation (Map 99). No lands are identified as Zone 3.

2.9.2.1.2.3. Land Use Authorizations

DECISION:

In addition to those decision listed as Common To All Subunits in section 2.6.3.3, the following decisions would apply under Alternative B:

Designate the Salmon Fork ACEC as a ROW avoidance area.

2.9.2.1.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals.

2.9.2.1.2.4.1. Fluid Leasable Minerals

DECISIONS:

In addition to those decision listed as Common To All Subunits in section 2.6.3.5.1, the following decisions would apply under Alternative B:

The entire subunit, 2,360,000 acres would be closed to fluid mineral leasing.

2.9.2.1.2.4.2. Solid Leasable Minerals

DECISIONS:

In addition to those decision listed as Common To All Subunits in section 2.6.3.5.2, the following decisions would apply under Alternative B:

The entire subunit, 2,360,000 acres would be closed to solid mineral leasing.

2.9.2.1.2.4.3. Locatable Minerals

DECISIONS:

In addition to those decision listed as Common To All Subunits in section 2.6.3.5.3, the following decisions would apply under Alternative B:

The entire subunit, 2,360,000 acres would be closed to locatable minerals.

2.9.2.1.2.4.4. Salable Minerals

DECISIONS:

In addition to those decision listed as Common To All Subunits in section 2.6.3.5.4, the following decisions would apply under Alternative B:

The Salmon Fork ACEC, 621,000 acres would be closed to salable minerals.

The remainder of the subunit, 1,739,000 acres, would be open to salable minerals.

2.9.2.1.2.5. Travel Management

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative B.

DECISIONS:

Off-Highway Vehicle Designation – LIMITED

A comprehensive travel management plan has been defined for the Upper Black River Subunit (Map 57). The decisions from this plan are summarized below.

Travel Management Prescriptions:

All forms of non-motorized use would be allowed; except for the use of pack goats in Dall sheep habitat.

Cross-country winter use (October 15 through April 30) of snowmobiles 50 inches or less in width, and weighing 1,000 pounds curb weight and less would be allowed throughout the entire subunit.

Cross-country summer use (May 1 through October 14) use of vehicles 64 inches or less in width and weighing 1,500 pounds curb weight and less would be allowed outside of the Salmon Fork ACEC. Within the ACEC, no summer OHV use would be allowed.

Aircraft use would be unrestricted, with the following provisions: Minimal clearing of rocks, downed logs, and brush would be allowed; construction or formal improvement of landing areas would occur by permit only; and, use of gravel bars and winter snow areas would be allowed, subject to reasonable provisions in the Salmon Fork to protect the Outstandingly Remarkable Values of the suitable "wild" river segment.

Use of motorized boats would be unrestricted.

A permit or approved Plan of Operations would be required for all other vehicle use.

New restrictions could be developed for the purposes of site protection, visitor safety, and/or maintaining an unconfined and primitive type of recreation consistent with the existing wilderness character.

RATIONALE: Although current OHV use is low in this subunit, limiting the use of OHVs by weight or seasonal closure would reduce potential for impacts to stream beds, soil, water, vegetation, fish, and wildlife in the event that OHV use increased over the life of the plan. Restricting summer use of OHVs within the Salmon Fork ACEC would provide additional protection to special status plant habitat, riparian habitat, and fish. Allowing for unrestricted use of motorboats recognizes the State of Alaska's management of many of the waterways in this subunit and ongoing motor boat access by subsistence users.

2.9.2.1.2.6. Withdrawals

In addition to those decision listed as Common To All Subunits in section 2.6.3.8, the following decisions would apply under Alternative B:

DECISIONS

Recommend to the Secretary of the Interior that ANCSA 17(d)(1) withdrawals be retained on the entire subunit, approximately 2,360,000 acres until a new FLPMA withdrawal from the mining laws is approved to protect resource values (fish and wildlife habitat, raptor nesting habitat, rare plant habitat, and subsistence resources and use areas).

2.9.2.1.3. Special Designations

2.9.2.1.3.1. Areas of Critical Environmental Concern

DECISIONS:

Designate approximately 621,000 acres of BLM-managed lands within the Salmon Fork watershed as the Salmon Fork ACEC (Map 69) to protect relevant and important values including bald eagle nesting habitat, priority fish habitat, and rare flora.

Manage limestone habitats and steep south facing slopes and bluffs to minimize impacts on rare flora.

Maintain water quality to support nesting Bald Eagles and salmon habitat.

Coordination and notification with the Government of Canada is required prior to development affecting caribou habitat.

Provisions should be made in management to allow the caribou herd to continue to utilize the winter habitats in the area.

Avoid or minimize the size, extent, duration, and level of activities in concentrated seasonal use areas. Additional limitations on OHV use (such as seasonal restrictions) may be instituted to reduce impacts to natural resources.

SUMMARY OF MANAGEMENT IN THE ACEC

The following is a summary of other management decisions that would apply within the ACEC.

The ACEC would be closed to locatable mineral entry, leasable minerals, and salable minerals. The ACEC would be retained in federal land status and is a right-of-way avoidance area. Land use permits and leases would be considered. The SOPs (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would apply to activities requiring a permit from BLM.

A full description of the OHV limitations can be found in section 2.9.2.1.2.5 Travel Management. A summary follows:

- The OHV area designation is limited.
- Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.
- The ACEC would be closed to summer OHV use.

2.9.2.1.3.2. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

Under Alternative B, the Salmon Fork of the Black River would be recommended suitable for designation under the Wild and Scenic Rivers Act.

River Name	Classification	Outstandingly Remarkable Values	Miles
Salmon Fork of the Black	"wild"	wildlife	52

RATIONALE: The Salmon Fork is free-flowing and possesses outstandingly remarkable values as described in Section E.1.1, "Determining Eligibility". All eligible rivers must be considered suitable in one alternative to allow for analysis of the effects of designation.

2.9.2.2. Alternative C: Upper Black River Subunit

2.9.2.2.1. Resources

2.9.2.2.1.1. Cave and Karst Resources

DECISIONS:

Same as Alternative B.

2.9.2.2.1.2. Cultural Resources

DECISIONS:

Same as Alternative B.

2.9.2.2.1.3. Fish and Aquatic Species

DECISION:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.3, the following decisions would apply under Alternative C:

The following 13 watersheds would be managed as RCAs (Map 12).

1. Big Sitdown Creek (HUC # 190404010903)
2. Fourteenmile Creek-Yukon River (HUC # 190404011906)
3. Headwaters Kandik River (HUC # 190404010902)
4. Indian Grave Creek (HUC # 190404010906)
5. Kandik River (HUC # 190404010908)
6. Lower Kevinjik Creek (HUC # 190402041309)
7. Salmon Fork Black River (HUC # 190402041107)
8. Salmon Fork Black River (HUC # 190402041403)
9. Salmon Fork Black River (HUC # 190402041105)
10. Tetthajik Creek (HUC # 190402041207)
11. Unnamed Tributary - Kandik (HUC # 190404010901)
12. Yukon River (HUC # 190404011903)
13. Yukon River (HUC # 190404011904)

Complete watershed assessments Section I.5, "Watershed Assessment Process"as necessary for management.

2.9.2.2.1.4. Visual Resources

DECISIONS:

Proposed VRM classes for Alternative C are described on Map 24.

Under Alternative C, the Salmon Fork ACEC and lands between the ACEC and the Arctic National Wildlife Refuge with wilderness characteristics, would be managed as VRM Class II. Any developments would be designed using materials that blend with the surrounding landscape

and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

All other BLM-managed lands would be assigned a VRM Class IV. Development activities would be designed to harmonize with the visually dominating elements of the surrounding landscape characteristics of line, form, color and texture but major modification of the natural landscape would be allowed.

2.9.2.2.1.5. Wilderness Characteristics

OBJECTIVE:

Allow for multiple use while maintaining naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 623,000 acres so that these lands retain their wilderness characteristics for the life of the RMP.

DECISION:

Consistent with allocation decisions in the RMP, allow other multiple-uses on lands where wilderness characteristics would be maintained, while applying management restrictions (such as conditions of use or mitigation measures) to avoid or minimize impacts to wilderness characteristics and meet the objective retaining wilderness characteristics over the life of the RMP.

Wilderness characteristics would be maintained on 623,000 acres (26 percent of the lands with wilderness characteristics in this subunit). These lands occur within the Salmon Fork ACEC (Map 79).

RATIONALE: Wilderness characteristics would be maintained because decisions in this alternative close the Salmon Fork ACEC to mineral leasing and mining, retain the lands in federal management, and to limit OHV use. Although cross-country OHV use is allowed, the lack of recreational OHV use in the subunit and the remoteness of the area would allow for maintenance of wilderness characteristics. Additionally, BLM-authorized uses would be further analyzed through the NEPA process for impacts to size, naturalness, primitive recreation, and solitude, and stipulated mitigation measures would be applied where needed to minimize impacts. The remaining lands in the subunit would also likely retain their wilderness characteristics over the life of the plan because of the lack of access and infrastructure, the high cost of resource extraction, low mineral potential, and low levels of use projected to occur in the subunit. Recreational opportunities would remain unconfined and primitive in nature.

2.9.2.2.2. Resource Uses

2.9.2.2.2.1. Forest and Woodland Products

DECISIONS:

In addition to the decisions listed in section 2.6.3.1, the following decisions would apply under Alternative C:

Personal use of timber, commercial use of forest products, and commercial timber salvage sales would be allowed on all lands.

Commercial timber sales (large and small) would be allowed on all lands except the Salmon Fork ACEC (621,000 acres).

2.9.2.2.2.2. Land Tenure

DECISIONS:

Same as Alternative B.

2.9.2.2.2.3. Land Use Authorizations

DECISIONS:

In addition to those decisions listed as Common To All Subunits in section 2.6.3.3, the following decision would apply under Alternative C:

No right-of-way avoidance areas would be designated.

2.9.2.2.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals.

2.9.2.2.2.4.1. Fluid Leasable Minerals

DECISIONS:

In addition to those decisions listed as Common To All Subunits in section 2.6.3.5.1, the following decisions would apply under Alternative C:

The Salmon Fork ACEC (621,000 acres) would be closed to fluid leasable minerals.

Approximately 104,000 acres in the Circle area would be open to fluid mineral leasing, subject to minor constraints (Map 40).

The remainder of the subunit, 1,635,000 acres, would be open to fluid mineral leasing, subject to the Standard Lease Terms.

2.9.2.2.2.4.2. Solid Leasable Minerals

DECISIONS:

In addition to those decision listed as Common To All Subunits in section 2.6.3.5.2, the following decision would apply under Alternative C:

The Salmon Fork ACEC (621,000 acres) would be closed to solid leasable minerals.

The same areas that are open to fluid mineral leasing (Map 40) under this alternative would also be open to solid mineral leasing, subject to the same constraints.

2.9.2.2.2.4.3. Locatable Minerals

DECISIONS:

In addition to those decisions listed as Common To All Subunits in section 2.6.3.5.3, the following decision would apply under Alternative C:

All BLM-managed lands within the Upper Black River Subunit (2,360,000 acres) would be open to locatable mineral entry (Map 41).

2.9.2.2.2.4.4. Salable Minerals

DECISIONS:

In addition to those decision listed as Common To All Subunits in section 2.6.3.5.4, the following decision would apply under Alternative C:

All BLM-managed lands within the Upper Black River Subunit would be open to salable mineral disposal.

2.9.2.2.2.5. Travel Management

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative C.

DECISIONS:

Off-Highway Vehicle Designation – LIMITED

A comprehensive travel management plan has been defined for the Upper Black River Subunit. The decisions from this plan are summarized below. Once the signed ROD for the RMP is released, the BLM will develop a supplemental rule to implement the with the travel management prescriptions listed below.

Travel Management Prescriptions:

All forms of non-motorized use would be allowed.

Cross-country winter use (October 15 through April 30) of snowmobiles 50 inches or less in width, and weighing 1,000 pounds curb weight and less would be allowed throughout the entire subunit.

Cross-country summer use (May 1 through October 14) use of vehicles 64 inches or less in width and weighing 1,500 pounds curb weight and less would be allowed throughout the entire subunit.

Aircraft use would be unrestricted, with the following provisions: Minimal clearing of rocks, downed logs, and brush would be allowed; construction or formal improvement of landing areas would occur by permit only; and, use of gravel bars and winter snow areas would be allowed, subject to reasonable provisions to protect resource values.

Use of motorized boats would be unrestricted.

A permit or approved Plan of Operations would be required for all other vehicle use.

New restrictions could be developed for the purposes of site protection, visitor safety, and/or maintaining an unconfined and primitive type of recreation consistent with the existing wilderness characteristics.

RATIONALE: Although current OHV use is low in this subunit, limiting the use of OHVs by weight would reduce potential for impacts to soil, water, vegetation, fish, and wildlife throughout the subunit in the event that OHV use increased over the life of the plan.

2.9.2.2.2.6. Withdrawals

In addition to those decisions listed as Common To All Subunits in section 2.6.3.8, the following decision would apply under Alternative C:

DECISIONS:

Recommend to the Secretary of the Interior that ANCSA 17(d)(1) withdrawals be partially revoked to open the entire subunit, approximately 2,360,000 acres, to locatable mineral entry.

2.9.2.2.3. Special Designations

2.9.2.2.3.1. Areas of Critical Environmental Concern

DECISIONS:

Designate approximately 621,000 acres within the Salmon Fork watershed as the Salmon Fork ACEC (Map 69) to protect relevant and important values including bald eagle nesting habitat, priority fish habitat, and rare flora.

Manage limestone habitats and steep south facing slopes and bluffs to minimize impacts on rare flora.

Maintain water quality to support nesting Bald Eagles and salmon habitat.

Coordination and notification with the Government of Canada is required prior to development affecting caribou habitat.

Provisions should be made in management to allow the caribou herd to continue to utilize the winter habitats in the area.

Avoid or minimize the size, extent, duration, and level of activities in concentrated seasonal use areas. Additional limitations on OHV use (such as seasonal restrictions) may be instituted to reduce impacts to natural resources.

SUMMARY OF MANAGEMENT IN THE ACEC

The following is a summary of other management decisions that would apply within the ACEC under Alternative C. The travel management and minerals decisions are somewhat different than under Alternative B.

The ACEC would be open to locatable mineral entry, open to salable minerals, and closed to mineral leasing. Subject to pending conveyance to the State and Native corporations, the ACEC would be retained in federal land status. Land use permits and leases would be considered.

Standard Operating Procedures (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would apply to activities requiring a permit from the BLM. The OHV designation is limited. Cross-country use would be allowed year-round for vehicles weighing 1,000 pounds curb weight and less. A full description of the OHV limitations can be found in section 2.9.2.2.2.5 Travel Management.

RATIONALE: The rationale for designating the ACEC is the same as in Alternative B.

2.9.2.2.3.2. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

Under Alternative C, no rivers would be recommended suitable for designation under the Wild and Scenic Rivers Act.

RATIONALE: In 2003, the BLM issued a recordable disclaimer of interest to the State of Alaska for the bed of the Salmon Fork Black River from its confluence with the Black River upstream 74 river miles to the International Boundary. The Salmon Fork is within a proposed ACEC in Alternative C. The two uses that are most likely to have an effect on the ORVs are gold mining and oil and gas development. The ACEC is open to the location of new mining claims and closed to mineral leasing. In all alternatives, the river watershed is considered a Riparian Conservation Area with riparian area restrictions that would sufficiently protect the outstandingly remarkable features. For these reasons, and the lack of support for the designation of new rivers by the state, the Salmon Fork has been determined to be not suitable under Alternative C.

2.9.2.3. Alternative D: Upper Black River Subunit

2.9.2.3.1. Resources

2.9.2.3.1.1. Cave and Karst Resources

DECISIONS:

Same as Alternative B.

2.9.2.3.1.2. Cultural Resources

DECISIONS:

Same as Alternative B.

2.9.2.3.1.3. Fish and Aquatic Species

DECISION:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.3, the following decisions would apply under Alternative D:

The following five watersheds would be managed as Riparian Conservation Areas (Map 13).

1. Headwaters Kandik River (HUC # 190404010902)
2. Kandik River (HUC # 190404010908)
3. Salmon Fork Black River (HUC # 190402041107)
4. Salmon Fork Black River (HUC # 190402041403)
5. Salmon Fork Black River (HUC # 190402041105)

Complete watershed assessments (Appendix I *Fisheries and Aquatic Resources*) as necessary for management.

2.9.2.3.1.4. Visual Resources

DECISIONS:

Under Alternative D all BLM-managed lands would be assigned a VRM Class IV. Development activities would be designed to harmonize with the visually dominating elements of the surrounding landscape characteristics of line, form, color and texture but major modification of the natural landscape would be allowed.

2.9.2.3.1.5. Wilderness Characteristics

OBJECTIVE:

Provide for multiple uses throughout the Upper Black River Subunit consistent with other resource values.

DECISION:

Under Alternative D, wilderness characteristics would not be explicitly maintained in the Upper Black River Subunit.

2.9.2.3.2. Resource Uses

2.9.2.3.2.1. Forest and Woodland Products

DECISIONS:

In addition to those decisions listed as Common To All Subunits in section 2.6.3.1, the following decisions would apply under Alternative D:

Same as Alternative B, except that commercial timber sales (both large and small) would be allowed within the Salmon Fork ACEC.

2.9.2.3.2.2. Land Tenure

DECISIONS:

Same as Alternative B.

2.9.2.3.2.3. Land Use Authorizations

DECISIONS:

Same as Alternative C.

2.9.2.3.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals.

2.9.2.3.2.4.1. Fluid Leasable Minerals

DECISIONS:

In addition to those decision listed as Common To All Subunits in section 2.6.3.5.1, the following decision would apply under Alternative D:

Approximately 623,000 acres in the Salmon Fork ACEC and lands between the ACEC and the Arctic National Wildlife Refuge would be open to fluid mineral leasing, subject to minor constraints.

The remainder of the subunit, approximately 1,737,000 acres, would be open to fluid mineral leasing, subject to the Standard Lease Terms (Map 42).

2.9.2.3.2.4.2. Solid Leasable Minerals

DECISIONS:

In addition to those decisions listed as Common To All Subunits in section 2.6.3.5.1, the following decision would apply under Alternative D:

The same areas that are open to fluid mineral leasing (Map 42) would also be open to solid mineral leasing subject to the same constraints.

2.9.2.3.2.4.3. Locatable Minerals

DECISIONS:

Same as Alternative C, the entire subunit (2,360,000 acres) would be open to locatable mineral entry.

2.9.2.3.2.4.4. Salable Minerals

DECISIONS:

Same as Alternative C.

2.9.2.3.2.5. Travel Management

DECISION:

Same as Alternative C.

2.9.2.3.2.6. Withdrawals

DECISION:

Same as Alternative C.

2.9.2.3.3. Special Designations

2.9.2.3.3.1. Areas of Critical Environmental Concern

DECISION:

Designate 621,000 acres as the Salmon Fork ACEC to protect relevant and important values including bald eagle nesting habitat, priority fish habitat, and rare flora. Management intent would be the same as Alternatives B and C.

SUMMARY OF MANAGEMENT IN THE ACEC

The following is a summary of other management decisions that would apply within the ACEC under Alternative D. The minerals decisions are different than under Alternatives B and C.

The ACEC would be open to locatable mineral entry and salable minerals. The ACEC would be open to mineral leasing subject to minor constraints. Subject to pending conveyance to the State and Native corporations, the ACEC would be retained in federal land status. Land use permits and leases would be considered. Standard Operating Procedures (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would apply to activities requiring a permit from the BLM. The OHV area designation is limited. Cross-country use would be allowed year-round for vehicles weighing 1,000 pounds curb weight and less. A full description of the OHV limitations can be found in section 2.9.2.3.2.5 Travel Management.

RATIONALE: The rationale for designating the ACEC is the same as in Alternative B. In order to provide a wider range of alternatives for analysis, the ACEC would be open to locatable mineral entry under this alternative. No mineral development is anticipated during the life of the plan due to the lack of mineral potential in the ACEC and its remote location.

2.9.2.3.3.2. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

Under Alternative D, no rivers would be recommended suitable for designation under the Wild and Scenic Rivers Act.

RATIONALE: In 2003, the BLM issued a recordable disclaimer of interest to the State of Alaska for the bed of the Salmon Fork Black River from its confluence with the Black River upstream to the International Boundary. The Salmon Fork is within a proposed ACEC in Alternative D. The river watershed is considered a Riparian Conservation Area, with riparian area restrictions that would protect the Outstandingly Remarkable Values. For these reasons, and the lack of

support for designation of new rivers by the state, the Salmon Fork has been determined to be not suitable for designation under Alternative D.

2.9.2.4. Alternative E (Proposed RMP): Upper Black River Subunit

2.9.2.4.1. Resources

2.9.2.4.1.1. Cave and Karst Resources

DECISIONS:

Same as Alternative B.

2.9.2.4.1.2. Cultural Resources

DECISIONS:

Same as Alternative B.

2.9.2.4.1.3. Fish and Aquatic Species

DECISION:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.3, the following decisions would apply under Alternative E:

The following watersheds would be managed as RCAs (Map 11). These are the same as Alternative B.

1. Bear Mountain Creek (HUC # 190402040404)
2. Black River (HUC # 190402040802)
3. Big Duck Lake-Black River (HUC # 190402040804)
4. Big Sitdown Creek (HUC # 190404010903)
5. Fourteenmile Creek-Yukon River (HUC # 190404011906)
6. Grayling Fork Black River (HUC # 190402040504)
7. Grayling Fork Black River (HUC # 190402040502)
8. Grayling Fork Black River (HUC # 190402040705)
9. Grayling Fork Black River (HUC # 190402040701)
10. Headwaters Little Black River (HUC # 190402060105)
11. Headwaters Kandik River (HUC # 190404010902)
12. Indian Grave Creek (HUC # 190404010906)
13. Kandik River (HUC # 190404010908)
14. Little Black River (HUC # 190402060106)
15. Little Black River (HUC # 190402060109)
16. Little Black River (HUC # 190402060404)
17. Lower Kevinjik Creek (HUC # 190402041309)
18. Outlet Runt Creek (HUC # 190402041005)
19. Salmon Fork Black River (HUC # 190402041107)
20. Salmon Fork Black River (HUC # 190402041403)
21. Salmon Fork Black River (HUC # 190402041105)

22. Tetthajik Creek (HUC # 190402041207)
23. Unnamed Tributary - Upper Black River (HUC # 190402040704)
24. Unnamed Tributary - Upper Black River (HUC # 190402040702)
25. Unnamed Tributary - Upper Black River (HUC # 1190402040703)
26. Unnamed Tributary - Kandik (HUC # 190404010901)
27. Yukon River (HUC # 190404011903)
28. Yukon River (HUC # 190404011904)

Complete watershed assessments Section I.5, "Watershed Assessment Process"as necessary for management.

2.9.2.4.1.4. Visual Resources

In addition to the decisions listed as Common To All Subunits in section 2.6.2.9, the following decisions would apply under Alternative E:

DECISION:

Proposed VRM classes for Alternative E are described on Map 25.

Under Alternative E, the Salmon Fork ACEC and riparian conservation areas would be managed as VRM Class II. Any developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

All other BLM-managed lands would be assigned a VRM Class IV. Development activities would be designed to harmonize with the visually dominating elements of the surrounding landscape characteristics of line, form, color and texture but major modification of the natural landscape would be allowed.

2.9.2.4.1.5. Wetlands and Floodplains

In addition to the Water Resource decisions listed as Common To All Subunits in section 2.6.2.10, the following decisions would apply under Alternative E:

DECISIONS:

Within five years of signing the ROD or by management direction, undertake development of a step-down Watershed Management Plan (WMP) for the Black River watershed. Watershed planning helps address water quality problems in a holistic manner by fully assessing the potential contributing causes and sources of pollution including uplands, then prioritizing restoration and protection strategies to address these problems. Site specific soil and water management determinations (e.g., watershed, floodplain-wetland, or riparian rehabilitation techniques, monitoring techniques and schedule, and the design and placement of improvements) will be developed in the interdisciplinary Watershed Management Planning phase for resource programs. The "Watershed Assessment Matrix" (Table I.1), depicting range of desired conditions for aquatic habitats would be incorporated in the Watershed Management Plan as well as other science-based watershed assessment tools. Relevant new science and new empirical water resource data would also be incorporated in the WMP. Additional SOPs and Fluid Mineral Leasing Stipulations for land uses may be developed through the step-down watershed management plan.

2.9.2.4.1.6. Wilderness Characteristics

OBJECTIVE:

Reduce impacts of multiple-use activities to maintain naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 1,114,000 acres.

DECISIONS:

The BLM would manage 1,246,000 acres for other multiple uses as a priority over protecting wilderness characteristics.

The BLM would manage 1,114,000 acres to emphasize other resources values and multiple uses while applying management restrictions to reduce impacts to wilderness characteristics. These lands are located within the Salmon Fork ACEC and riparian conservation areas.

The BLM would not manage any lands to protect wilderness characteristics as a priority over other resource values and multiple uses.

The types of activities/projects that could potentially affect wilderness characteristics would require further NEPA analysis. The BLM will monitor wilderness characteristics through this NEPA process. In addition, on-the-ground or aerial monitoring will be done in conjunction with monitoring for other resources.

RATIONALE: Under BLM Manual 6320 the BLM can manage areas to emphasize other resource values and multiple uses while applying management restrictions to protect wilderness characteristics. Given the large size of most of these areas in the Upper Black River Subunit many land uses could occur that would not impact naturalness, solitude, or primitive recreation on a landscape scale, or the size of the units. Management for other resource drivers such as fish, subsistence, and wildlife are complementary to maintaining wilderness characteristics. Under Alternative E, management decisions to designate ACECs and riparian conservation areas to protect aquatic and riparian habitats would result in maintenance of wilderness characteristics in these areas. Additionally, when the RMP is implemented uses proposed in these areas would be further analyzed through the NEPA process for impacts to size, naturalness and solitude and stipulated mitigation measures would be applied where needed to minimize impacts.

2.9.2.4.1.7. Wildlife

DECISIONS:

The decisions listed as Common To All Subunits in section 2.6.2.13, would apply under Alternative E. Additional wildlife related decisions for Alternative E are found in section 2.9.2.4.3 Special Designations.

2.9.2.4.2. Resource Uses

2.9.2.4.2.1. Forest and Woodland Products

DECISIONS:

In addition to the decisions listed in section 2.6.3.1, the following decisions would apply under Alternative E:

Personal use of timber, commercial use of forest products, and commercial timber salvage sales would be considered on all lands.

Commercial timber sales (large and small) would be considered on all lands except the Salmon Fork ACEC (623,000 acres).

2.9.2.4.2.2. Land Tenure

DECISIONS:

Same as Alternative B.

2.9.2.4.2.3. Land Use Authorizations

DECISIONS:

In addition to those decisions listed as Common To All Subunits in section 2.6.3.3, the following decision would apply under Alternative E:

No right-of-way avoidance areas would be designated.

2.9.2.4.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals.

2.9.2.4.2.4.1. Fluid Leasable Minerals

DECISIONS:

In addition to those decisions listed as Common To All Subunits in section 2.6.3.5.1, the following decisions would apply under Alternative E.

The Salmon Fork ACEC, Black River watershed, and riparian conservation areas (1,813,000 acres) would be closed to fluid leasable minerals (Map 43). Fluid leasable minerals are defined by the Mineral Leasing Act and include oil, gas, coalbed natural gas, and geothermal resources.

The remainder of the subunit, 547,000 acres, would be open to fluid mineral leasing, subject to the Standard Lease Terms, Fluid Mineral Leasing Stipulations, and Standard Operating Procedures.

2.9.2.4.2.4.2. Solid Leasable Minerals

DECISIONS:

In addition to those decision listed as Common To All Subunits in section 2.6.3.5.2, the following decision would apply under Alternative E. Solid leasable minerals are defined by the Mineral Leasing Act and include coal, oil shale, native asphalt, phosphate, sodium, potash, potassium, and sulfur.

The Salmon Fork ACEC, Black River watershed, and riparian conservation areas (1,813,000 acres) would be closed to solid leasable minerals, including coal (Map 43).

The remainder of the subunit, 547,000 acres would be open to solid leasable minerals subject to standard leasing stipulations and standard operating procedures.

As stated in section 2.6.3.5.2 Common to All Alternatives, coal leasing is deferred because the coal screening process (as identified by 43 CFR 3420.1-4) has not been completed in the planning area. A RMP amendment would be needed before coal leasing could occur. Only those BLM-managed public lands that have development potential may be identified as acceptable for further consideration for coal leasing.

2.9.2.4.2.4.3. Locatable Minerals

DECISIONS:

In addition to those decisions listed as Common To All Subunits in section 2.6.3.5.3, the following decision would apply under Alternative E. Locatable minerals are minerals for which the right to explore, develop, and extract mineral resources is established by the staking of mining claims, under the General Mining Law of 1872. Examples of locatable minerals include gold, silver copper, zinc, certain limestones, and gypsum.

The Salmon Fork ACEC, Black River watershed, and riparian conservation areas (1,813,000 acres) would be closed to locatable mineral entry (Map 43).

The remaining lands in the subunit (547,000 acres) would be recommended open to locatable mineral entry.

2.9.2.4.2.4.4. Salable Minerals

DECISIONS:

In addition to those decision listed as Common To All Subunits in section 2.6.3.5.4, the following decision would apply under Alternative E. Salable minerals, also called mineral materials, include sand, gravel, dirt, and rock.

All BLM-managed lands within the Upper Black River Subunit would be open to salable mineral disposal.

2.9.2.4.2.5. Travel Management

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative E in the Upper Black River Subunit. Note these decisions are the same as Alternative C.

DECISIONS

Off-Highway Vehicle Area Designation – LIMITED

A travel management plan has been defined for the Upper Black River Subunit. Once the signed ROD for the RMP is released, the BLM will develop a supplemental rule to implement the with the travel management prescriptions listed below.

Travel Management Prescriptions:

All forms of non-motorized use would be allowed.

Cross-country winter use (October 15 through April 30) of snowmobiles 50 inches or less in width, and weighing 1,000 pounds curb weight and less would be allowed throughout the entire subunit.

Cross-country summer use (May 1 through October 14) of vehicles up to 64 inches or less in width and weighing 1,500 pounds curb weight and less would be allowed throughout the entire subunit.

Aircraft use would be unrestricted, with the following provisions: Minimal clearing of rocks, downed logs, and brush would be allowed; construction or formal improvement of landing areas would occur by permit only; and, use of gravel bars and winter snow areas would be allowed, subject to reasonable provisions to protect resource values.

Use of motorized boats would be unrestricted.

A permit or approved Plan of Operations would be required for all other vehicle use.

New restrictions could be developed for the purposes of site protection, visitor safety, and/or maintaining an unconfined and primitive type of recreation consistent with the existing wilderness characteristics.

RATIONALE: Although current OHV use is low in this subunit, limiting the use of OHVs by weight would reduce potential for impacts to soil, water, vegetation, fish, and wildlife throughout the subunit in the event that OHV use increased over the life of the plan.

2.9.2.4.2.6. Withdrawals

DECISIONS:

Recommend to the Secretary of the Interior that PLO 5173 (ANCSA 17(d)(1) withdrawal) be partially revoked to open 547,000 acres to locatable mineral entry and mineral leasing laws in the areas shown on Map 93.

Recommend to the Secretary of the Interior that portions of public land order 5173 (ANCSA 17(d)(1) withdrawal) be retained until a new withdrawal from mineral entry and location under the authority of FLPMA is approved on 1,813,000 acres in the following areas:

- The Salmon Fork ACEC (623,000 acres) (Map 69).
- Riparian conservation areas (491,000 acres) (Map 11).
- Black River watershed (699,000 acres) (Map 43)

RATIONALE: The proposed withdrawals are a minor variation on alternative B and are within the spectrum of alternatives analyzed in the Draft EIS. Retaining these ANCSA withdrawals would respond to concerns raised during government-to-government consultation, protect relevant and important values of the ACEC, and conserve anadromous fish habitat until a new withdrawal can be approved under the authority of FLPMA.

2.9.2.4.3. Special Designations

2.9.2.4.3.1. Areas of Critical Environmental Concern

GOALS:

Maintain the values of the Salmon Fork ACEC as fish habitat, bald eagle nesting habitat, and habitat for rare flora.

Maintain habitat effectiveness – the ability of the habitats to support nesting bald eagles and rare flora – in the Salmon Fork ACEC.

Maintain stream channel integrity, ensure riparian proper functioning condition, and achieve desired future conditions for fish and aquatic habitat in the Salmon Fork ACEC.

DECISIONS:

Under Alternative E, designate approximately 623,000 acres within the Salmon Fork watershed as the Salmon Fork ACEC (Map 69) to protect relevant and important values including bald eagle nesting habitat, priority fish habitat, and rare flora.

Manage limestone habitats and steep south facing slopes and bluffs to minimize impacts on rare flora.

Maintain water quality to support nesting bald eagles and salmon habitat.

Coordination and notification with the Government of Canada is required prior to development affecting caribou habitat.

Provisions should be made in management to allow the caribou herd to continue to utilize the winter habitats in the area.

Avoid or minimize the size, extent, duration, and level of activities in concentrated seasonal use areas. Additional limitations on OHV use (such as seasonal restrictions) may be instituted to reduce impacts to natural resources.

Close the ACEC to locatable mineral entry and mineral leasing.

Implement a limited OHV designation.

RATIONALE: The rationale for designating the ACEC is the same as in Alternative B.

2.9.2.4.3.2. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

Under Alternative E, no rivers would be recommended suitable for designation under the Wild and Scenic Rivers Act.

RATIONALE: In 2003, the BLM issued a recordable disclaimer of interest to the State of Alaska for the bed of the Salmon Fork Black River from its confluence with the Black River upstream

74 river miles to the International Boundary. Proposed management of the Salmon Fork basin (ACEC and riparian conservation area, closed to mining and mineral leasing) would protect the outstandingly remarkable values without designation. For these reasons, and due to the lack of support for the designation of new rivers by the State and Alaska congressional delegation, the Salmon Fork has been determined to be not suitable under Alternative E.

2.9.3. Comparison of Alternatives: Upper Black River Subunit

Table 2.18, "Upper Black River Subunit: Summary of Alternatives" provides a **comparison of major allocation decisions or decisions that vary by alternative for Alternatives B, C, D, and E**. There are additional decisions that are common to all action alternatives that are not displayed in these tables. Decisions may be paraphrased to save space. For the full text of all decisions, see section 2.6 Management Common to All Subunits and All Action Alternatives, section 2.9 Upper Black River Subunit, and Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*. All acres are approximate and rounded to the nearest 1,000 acres.

Table 2.18. Upper Black River Subunit: Summary of Alternatives

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Fish and Aquatic Species	No land use plan. No Riparian Conservation Areas (RCAs) identified.	Manage 28 watersheds as RCAs (Map 11).	Manage 13 watersheds as RCAs (Map 12).	Manage 5 watersheds as RCAs (Map 13).	Same as Alternative B (Map 11).
	No land use plan. Watershed assessments not addressed.	Complete watershed assessments according to set priorities.	Complete watershed assessments as necessary for management.		
Visual Resources	No land use plan. No VRM classes assigned.	Assign all BLM-managed lands to VRM Classes. Manage according to the VRM class objectives described in section 2.6.2.9.			
		2,360,000 acres VRM Class II (entire subunit).	623,000 acres VRM Class II (Salmon Fork ACEC).	0 acres VRM Class II.	1,114,000 acres VRM Class II
		0 acres VRM Class III.			
		0 acres VRM Class IV.	Manage 1,737,000 acres as VRM Class IV.	2,360,000 acres VRM Class IV (entire subunit).	1,246,000 acres VRM class IV
Wetlands and Floodplains	Watershed management planning not addressed.	Within five years of signing the ROD, or by management direction, undertake development of a watershed management plan for the Black River watershed.			
Wilderness Characteristics	**Areas managed to protect wilderness characteristics as a priority over other resource values and multiple uses**				
	No land use plan. Wilderness characteristics not addressed	None	None	None	None
	Acres and Areas managed to emphasize other resource values and multiple uses while applying management restrictions to reduce impacts to wilderness characteristics				
	No land use plan. Wilderness characteristics not addressed	Maintain wilderness characteristics on 2,360,000 acres (100%)	Maintain wilderness characteristics on 623,000 acres (26%).	Wilderness characteristics would not be explicitly maintained.	1,114,000 acres (47%)
		Upper Black River Subunit (Map 78)	Salmon Fork ACEC (Map 79)	None (Map 80)	Salmon Fork ACEC and riparian conservation areas (Map 81)
	Acres managed to emphasize other resource values and multiple uses as a priority over protecting wilderness characteristics				
	No land use plan. Wilderness characteristics not addressed	None	1,737,000 acres (74%)	2,360,000 acres (100%)	1,246,000 acres (53%)

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Wildlife	No land use plan. No limits on types of pack animals for either casual or permitted use.	Domestic sheep, goats, and camelids (including alpaca & llama) are not allowed in Dall sheep habitat for either casual or permitted use.	No restrictions on casual use of domestic sheep, goats, and camelids (including alpaca & llama).		
		The use of domestic goats, alpacas, llamas, and other similar species would not be allowed in conjunction with BLM-authorized activities in Dall sheep habitat.			
Forest and Woodland Products	No land use plan. BLM considers these types of uses may be allowed on all lands (2,360,000 acres) on a case-by-case basis.	Allow personal use of forest products on all lands. Consider personal use of timber and commercial use of forest products on all lands (2,360,000 acres).			
		Commercial timber salvage sales: not allowed on all lands (2,360,000 acres).	Commercial timber salvage sales: considered on all lands (2,360,000 acres).		
		Commercial timber sales: not allowed on all lands (2,360,000 acres).	Commercial timber sales: considered on 1,739,000 acres; not allowed within the Salmon Fork ACEC (621,000 acres).	Commercial timber sales: considered on all lands (2,360,000 acres)	Same as Alternative C.
Land Tenure	Land tenure is not addressed.	Retain most lands in the Upper Black River Subunit in federal ownership (Maps 99 and 100). Consider acquisition or disposal, including exchange, of scattered parcels around Circle for the purposes of consolidation.			
Land Use Authorizations	No land use plan. No ROW avoidance areas.	The Salmon Fork ACEC would be a ROW avoidance area (Map 69).	There would be no ROW avoidance areas.		
	No land use plan. Land use actions considered case-by-case.	Land use actions considered on a case-by-case basis.			
Fluid Leasable Minerals (e.g., oil and gas)	Closed to mineral leasing by public land order (PLO) 5173.	2,360,000 acres (entire subunit) closed to fluid mineral leasing.	104,000 acres open with minor constraints; 1,635,000 acres open with standard stipulations; 621,000 acres (Salmon Fork ACEC) closed.	2,360,000 acres open with standard stipulations (entire subunit); 0 acres closed.	547,000 acres open with standard stipulations; 1,813,000 acres closed.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Solid Leasable Minerals	Closed to mineral leasing by PLO 5173.	2,360,000 acres (entire subunit) closed to solid mineral leasing.	1,739,000 acres open; 621,000 acres (Salmon Fork ACEC) closed.	2,360,000 acres open (entire subunit); 0 acres closed.	547,000 acres open: 1,813,000 acres closed.
		Coal leasing is deferred because the coal screening process (43 CFR 3420.1-4) has not been completed. A RMP amendment would be needed before coal leasing could occur. Only those BLM-managed public lands that have development potential may be identified as acceptable for further consideration for coal leasing.			
Locatable Minerals (e.g., gold)	Withdrawn from mineral entry by PLO 5173.	2,360,000 acres (entire subunit) closed to locatable minerals.[a]	2,360,00 acres open (entire subunit); 0 acres closed.[a]		547,000 acres open; 1,813,000 acres closed.[a]
Salable Minerals (e.g., gravel)	No land use plan. Allowed on 2,360,000 acres consistent with regulations.	1,739,000 acres open to salable minerals; 621,000 acres closed.	2,360,00 acres open (entire subunit); 0 acres closed.		
Recreation	No land use plan. No designated recreation management areas.	Manage 2,360,000 acres as an other BLM lands. Recreation management areas would not be designated.			
Travel Management	OHV area designation: None	OHV area designation: Limited			
	No land use plan. No OHV designations. No set limits on OHV use.	621,000 acres (Salmon Fork ACEC) limited by season of use (no summer OHV use).	0 acres limited by season of use.		
		1,739,000 acres limited by width and weight (summer)	2,360,000 acres limited by width and weight (summer).		
		2,360,000 acres limited by weight (winter).			
	No restrictions on the use of motorized boats.				

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Withdrawals	No land use plan. All lands withdrawn by PLO 5173.	Recommend retention of public land order 5173 until a new withdrawal from mineral entry and location under the authority of FLPMA is approved.	Recommend partial revocation of public land order 5173 to open the entire subunit to locatable mineral entry and location.		Recommend partial revocation of public land order 5173 to open 547,000 acres to locatable mineral entry and location. Within the Salmon Fork ACEC, Black River watershed, and riparian conservation areas (1,813,000 acres) recommend retaining public land order 5173 until a new withdrawal from mineral entry and location under the authority of FLPMA is approved.
Areas of Critical Environmental Concern	No designated ACECs or research natural areas.	Designate 621,000 acres as the Salmon Fork ACEC.			Designate 623,000 acres as the Salmon Fork ACEC. (Map 69)
Wild and Scenic Rivers	No designated wild and scenic rivers. Rivers in area have never been studied for eligibility or suitability.	Salmon Fork (52 miles) recommended suitable for classification as "wild." (Map 78)	No rivers recommended suitable.		

[a]RMP recommends open or closed. To implement this recommendation requires action by the Secretary of the Interior

2.10. White Mountains Subunit

2.10.1. Alternative A: No Action Alternative

Current management in the White Mountains NRA under Alternative A (No Action Alternative) is guided by the Record of Decision and Resource Management Plan for the White Mountains National Recreation Area (BLM 1986b) which was approved in February 1986. Throughout this section, this plan will be referred to as the White Mountains RMP (BLM 1986b). Additional management guidance is provided by the Beaver Creek River Management Plan (BLM 1983b), and several special rules published in the *Federal Register*. Other BLM-managed lands in the White Mountains Subunit are not covered by any existing land use plan. Current management described in the following sections.

2.10.1.1. Resources

2.10.1.1.1. Cave and Karst

There are three significant caves within the subunit: Bison Bone Cave (AK-029-001), Cave AK-029-002, and Cave AK-029-003 (Map 48). These are all within the Limestone Jags RNA, which is managed under a Primitive RSC classification, and is closed to motorized vehicle use, mineral entry, and leasing.

2.10.1.1.2. Cultural and Paleontological Resources

Appropriate literature reviews and applicable site-specific inventories are generally conducted prior to any development action in order to identify, protect, or mitigate potentially adverse impacts to significant cultural and paleontological resources. Specifically for cultural resources, historic structures would be evaluated for recreational use. Use the level of fire suppression necessary to protect life, property, and historical cabins. Prior to any prescribed burn, the area will be thoroughly investigated to identify any inhabited or historic cabins, other structures, or critical protection sites, and appropriate measures will be taken to protect them from fire as mandated by federal law. Historic and archaeological values within the Beaver Creek WSR Corridor have been inventoried. Significant cultural resources are protected and impacts on sites which may adversely be affected by activities within the river corridor are mitigated.

2.10.1.1.3. Fish and Aquatic Species

Fish habitat is managed to maintain and/or enhance fish populations for the use and enjoyment of the recreational users of the NRA. Primary emphasis is placed on habitat for Arctic grayling. Ongoing projects include rehabilitation of stream and riparian areas in Nome Creek where past placer mining activity has altered the aquatic environment. Approximately 5.5 miles of stream channel and 210 acres of floodplain and riparian habitat have been reclaimed in Nome Creek since the early 1990s.

Measures to mitigate the impacts of development on the fishery resource are attached as stipulations to the authorizing documents. Special stipulations are placed on development activities in crucial habitat areas such as fish spawning and overwintering areas (Table 2.19, "Crucial Wildlife and Fish Habitats in the White Mountains RMP, Alternative A"). Proponents

of all surface-disturbing activities are required to use the best available technology to reduce siltation and stream turbidity to an acceptable level for fish survival and reproduction. All surface-disturbing activities are required to be rehabilitated to minimize future erosion.

Riparian gravel sources are used only where upland sources are not reasonably available and where any damaging impacts can be mitigated to the extent that the water quality and fisheries of the Beaver Creek system will not be significantly impaired.

Beaver Creek fish habitat and riparian areas are maintained to support viable self-sustaining populations of fish and to provide a quality fishing experience. Assessments of the Arctic grayling and salmon populations have been conducted in Nome Creek and Beaver Creek.

2.10.1.1.4. Special Status Species

A literature review (Williams and Lipkin 1991) and limited inventories (Parker et al. 2003) for special status plants have been conducted. Inventories for sensitive and rare plants are conducted for clearances for proposed surface-disturbing activities, if the presence of sensitive species is suspected. Sites may be protected by modifying proposed actions or by denying those actions which cannot be modified. If actions cannot be modified or denied, plant material salvage will be attempted.

2.10.1.1.5. Visual Resource Management

Scenic quality is maintained using the Visual Resources Management (VRM) objectives assigned in the White Mountains RMP (BLM 1986b). VRM designations under Alternative A are shown on Map 19.

Beaver Creek WSR will be managed as VRM Class I while the view shed is managed as VRM Class II. The management objective of Class I is to preserve the existing characteristics of the landscape, but allows for limited management activities where changes should be very low and must not attract attention of the casual observer. Management of Class II areas allows for the development of facilities. These developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

The Primitive Management Unit will be managed as VRM Class II. The Semi-Primitive Management Unit adjacent to the Summit and Wickersham trails is managed as VRM Class II.

The remainder of the Semi-Primitive Management Unit will be managed as a VRM Class III. The White Mountains RMP (BLM 1986b) did not assign a VRM class to the Research Natural Areas. All projects in these areas will be reviewed for impacts to scenic quality and visual resources.

All BLM-managed lands not within the White Mountains NRA or Beaver Creek WSR Corridor would require an inventory determination and management class identification for all surface-disturbing activities.

2.10.1.1.6. Water

The BLM cooperates with the ADEC and the U.S. Environmental Protection Agency for the purpose of establishing water quality standards and for preventing, eliminating, or diminishing the

pollution of state waters and in the enforcement of state and federal water pollution laws. Water quality in Beaver Creek is managed to preserve a clear flowing and undisturbed stream, associated recreational experiences, and to meet the State's water quality standard. Water quality in Beaver Creek is measured periodically to ensure ADEC water quality standards are met. BLM quantified stream flow in Beaver Creek over a five year period. An instream flow water right was approved for Beaver Creek WSR in May of 1989 by the Alaska Department of Natural Resources.

Watersheds may be closed to OHV use when, due to erosion and sedimentation or poor trail conditions, more than 5 percent of the miles of trail become difficult to negotiate with a small three-wheeler or other like-sized OHV; or when water pollution from OHV trails or disturbances become noticeable in Beaver Creek or its major tributaries.

2.10.1.1.7. Wildland Fire Ecology and Management

Guidance for wildfire fire management is provided by the BLM Alaska Land Use Plan Amendment for Wildland Fire and Fuels Management (BLM 2004b, 2005c). The decisions are described under section 2.6.2.12 Wildland Fire Ecology and Management, Management Common to All Subunits and Action Alternatives.

2.10.1.1.8. Wildlife

The primary emphasis of the wildlife habitat management program is habitat protection, maintenance and improvement. Priority species are caribou, Dall sheep, fish, and peregrine falcon. The wildlife habitat management is implemented in cooperation with ADF&G and USFWS. Ground and aerial surveys are used to identify and monitor wildlife distribution, movements, and use areas. Information gained is used to assess the effects of various land use activities, to determine habitat condition and trends, and to formulate measures to mitigate possible adverse effects on wildlife from land uses such as mining, roads, and trails.

Wildlife management emphasizes the protection of crucial habitats (Table 2.19, "Crucial Wildlife and Fish Habitats in the White Mountains RMP, Alternative A"). Crucial habitats are wildlife use areas which are necessary for perpetuation of the species or population and which provide an essential element of the life cycle for that species or population. Crucial habitats are protected by the avoidance or mitigation of possible adverse effects of land use activities and by withdrawing specific areas from certain land use activities.

Table 2.19. Crucial Wildlife and Fish Habitats in the White Mountains RMP, Alternative A

Species/group	Crucial Use Area
Caribou	Caribou Calving (present and historical), movement routes (present and historical)
Dall Sheep	Mineral licks, movement routes, lambing, associated escape terrain, winter range
Moose	Moose late winter range, mineral licks
Grizzly Bear/Black Bear	Denning (winter), seasonal high use/high prey density
Peregrine Falcon/Other Raptor	Nesting, prey gathering
Furbearer	Denning (reproduction), seasonal high use/high prey density
Waterfowl	Nesting, overwintering (potential)
Small Game	Winter concentrations
Land/Shore Birds and Mammals	Concentrations which are crucial for predator/prey gathering
Fish	Spawning areas, overwintering areas

When land use actions are proposed, mitigating measures to avoid or minimize possible adverse effects are developed through the environmental assessment process. This sometimes results, in restriction or alteration of timing, location, and extent of a proposed land use activity in order to avoid or minimize adverse effects. Table 2.20, "Possible Surface Use and Occupancy Restrictions in Crucial Habitats, White Mountains NRA, Alternative A" lists crucial habitats and time frames during which special restrictions may be required. These restrictions prohibit surface movement within one mile of the area or the use of aircraft under an altitude of 1,500 feet.

Habitat improvement for moose and other species is provided for by management of wildfire. Prescribed burns may be used to reestablish or improve habitat for moose and other species. All of the NRA has been placed in Limited Wildfire Management Option, allowing for considerable wildfire. Roughly 25 percent of the area burned in 2004 and 2005.

Table 2.20. Possible Surface Use and Occupancy Restrictions in Crucial Habitats, White Mountains NRA, Alternative A

Species	Crucial Use Area	Dates
Caribou	calving, migration routes	May 1 - June 15
Dall Sheep	lambing, movements	May 1-31
Dall Sheep	mineral licks	May 15 - July 15
Dall Sheep	winter range	October 1 - May 1
Grizzly Bear/Black Bear	denning	November 1 - April 31
Peregrine Falcon/Other Raptor	nesting, prey gathering	April 15 - August 31
Furbearer	denning	May 1 - June 15
Fish	spawning	May 1 - September 1
Fish	overwintering	December 1 - April 15

2.10.1.2. Resource Uses

2.10.1.2.1. Forest and Woodland Products

Forest products are reserved for local use only. No commercial timber harvest is be allowed. Personal use of timber is allowed throughout the subunit. Permits are monitored to ensure that the permit stipulations have been followed. Permit stipulations may include winter cutting and movement, maintaining a set distance from waterways, and lopping and scattering slash.

2.10.1.2.2. Lands and Realty

There are two established transportation corridors in the White Mountains NRA (Map 19). One crosses upper Nome Creek from the U.S. Creek Road and extends to the vicinity of Champion Creek. The other begins at the NRA boundary near the Steese Highway and extends to lower Nome Creek. Development within this second corridor will require a right-of-way from the State of Alaska, since the first five miles are located on State lands. Both corridors generally follow existing roads or trails. The upper Nome Creek Corridor provides recreational access to the ridge complex leading to the Mount Prindle area and the highland country.

To prevent a proliferation of rights-of-way, all future rights-of-way will, to the extent possible, be located within these corridors. If it becomes necessary for a right-of-way to extend beyond a corridor, existing trails will be followed whenever possible. Several users may be required to use the same right-of-way and to jointly maintain it. Holders of rights-of-way for roads or trails would be required to allow public access for recreation unless there is a compelling reason to deny

such access. Before any construction takes place, engineering studies for route selections within the transportation corridors will be conducted to identify pipeline, road and trail locations, river crossings, and geologic hazards. Rights-of-way will be allowed within the Primitive Management Unit only if there is no economically feasible and prudent alternative.

Other realty actions compatible with the land uses may be allowed if compatible with land uses designated in the White Mountains RMP (BLM 1986a).

No lands within the White Mountains NRA will be exchanged or otherwise disposed of. Lands outside the NRA in the Wickersham Dome area have been retained in federal land status for recreational purposes under PLO 5150, which establishes a corridor for the Trans-Alaska Pipeline System. If PLO 5150 is revoked, another PLO will be issued to ensure that Wickersham Dome remains in federal land status and is reserved for recreational purposes. The following recreation withdrawals along the Steese Highway have been retained for recreational purposes: the Cripple Creek campground at 60 mile, the U.S. Creek at 56 mile; and the Perhaps Creek at 53 mile.

2.10.1.2.3. Minerals

All BLM-managed lands in the White Mountains Subunit are currently withdrawn from mineral location and leasing by variety of PLOs issued under ANCSA 17(d)(1). In addition, the Beaver Creek WSR Corridor (within one-half mile of the banks) is withdrawn from mineral entry and leasing under ANILCA and administered pursuant to the Wild and Scenic Rivers Act (16 U.S.C. 1271-1287). The White Mountains NRA is withdrawn from locatable mineral entry under Section 1312 of ANILCA.

No lands within the White Mountains Subunit are open to leasing of either fluid minerals (oil and gas) or solid minerals (coal). There are no existing mineral leases.

There are no valid mining claims remaining in the White Mountains NRA. Mining is occurring on valid existing mining claims outside the NRA, primarily near Livengood.

Disposal of sand, gravel, rock, and other salable minerals is considered; such disposals must be compatible with the White Mountains RMP (BLM 1986b) if they are within the White Mountains NRA.

2.10.1.2.4. Recreation

In the White Mountains Subunit, the Eastern Interior Field Office follows BLM program direction for managing recreation on public lands. Recreation management is focused on the White Mountains NRA and Beaver Creek WSR.

The BLM provides public outreach in a variety of ways including: the establishment and maintenance of information kiosks; maintenance of a website; and through the use of volunteers to provide visitor contact assistance.

Special recreation use permits are issued as appropriate for commercial, competitive, and special events.

A remote cabin program has been developed and maintained, including twelve public use cabins and two trail shelters. There are over 220 miles of trails connecting the public use cabins to the highways. Recreational sites have been developed and maintained, including several waysides

and trailheads, campgrounds, Beaver Creek access, and Nome Creek Road. Periodic accessibility, safety, and condition assessments are conducted at developed recreation sites and available funds are prioritized to resolve maintenance needs.

Important recreational resource values that make the White Mountains NRA unique are enhanced and protected including: the outstanding scenic quality of the view shed, the natural state of the river corridor, the water quality of the river system, the fishing and hunting opportunities, wildlife viewing, hiking opportunities, and unique landforms/geologic formations. Four Management Units are established in the White Mountains NRA: Beaver Creek WSR Corridor, the Primitive Management Unit, the Semi-Primitive Motorized Management Unit, and the Research Natural Areas (Map 48).

Preservation of the Beaver Creek WSR and adjacent view shed is essential to meeting recreational goals and objectives. Beaver creek is one of the main attractions of the White Mountains NRA and development within the view shed of the river has been minimized.

The Primitive Management Unit is managed to protect the wild and natural character of the area. Within this unit, about 60 miles of primarily winter trail has been established and five cabins have been constructed. A hiking route was cleared in the Fossil Creek area, and is minimally maintained.

Within the Semi-Primitive Motorized Management unit, recreational values which are protected include OHV access for hunting, recreational access to Primitive areas and river put-in, wildlife viewing, hiking opportunities, and recreational mining on Nome Creek. Three motorized access hunting trails have been identified and sustainable trail construction techniques implemented. Development in Nome Creek valley provides easily accessible recreation opportunities.

2.10.1.2.5. Travel Management

The current OHV designation for the White Mountains NRA is Limited except for Research Natural Areas, which are Closed to OHV use. All forms of non-motorized use are allowed. Some trails are managed as non-motorized. Camping and/or campfires are prohibited within 25 feet of trails. Aircraft use is unrestricted, except possibly in crucial wildlife habitats. No restrictions for crucial habitats have been identified to date.

Four Management Units are established in the White Mountains NRA: Beaver Creek WSR Corridor, the Primitive Management Unit, the Semi-Primitive Motorized Management Unit, and the Research Natural Areas (Map 19). The type and extent of OHV uses allowed depends on the designation of the unit in which the use occurs.

The use of hovercraft and airboats is prohibited in the White Mountains NRA (FR 1988a).

Beaver Creek WSR Corridor: The White Mountains RMP (BLM 1986a) amended the Beaver Creek River Management Plan related to OHV use within the river corridor. OHV use is prohibited within the corridor except:

1. During the winter months, when snowmobiles weighing 1,500 pounds,GVWR and less are allowed, subject to closures for Windy Creek and Fossil Creek noted under the Primitive Unit;
2. For OHVs used to access inholdings, which can be authorized under a mining plan of operation, a right-of-way, permit, or by other appropriate means.
3. If there are no economically feasible and prudent alternatives for crossing the corridor.

Launching of boats in the Nome Creek Valley is restricted to 15hp or less (FR 1997). Using hovercraft and airboats are not considered compatible and will not be authorized (FR 1997).

Primitive: This unit (494,000 acres) is closed to OHVs with the exception of winter snowmobile use. Authorization is required for the use of any motorized vehicle, other than a snowmobile, off a valid right-of-way. The use of snowmobiles 1,500 pounds GVWR and less is allowed without authorization. All OHV use is prohibited in the Windy Creek and Fossil Creek drainages from April 15 to August 31 in order to avoid disturbance to known peregrine falcon nesting areas (FR 1998).

Semi-Primitive Motorized: In this unit (428,000 acres), no permit is required for vehicles of less than 1,500 pounds GVWR except on the Summit, Ski Loop, and Table Top Mountain trails, which are closed to motorized use year round, and within the Wickersham Creek Closed Area, which is closed to all motorized use May 1 through October 14. A permit is required for the use of OHVs greater than 1,500 pounds GVWR off a valid right-of-way. Written authorization is not required for the use of OHVs greater than 1,500 pounds GVWR on the U.S. Creek Road and the mine tailings along Nome Creek (FR 1998).

Research Natural Areas (RNAs): The Limestone Jags, Serpentine Slide, and Mount Prindle RNAs are closed to OHV use.

All Management Units with a Limited OHV designation: The use of vehicles of greater than 1,500 pounds GVWR off a valid ROW is allowed by permit only. Such authorization is generally given only when necessary to provide access to inholdings or for other purposes, based on analysis of need and compatibility with the White Mountains RMP (BLM 1986b). Approval is subject to conditions designed to minimize the impact to the environment or other land uses.

The use of vehicles of greater than 1,500 pounds GVWR off a valid existing right-of-way is limited to winter months with adequate snow cover and is limited to existing trails, where practical. Under certain circumstances, the AO may authorize summer moves. These include, but are not limited to, the following:

1. A winter move would be impractical;
2. A move which would not interfere with crucial wildlife habitat.

An OHV monitoring program is used to document existing trails, trail conditions, and newly disturbed areas of cross-country use, and to provide a basis for determining rehabilitation needs, monitoring recovery, and establishing a threshold as to when impacts are becoming excessive. Areas open to OHV use may be closed or restricted under any of the following four conditions:

1. when, due to erosion and sedimentation or poor trail conditions, more than 5 percent of the miles of trail become difficult to negotiate with a small three-wheeler or other like-sized OHV;
2. when water pollution from OHV trails or disturbances become noticeable in Beaver Creek or its major tributaries;
3. if there is extensive cross-country damage or rutting on trails as a result of the use of light off-road vehicles, the area may be closed during break-up;
4. or to protect recreation, wildlife, watershed and/or scenic values.

Permanent use restrictions on OHVs require an order signed by the AO and publication in the *Federal Register*. However, Where the AO determines that OHVs are causing, or will cause, considerable adverse effects on resource values or other authorized uses, he/she shall immediately close the area or route/trail/road affected to the type of vehicle causing the adverse effect until that

effect is eliminated and measures have been implemented to prevent a recurrence, in accordance with 43 CFR 8341.2.

2.10.1.2.6. Withdrawals

The subunit is closed to locatable mineral entry and mineral leasing by ANCSA 17(d)(1) withdrawal. The primary PLOs affecting this subunit are PLO 5179, 5180, and 5184. There are approximately 4,000 acres of valid existing claims outside the White Mountains NRA that predate the PLOs. Mining is occurring on some of these claims. Existing withdrawals are described in section 3.3.8 Withdrawals.

The White Mountains NRA is closed to locatable mineral entry by Section 1312(b) of ANILCA. There are no remaining mining claims within the NRA. The Beaver Creek WSR Corridor (within one-half mile of the banks) is closed to mineral entry and leasing by ANILCA pursuant to the Wild and Scenic Rivers Act (16 U.S.C. 1271-1287).

Three recreation sites are withdrawn under PLO 4176, (505 acres). The withdrawn lands are located at Perhaps Creek, U.S. Creek, and Cripple Creek; all of which are within FM, T. 5N., R. 5E. The U.S. Creek and Cripple Creek parcels have been developed for recreational purposes.

2.10.1.3. Special Designations

There are three designated research natural areas (RNA): Limestone Jags (5,170 acres), Serpentine Slide (4,270 acres), and Mount Prindle (3,150 acres). There are no designated ACECs. No surface-disturbing activities are allowed within the RNAs except BLM-authorized research projects. The areas are closed to OHVs and camping to avoid disturbing research projects. Natural processes, including wildfire, continue with as little interference as possible. Primitive campsites may be established outside the RNA boundaries and improved access in the form of trails could be developed. Hiking, hunting, and natural appreciation are allowed. The RNAs are closed to mineral location and leasing.

Beaver Creek was designated as a WSR under ANILCA. The River Management Plan for Beaver Creek (BLM 1983b) provides a detailed description of the boundaries of the river corridor, major issues and concerns for management of the corridor, and management actions. The river corridor is managed to preserve the river and its immediate environment in its natural, primitive condition, in accordance with the Wild and Scenic Rivers Act (P.L. 90-542). The designated corridor is managed as a VRM Class I area. OHV use is prohibited within the corridor, except as described under section 2.10.1.2.5 Travel Management. The corridor is closed to mineral location and leasing.

One eligible river segments in the White Mountains subunit has been identified in the Wild and Scenic Rivers Classification Findings for Eligible Rivers (Table E.3). Fossil Creek is found to have characteristics eligible for a tentative classification of Scenic. This tentative classifications would be maintained through mitigation standards through NEPA review until suitability can be evaluated.

2.10.1.4. Subsistence

Any action to withdraw, reserve, lease, or otherwise permit the occupancy or disposition of public lands within the White Mountains NRA, where BLM has the discretion to substantially affect

the result, are evaluated to determine the effect on subsistence use in accordance with Section 810 of ANILCA and current BLM policy. The proposed action may be modified to reduce or eliminate effects on subsistence.

2.10.2. Action Alternatives White Mountains Subunit

2.10.2.1. Alternative B: White Mountains Subunit

2.10.2.1.1. Resources

2.10.2.1.1.1. Cave and Karst Resources

GOAL: Manage significant cave and karst systems to protect and maintain their resource, educational, scientific, and recreational values.

DECISIONS:

Manage Bison Bone Cave (AK-029-001), Cave #AK-029-002, and Cave #AK-029-003 as significant caves.

Management objective: Manage significant caves in the White Mountains NRA to preserve their scientific integrity.

Setting Prescription: Primitive

Administrative designation: All three caves are located in the Limestone Jags Research Natural Area. No additional designation is recommended.

2.10.2.1.1.2. Cultural Resources

DECISIONS:

In addition to the decisions listed under section 2.6.2.2 Cultural Resources, Management Common to All Subunits and Action Alternatives, the following decisions would apply.

The following sites are designated as suitable for public use: Two-Step Louis Cabin (LIV-390); Nome Creek Dredge (CIR-069); U.S. Creek Siphon (CIR-156); and Cripple Creek Campground Cabin (CIR-093).

All remaining cultural sites not otherwise designated are designated for scientific use.

2.10.2.1.1.3. Fish and Aquatic Species

DECISION:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.3, the following decisions would apply under Alternative B:

The following watersheds would be managed as Riparian Conservation Areas (Map 8).

1. Bear Creek (HUC # 190404021803)

2. Beaver Creek (HUC # 190404022104)
3. Beaver Creek (HUC # 190404022109)
4. Beaver Creek (HUC # 190404022208)
5. Deadwood Creek-Victoria Creek (HUC # 190404022304)
6. Headwaters Victoria Creek (HUC # 190404022301)
7. Montana Creek-South Beaver Creek (HUC # 190404022206)
8. Ophir Creek (HUC # 190404022003)
9. Outlet Victoria Creek (HUC # 190404022305)
10. South Beaver Creek (HUC # 190404022207)
11. South Beaver Creek (HUC # 190404022202)
12. Victoria Mountain-Beaver Creek (HUC # 190404022406)
13. Victoria Creek (HUC # 190404022303)
14. Yellow Creek- Beaver Creek (HUC # 190404022408)

The Sumner Creek-Nome Creek watershed (HUC# 190404022004) would be a High Priority Restoration Watershed and emphasized for active restoration.

Complete watershed assessments Section I.5, "Watershed Assessment Process"as necessary for management.

2.10.2.1.1.4. Visual Resources

Proposed VRM classes for Alternative B are displayed on Map 20. Recreation Management Zones (RMZ) are displayed on Map 53. Areas where wilderness characteristics would be maintained are displayed on Map 74.

DECISIONS:

The Beaver Creek WSR/RMZ (RSC Class of Semi-Primitive) would be managed as VRM Class I. The Serpentine Slide, Mount Prindle, and Limestone Jags RNAs, and the White Mountains Spine Area (RSC Class of Primitive) would be managed as a VRM Class I. Management of VRM Class I is to preserve the existing characteristics of the landscape, but allows for limited management activities where changes should be very low and must not attract attention of the casual observer.

The White Mountains Highlands RMZ (RSC Class of Semi-Primitive) and the Cache Mountain RMZ (RSC Class of Backcountry) would be managed as VRM Class II. In Class II areas, developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

The White Mountains Foothills RMZ (RSC Class of Middlecountry), and the Nome Creek and Wickersham Dome - Blixt RMZs (RSC Class of Frontcountry) would be managed as VRM Class III. Developments in Class III areas would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with moderate changes to landform and vegetation and may attract the attention of the casual observer.

Areas to be managed for wilderness characteristics associated with Beaver Creek RMZ, Serpentine Slide, Mount Prindle and Limestone Jags RNAs and White Mountains Spine Area would be managed as VRM Class I while those associated with the White Mountains Highlands RMZ would be managed as VRM Class II.

All remaining BLM lands would be managed as VRM Class IV. Management actions would be taken to protect the Beaver Creek WSR view shed and adjacent VRM Classes. Development activities would be designed to harmonize with the visually dominating elements of the surrounding landscape characteristics of line, form, color and texture but major modification of the natural landscape would be allowed.

2.10.2.1.1.5. Wildlife

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.13, the following decisions would apply under Alternative B:

Domestic sheep, goats, and camelids (including alpaca & llama) are not allowed in Dall sheep habitat.

In caribou winter range, plan travel management and development of facilities (such as maintained trails and cabins), in a manner that would result in a level of off-trail over-snow vehicular travel that would maintain continued availability of the area for use by wintering caribou. Develop adaptive management standards and strategies. Monitor over-snow motorized use in these areas and, if it approaches a level which may result in reduced use by wintering caribou, implement changes in maintained trails. If necessary, limited area or season closures may be enacted.

2.10.2.1.1.6. Wilderness Characteristics

OBJECTIVE:

Allow for multiple use while maintaining naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 509,000 acres so that these lands retain their wilderness characteristics for the life of the RMP.

DECISION:

Consistent with allocation decisions in the RMP, allow other multiple-uses on lands where wilderness characteristics would be maintained, while applying management restrictions (such as conditions of use or mitigation measures) to avoid or minimize impacts to wilderness characteristics and meet the objective retaining wilderness characteristics over the life of the RMP.

Wilderness characteristics would be maintained on 509,000 acres (half of the lands with wilderness characteristics in this subunit). These lands occur within the Primitive and Semi-Primitive Recreation Management Zones (Map 74).

RATIONALE: Wilderness characteristics would be maintained because of the status of the area as national recreation area and decisions in this alternative to designate an ACEC, close the lands to mineral leasing, manage for Primitive, Semi-Primitive, and Backcountry recreation settings, and set OHV designations. Management for primitive, semi-primitive, and backcountry recreational opportunities would be consistent with maintaining wilderness characteristics. Additionally, BLM-authorized uses would be further analyzed through the NEPA process for impacts to size, naturalness, primitive recreation, and solitude, and stipulated mitigation measures would be applied where needed to minimize impacts.

More than 50 percent of the lands in the White Mountains NRA would likely retain its wilderness characteristics over the life of the plan because of its designation as a national recreation area, ANILCA withdrawal of the entire area from mining, and low probability of major rights-of-way or other large surface disturbing activities.

2.10.2.1.2. Resource Uses

2.10.2.1.2.1. Forest and Woodland Products

DESIRED OUTCOME: Maintain natural forest system.

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.1, the following decisions would apply under Alternative B:

Free Use Permits for personal use of timber (e.g., house logs, firewood) would not be allowed within the White Mountains Special Recreation Management Area (which includes the Beaver Creek WSR Corridor). Free Use Permits would be allowed on the remaining BLM lands within the subunit, which are minimal.

Timber salvage sales and both large and small commercial sales would not be allowed within the White Mountains Special Recreation Management Area (which includes the Beaver Creek WSR Corridor). Sales would be allowed on the remaining BLM lands within the subunit, which are minimal.

Commercial use of forest products (such as mushrooms, berries, or bark) would not be authorized within the White Mountains Special Recreation Management Area (which includes the Beaver Creek WSR Corridor). Commercial use of forest products would be allowed on the remaining BLM lands within the subunit, which are minimal.

2.10.2.1.2.2. Land Tenure

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.2, the following decisions would apply under Alternative B. The criteria for land tenure zones is described in Appendix G, *Land Tenure*.

Retain the White Mountains SRMA (includes the National Recreation Area, Beaver Creek WSR Corridor, Wickersham Dome, Cripple Creek campground, and U.S. Creek Wayside.)

Consider acquisition of private land inholdings from willing sellers within Zone 1 areas, such as the White Mountains NRA.

If federal mining claims outside of the White Mountains SRMA become null and void, and are not conveyed to the State, consider these lands for disposal or exchange.

Recommend retention of PLO 4176, Recreation site withdrawal (505 acres). Withdrawn lands are located at Perhaps Creek, U.S. Creek, and Cripple Creek, all of which are within FM, T.5N.,

R.5E. Manage the Perhaps Creek area to provide a gravel source for maintenance or construction of recreation facilities such as roads, trails, and campgrounds.

2.10.2.1.2.3. Land Use Authorizations

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.3, the following decisions would apply under Alternative B:

Retain one transportation corridor extending from U.S. Creek Road to the Nome Creek Road, which provides access to both upper and lower Nome Creek.

Designate Serpentine Slide, Limestone Jags and Mount Prindle RNAs, the White Mountain ACEC, and Beaver Creek WSR Corridor as ROW avoidance areas.

Obtain a right-of-way from the State of Alaska for the portion of Colorado Creek trail from the Elliott Highway to the White Mountains NRA.

2.10.2.1.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals. In addition to the decisions listed as Common To All Subunits in section 2.6.3.5, the decisions in the following mineral sections would apply under Alternative B.

2.10.2.1.2.4.1. Fluid Leasable Minerals

DECISIONS:

The subunit, approximately 1,020,000 acres would be closed to fluid leasable minerals (Map 33):

2.10.2.1.2.4.2. Solid Leasable Minerals

DECISIONS:

The areas closed to fluid leasable minerals, approximately 1,020,000 acres, would also be closed to solid leasable minerals (Map 33).

2.10.2.1.2.4.3. Locatable Minerals

DECISIONS:

The entire White Mountains Subunit, approximately 1,020,000 acres, would be closed to locatable mineral entry (Map 32).

2.10.2.1.2.4.4. Salable Minerals

DECISIONS:

Approximately 648,000 acres in the following areas would be closed to salable minerals:

- The RNAs and Primitive RMZ (26,000 acres)
- The Beaver Creek WSR Corridor (69,000 acres)
- The Highlands Semi-Primitive RMZ (413,000 acres)
- The Cache Mountain Backcountry RMZ (140,000 acres)

All remaining lands in the subunit, 372,000 acres, would be open to salable minerals.

2.10.2.1.2.5. Recreation

DECISIONS:

The White Mountains SRMA would include approximately 1,016,000 acres of lands including Beaver Creek WSR Corridor and the White Mountains NRA and associated lands (Map 53). Under Alternative B, the White Mountains SRMA would include seven Recreation Management Zones (RMZs), the management of which are described in Section H.3, "White Mountains Special Recreation Management Area".

Table 2.21. White Mountain Recreation Management Zones, RSC Settings and OHV Designations, Alternative B

Name	Acres	RSC Setting [a] [b]	OHV designation
Research Natural Areas	12,600	Primitive	CLOSED
White Mountains Spine Area	13,400	Primitive	LIMITED
White Mountain Highlands RMZ	413,000	Semi-Primitive	LIMITED
Beaver Creek Corridor RMZ	69,000	Semi-Primitive	LIMITED
Cache Mountain RMZ	140,000	Backcountry	LIMITED
White Mountain Foothills RMZ	329,000	Middlecountry	LIMITED
Nome Creek RMZ	31,000	Frontcountry	LIMITED
Wickersham Dome/Blixt Cabin RMZ	8,000	Frontcountry	LIMITED
Other BLM lands	4,000	N/A	LIMITED

[a]Table 2.5

[b]RSC are descriptive conditions describing management parameters at the implementation level. These are not land use planning decisions

2.10.2.1.2.6. Travel Management

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative B.

DECISIONS:

Under Alternative B, the entire White Mountains Subunit would be delineated as a Travel Management Area, which includes other BLM lands and lands within the White Mountains SRMA. For lands within the SRMA, specific Travel Management Zones (TMZs) have also been delineated and consist of the same polygons used for Recreation Management Zone (RMZ) delineations and subsequent Recreation Opportunity Spectrum (RSC) settings for this alternative. Each TMZ also contains a specific OHV designation of Open, Limited, or Closed (Table 2.21, "White Mountain Recreation Management Zones, RSC Settings and OHV Designations, Alternative B").

A comprehensive travel management network has been defined for the White Mountains Subunit. This is described fully in Appendix B, *Travel Management Plan: White Mountains*. Decisions

from the travel management plan are summarized below. In all alternatives, snowmobiles are defined as 50 inches or less in width, and 1,000 pounds curb weight or less. ATVs are defined as 50 inches or less in width, and 1,000 pounds curb weight or less. UTVs are defined as 64 inches or less in width, and 1,500 pounds curb weight or less.

Travel Management Prescriptions Common to All Lands

The BLM may continue to issue temporary emergency closures based on a determination of considerable adverse effects pursuant to 43 CFR 8341.2, special rules. This includes considerable adverse impacts to soil, vegetation, wildlife habitat, or cultural resources. The agency can maintain this closure until the effects are mitigated and measures are implemented to prevent future recurrence.

All forms of non-motorized uses would be allowed, except for use of pack goats in Dall sheep habitat. Cross-country travel by non-motorized means is allowed.

The following trails would be limited to non-motorized uses: Ski Loop Trail, Table Top Trail, Summit Trail, Two-Step Louis Trail, and the Fishing Trail inside Cripple Creek Campground.

Camping and/or campfires would be prohibited within 25 feet of BLM-maintained trails within the White Mountains NRA.

Trapping and placement of bait and wildlife lures (scents) for the purpose of trapping fur bearers would be prohibited within 25 feet of the cleared edge of BLM-maintained trails. Trapping includes but is not limited to the use of marten pole sets, snares, conibear, or leg hold traps. These restrictions do not apply to sections of trail on land managed by the State of Alaska, where BLM maintains access to the White Mountains NRA.

Aircraft use would be unrestricted (except in Primitive zones), with the following provisions: Minimal clearing of rocks, downed logs, and brush would be allowed; construction or formal improvement of landing areas would occur by permit only.

Motorboat use allowed without specific authorization consistent with ANILCA Sections 1110(a) and 811 with the following reasonable regulation.

- Launching boats with motors exceeding 15 horsepower without written authorization from the AO is prohibited in the Nome Creek Valley.
- Airboats, hovercraft, and personal watercraft would be prohibited in the White Mountains Special Recreation Management Area.

Travel Management Prescriptions for the Primitive Zone

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed, except in research natural areas which are closed to OHV use.

Aircraft landings would be allowed within the RNAs and the White Mountain Spine Area, with the following provisions: No clearing of vegetation would be allowed without a permit from the Authorized Officer.

A permit or approved Plan of Operations would be required for all summer OHV use.

In areas with a Closed OHV designation (Research Natural Areas) subject to reasonable regulations, a free permit may be issued for access via snowmobiles for traditional activities and for travel to and from villages and homesites (ANILCA Sec. 1110). Similarly, federally Qualified Subsistence Users, subject to reasonable regulations and with a free permit, can use snowmobiles or other means of surface transportation traditionally employed for subsistence purposes (ANILCA Sec. 811) in areas with use limitations for casual users. Free permits may be obtained in person, by mail, and by phone from the BLM Fairbanks District Office and other appropriate locations.

RATIONALE: The federal government established a system of Research Natural Areas (RNAs) in 1927. RNAs are tracts of federal land and water established and managed for the primary purpose of research and education (43 CFR 8223.0-1). RNAs were selected to contain examples of significant natural ecosystems, areas suitable for ecological study, and rare species of plants and animals. Federal and state agencies have cooperated in Alaska since 1973 in selecting, documenting, and describing RNAs.

Four RNAs were designated in the planning area in 1986 (BLM 1986a and 1986b). The RNAs were designated to provide areas where natural ecosystems and processes are undisturbed so that they can be studied and understood, and to provide an undisturbed area for comparison with other areas so that effects of management and use can be assessed. The principle of maintaining reference conditions for scientific comparison is basic to the purposes of the system of RNAs.

Motorized vehicle access in the RNAs, including snowmobile use in winter, has the potential to damage vegetation, geologic structures, and soils. Any such disturbance has the potential to reduce the value of the area for future research by altering natural conditions. Although specific natural features were identified prior to designation and in reports for each RNA, other features could be equally valuable in future research. In other words, it is not possible now to identify what resources will be most valuable later for scientific study.

Although snow cover and frozen ground is considered adequate to protect vegetation and soils from snowmobiles in most areas, effects on vegetation do often occur from such use. Shrubs and small trees near or above the snow surface can be damaged and broken. The spinning of a snowmobile track can quickly remove considerable snow cover, especially high-power machines with paddle tracks. On steep slopes (typical in many of the RNAs), high snow depths may be required to avoid impacting low vegetation and ground cover. Repeated travel on trails can pack snowcover, decreasing insulation value of the snow, and in some places cause subsurface water flow to occur on the surface and "glaciering" to occur. The later melt of this ice in spring can impact vegetation growth and change vegetation type.

Title VIII of ANILCA protects access to public lands by subsistence users via motorboat, snowmobile, and other means of surface transportation traditionally employed by local residents and subject to reasonable regulations. Title XI of ANILCA allows for use of snowmobiles, motorboats, and airplanes for traditional activities and travel to and from villages and homesites within WSRs, the Steese National Conservation Area and the White Mountains NRA, subject to reasonable regulation.

Travel Management Prescriptions for the Semi-Primitive RMZ

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

Travel Management Prescriptions for the Backcountry RMZ

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

Travel Management Prescriptions for the Middlecountry RMZ

Same as Management Common to All Lands, with the following additions:

ATVs 50" width and less, and 1,000 pounds curb weight and less would be allowed on designated trail only (May 1 through October 14 except for Wickersham Creek Trail). Wickersham Creek Trail from Mile 28 Elliott Highway to its intersection with 23.5 mile trail is open to the summer use of ATVs from June 1 through October 14. Summer use is delayed to protect costly improvements to trail tread from rutting and erosion, and allow the ground to thaw. The use of motorized travel, except snowmobiles, ends October 14, unless posted otherwise, so as not to impact winter trail grooming activities. User-created routes and travel off of designated trails would not be allowed. Designated trails include (Map 53):

1. Wickersham Creek Trail from Mile 28 Elliott Highway to the intersection with Trail Creek Trail.
2. Trail Creek Trail from the intersection with Wickersham Creek Trail to Lee's Cabin.
3. Mile 23.5 Elliott Highway to the intersection with Wickersham Creek Trail.
4. Trail Creek Trail from Lee's Cabin to Beaver Creek WSR Corridor.
5. McKay Creek Trail from the White Mountains NRA boundary to Beaver Creek WSR Corridor.
6. Lower Nome Creek Trail from McKay Creek Trail intersection to Nome Creek Road.
7. Bear Creek Trail from Nome Creek Road to Richards Cabin, Richards cabin NE along Bear Creek.
8. Sled Dog Rocks Trail from Richards Cabin to Sled Dog Rocks.
9. Quartz Creek Trail from Nome Creek Road to Quartz Creek.
10. Champion Ridge Trail from Quartz Creek Trail west 3 miles.
11. Moose Creek Ridge Trail from Nome Creek Road to top of Ridge, then east along ridge to Quartz Creek Trail and west along ridge to Moose Creek.
12. White Mountains NRA Boundary Trail from McKay Creek Trail west along boundary 11 miles.
13. Globe Peak Trail from Globe Peak to intersection with Big Bend Trail.
14. Big Bend Trail from Colorado Creek Cabin to Beaver Creek WSR Corridor.
15. Colorado Creek Trail from Colorado Creek cabin, west to White Mountains NRA boundary.
16. Ridge Trail from Colorado Creek Trail to VABM Beaver.
17. Portion of Haystack Mountain access on BLM-managed lands.
18. Little Champion Creek extension.

Additional trails could be added as they are identified or designed and constructed by BLM in a sustainable fashion.

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

Travel Management Prescriptions for the Nome Creek Frontcountry RMZ

Same as Management Common to All Lands, with the following additions:

The Table Top Mountain Trail, Two-Step Louis Trail, and Fishing Trail inside the Cripple Creek Campground are limited to non-motorized use only.

ATVs 50" width and less, and 1,000 pounds curb weight and less are allowed on designated trails only (May 1 through October 14). User-created routes and travel off of designated trails would not be allowed. Designated trails include (Map 53):

1. Moose Creek Ridge Trail from Nome Creek Road to top of Ridge, then east along ridge to Quartz Creek Trail and west along ridge to Moose Creek.
2. Bear Creek Trail from Nome Creek Road to Richards Cabin.
3. Quartz Creek Trail.
4. Lower Nome Creek Trail.

Additional designated trails could be added to the trail network as they are designed and constructed by BLM in a sustainable fashion.

The management intent for the Nome Creek tailings area would be to continue to allow access and recreation opportunities within the disturbed, gravel area. The tailings area would be classified as a Limited Area Designation. The use of licensed, highway vehicles (including, but not limited to trucks and motorhomes) and OHVs weighing 1,500 pounds curb weight and less, and 64" width and less would be allowed. Travel off of the disturbed rock tailings by motorized means would not be allowed. Travel by motorized vehicle up or down Nome Creek or its tributaries would not be allowed. Motorized users may cross Nome Creek or its tributaries at right angles only.

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

Launching of boats in the Nome Creek Valley would be restricted to 15 horsepower or less.

Travel Management Prescriptions for the Wickersham Dome-Fred Blixt Frontcountry RMZ

Same as Management Common to All Lands, with the following additions:

The Ski Loop and Summit trails are limited to non-motorized use only.

ATVs 50" width and less, and 1,000 pounds curb weight and less would be allowed on designated trails only (May 1 through October 14 except for Wickersham Creek Trail). Wickersham Creek Trail from Mile 28 Elliott Highway to its intersection with 23.5 mile trail is open to the summer use of ATVs from June 1 through October 14. Summer use is delayed to protect costly improvements to trail tread from rutting and erosion, and to allow the ground to thaw. The use of

motorized travel, except snowmobiles, ends October 14, unless posted otherwise, so as not to impact winter trail grooming activities. User-created routes and travel off of designated trails would not be allowed. Designated trails include (Map 53):

1. Wickersham Creek Trail from Mile 28 Elliott Highway to the intersection of Trail Creek Trail.
2. Trail Creek Trail from the intersection of Wickersham Creek Trail to Lee's Cabin.
3. Mile 23.5 Elliott Highway to intersection with Wickersham Creek Trail.

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

RATIONALE: Limiting the use of OHVs by weight, seasonal closure, and/or to designated routes are nationally accepted methods for protecting resources from damage by OHV use. The White Mountains NRA is a fragile landscape with seasonally frozen ground and permafrost making summer use of OHVs difficult. Traveling on ice-rich permafrost areas causes thawing, ground degradation, and vegetation damage. Limiting the use of OHVs by weight, seasonal closure, or to designated routes, would help maintain the appropriate recreational setting, help protect the trails from excessive erosion and rutting, and protect the investment the BLM has made to improve the trails.

The Wild and Scenic Rivers Act states that rivers classified as “wild” are generally inaccessible except by trail, and are to represent vestiges of primitive America (Wild and Scenic Rivers Act, Section 2). Beaver Creek WSR has been managed for its wild, natural character as a remote, float-boating experience, focused on a non-motorized recreation experience for the past 30 years since its designation and classification as a “wild” river. Beaver Creek has outstanding remarkable scenic, recreational, geologic, fish and fish habitat, and wildlife values. Prohibiting the use of hovercraft, airboats, and personal watercraft would protect and enhance these outstandingly remarkable values. Additionally it would reduce disturbance of sensitive wildlife species such as nesting peregrine falcons and Dall sheep.

Airboats, hovercraft and personal watercraft generate noise levels which are disruptive to some recreationists and would diminish the Semi-Primitive experience managed for and expected by those recreationists on a “wild” river. These types of use are not considered compatible with the values for which the “wild” river is to be managed.

Nome Creek is generally too narrow for two-way traffic. Allowing boats capable of traveling upstream on Nome Creek may pose a safety risk for float-boaters that mainly travel downstream.

Travel Management Prescriptions for the Other BLM lands

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 curb weight and less would be allowed.

Summer use (May 1 through October 14) of OHVs weighing 1,500 pounds curb weight and less (cross-country travel allowed except where this use may interfere with active mining operations).

A permit or approved Plan of Operations would be required for all other OHV uses.

2.10.2.1.2.7. Withdrawals

DECISIONS:

In addition to the decisions listed in section 2.6.3.8 Withdrawals, the following decisions would apply to Alternative B.

The one-million-acre White Mountains NRA would remain closed to locatable mineral entry under ANILCA.

Approximately 12,800 acres would be closed to locatable mineral entry, including metalliferous minerals, at Wickersham Dome (FM., T. 4N., R. 2W., that portion of the township north and east of the Elliott Highway), for the purposes of maintaining the recreation setting prescriptions and facilities.

Recommend retention of PLO 4176, Recreation site withdrawal (505 acres). The withdrawn lands are located at Perhaps Creek, U.S. Creek, and Cripple Creek, all of which are within FM., T.5N., R.5E.

Land tenure Zone 3 lands (Appendix G, *Land Tenure*) will be recommended closed to mineral leasing and location to prevent encumbrance. As needed, recommend modification of public land orders to allow for disposal of these parcels while keeping them closed to mineral entry and mineral leasing.

2.10.2.1.3. Special Designations

2.10.2.1.3.1. Areas of Critical Environmental Concern

DECISIONS:

Under Alternative B, approximately 576,000 acres would be designated as the White Mountains ACEC (Map 64) to protect relevant and important values including caribou calving and postcalving habitat for the White Mountains caribou herd and Dall Sheep habitat.

Ungulate mineral licks: Within a distance of one mile of designated ungulate mineral licks, limit all permitted uses and development of facilities for permitted uses, from May 10 through August 31 to activities which would not reduce sheep use of licks.

Allowed uses would be managed to maintain caribou and Dall sheep habitat. The area is and would remain generally free of summer motorized vehicle use (May 1 through October 14 sheep habitat; May 10 through July 15 remainder), i.e., summer motorized vehicle use, in the few areas of the ACEC where allowed, would be restricted to a limited set of trails. In locations where summer motorized use is currently allowed and vehicle trails are currently established, motorized vehicle use would be limited to select designated trails. Where the ACEC overlays Middlecountry RMZs (and OHV trail construction and other development may be planned), manage the area to maintain its value as caribou and Dall sheep habitat as well as to meet the objectives for that RMZ. Designated trails and other developments may be established in this Zone if limited in density and compatible with caribou and Dall sheep habitat.

Winter motorized use in Dall sheep habitat is currently minimal, but would be monitored and, if use begins to approach a level which may result in altered distribution of Dall sheep, such use

may be restricted in the future (through alteration of maintained trails or, if necessary, limited closures, e.g., limited areas and/or time periods).

SUMMARY OF MANAGEMENT IN THE ACEC

The following is a summary of other management decisions that would apply within the ACEC under Alternative B.

The ACEC would remain closed to locatable mineral entry and mineral leasing. Most of the ACEC would be closed to salable minerals. The portion of the ACEC in the Middlecountry RMZ would be open to salable minerals (Map 53). The ACEC would be retained in federal land status and would be a ROW avoidance area. Land use permits and leases would be considered, subject to constraints for ungulate mineral licks. Standard Operating Procedures (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would apply to activities requiring a permit from the BLM.

The ACEC includes Primitive, Semi-Primitive, Backcountry, and Middlecountry Recreation Management Zones (RMZs). The OHV designation is Closed in the RNAs and Limited in all other areas. No motorized OHV use is allowed in the RNAs except by permit. Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed in all areas except RNAs. Summer use of OHVs would not be allowed in the Primitive, Semi-Primitive and Backcountry Zones except by permit. In the Middlecountry RMZ, ATVs 50" and less, and 1,000 pounds curb weight and less would be allowed on designated trails only. A full description of the OHV limitations can be found in section 2.10.2.1.2.6 Travel Management and in Appendix B, *Travel Management Plan: White Mountains*.

2.10.2.1.3.2. Research Natural Areas

DECISIONS:

The three existing RNA designations would be maintained: the Limestone Jags (5,170 acres), Serpentine Slide (4,270 acres), and Mount Prindle (3,150 acres).

Management of RNAs would generally be the same as Alternative A. The RNAs would be managed to maintain a Primitive recreation setting. No surface-disturbing activities allowed except BLM-authorized research projects. The RNAs would remain closed to mineral entry and mineral leasing. Additional management direction for these areas can be found in Table H.60, "Alternative B, Research Natural Areas and White Mountains Spine, Recreation Management Zone 1".

2.10.2.1.3.3. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

The outstandingly remarkable values for Beaver Creek WSR are scenic, recreation, geologic, fisheries, and wildlife as described in Section E.2.2, "Outstanding Remarkable Values for Beaver Creek".

Under Alternative B, Fossil Creek would be recommended as suitable for designation under the Wild and Scenic Rivers Act according to its eligibility class.

River Name	Classification	Outstandingly Remarkable Values	Miles
Fossil Creek	"scenic"	scenic and geologic	23

RATIONALE: Fossil Creek is free-flowing and possesses outstandingly remarkable values as described in Section E.1.1, "Determining Eligibility". All eligible rivers are recommended suitable in one alternative for the purpose of analyzing the impacts of designation.

2.10.2.2. Alternative C: White Mountains Subunit

2.10.2.2.1. Resources

2.10.2.2.1.1. Cave and Karst Resources

DECISIONS: Same as Alternative B with the following addition.

Management objective: If needed to prevent resource damage, develop hiking trails that allow for recreational use while preserving scientific integrity of cave and karst resources.

2.10.2.2.1.2. Cultural Resources

DECISIONS:

Same as Alternative B.

2.10.2.2.1.3. Fish and Aquatic Species

DECISION:

In addition to the decisions Common To All Subunits listed in section 2.6.2.3, Fish and Aquatic Species, the following decisions would apply under Alternative C:

The following watersheds would be managed as RCAs (Map 9).

1. Beaver Creek (HUC # 190404022104)
2. Beaver Creek (HUC # 190404022109)
3. Beaver Creek (HUC # 190404022208)
4. Deadwood Creek-Victoria Creek (HUC # 190404022304)
5. Headwaters Victoria Creek (HUC # 190404022301)
6. Montana Creek-South Beaver Creek (HUC # 190404022206)
7. Ophir Creek (HUC # 190404022003)
8. Outlet Victoria Creek (HUC # 190404022305)
9. South Beaver Creek (HUC # 190404022202)
10. South Beaver Creek (HUC # 190404022207)
11. Victoria Mountain-Beaver Creek (HUC # 190404022406)
12. Victoria Creek (HUC # 190404022303)
13. Yellow Creek- Beaver Creek (HUC # 190404022408)

The Sumner Creek-Nome Creek watershed (HUC# 190404022004) would be a High Priority Restoration Watershed and emphasized for active restoration.

Complete watershed assessments Section I.5, "Watershed Assessment Process"as necessary for management.

2.10.2.2.1.4. Visual Resources

Proposed VRM classes for Alternative C are displayed on Map 21. Recreation Management Zones (RMZs) are displayed on Map 54. Areas where wilderness characteristics would be maintained are displayed on Map 75.

DECISIONS:

The Beaver Creek WSR/RMZ (RSC Class of Semi-Primitive) would be managed as VRM Class I. The Serpentine Slide, Mount Prindle RNA, Limestone Jags RNA, and White Mountains Spine Area (RSC Class of Primitive) would be managed as VRM Class I. Management of VRM Class I is to preserve the existing characteristics of the landscape, but allows for limited management activities where changes should be very low and must not attract attention of the casual observer.

The White Mountains Highlands RMZ (RSC Class of Semi-Primitive), and that portion of the Cache Mountain RMZ (RSC Class of Backcountry) where wilderness characteristics would be maintained, would be managed as VRM Class II. Developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

The remainder of the Cache Mountain RMZ (RSC Class of Backcountry) would be managed as VRM Class III. Developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with moderate changes to landform and vegetation and may attract the attention of the casual observer.

The White Mountains Foothills RMZ (RSC Class of Middlecountry), and Nome Creek and Wickersham Dome-Blixt RMZs (RSC Class of Frontcountry) would be managed as VRM Class IV. In VRM Class IV areas, management actions would be taken to protect the Wild and Scenic River view shed and adjacent VRM Classes. Development activities would be designed to harmonize with the visually dominating elements of the surrounding landscape characteristics of line, form, color and texture but major modification of the natural landscape would be allowed.

Areas to be managed for wilderness characteristics associated with Beaver Creek RMZ, Serpentine Slide, Mount Prindle and Limestone Jags RNAs and White Mountains Spine Area would be managed as VRM Class I while those associated with the White Mountains Highlands and Cache Mountain RMZs would be managed as VRM Class II.

All remaining BLM-managed lands would be assigned a VRM Class IV.

2.10.2.2.1.5. Wildlife

DECISIONS:

Same as Alternative B except:

Casual use of domestic sheep, goats, and camelids (including alpaca & llama), would not be prohibited in Dall sheep habitat.

No ACEC would be designated. Instead a smaller area of 417,000 acres would be identified as the White Mountains Wildlife Conservation Area (Map 65) to protect caribou calving and postcalving habitat for the White Mountains caribou herd and Dall sheep habitat. The following management will apply to this area: Within a distance of one mile of designated ungulate mineral licks, limit all permitted uses and development of facilities for permitted uses, from May 10 through August 31 to activities which would not reduce sheep use of licks.

Allowed uses would be managed to maintain caribou and Dall sheep habitat. The area is and would remain generally free of summer motorized vehicle use (May 1 through October 14 sheep habitat; May 10 through July 15 remainder).

Winter motorized use in Dall sheep habitat is currently minimal, but would be monitored and, if use begins to approach a level which may result in altered distribution of Dall sheep, such use may be restricted in the future (through alteration of maintained trails or, if necessary, limited closures (limited areas and/or time periods).

2.10.2.2.1.6. Wilderness Characteristics

OBJECTIVE:

Allow for multiple use while maintaining naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 312,000 acres so that these lands retain their wilderness characteristics for the life of the RMP.

DECISION:

Consistent with allocation decisions in the RMP, allow other multiple-uses on lands where wilderness characteristics would be maintained, while applying management restrictions (such as conditions of use or mitigation measures) to avoid or minimize impacts to wilderness characteristics and meet the objective retaining wilderness characteristics over the life of the RMP.

Wilderness characteristics would be maintained on 312,000 acres (31 percent of the lands with wilderness characteristics in this subunit). These lands occur within the Primitive, Semi-Primitive, and portions of the Cache Mountain Backcountry Recreation Management Zones (Map 75).

RATIONALE: Wilderness characteristics would be maintained because of the status of the area as national recreation area and decisions in this alternative to protect caribou and Dall sheep habitats, close the lands to mineral leasing, manage for Primitive, Semi-Primitive, and Backcountry recreation settings, and set OHV designations. Management for primitive, semi-primitive, and backcountry recreational opportunities would be consistent with maintaining wilderness characteristics. Additionally, BLM-authorized uses would be further analyzed through the NEPA process for impacts to size, naturalness, primitive recreation, and solitude, and stipulated mitigation measures would be applied where needed to minimize impacts.

More than 31 percent of the lands in the White Mountains NRA would likely retain its wilderness characteristics over the life of the plan because of its designation as a national recreation area, ANILCA withdrawal of the entire area from mining, and low probability of major rights-of-way or other large surface disturbing activities.

2.10.2.2.2. Resource Uses

2.10.2.2.2.1. Forest and Woodland Products

In addition to the decisions listed as Common To All Subunits in section 2.6.3.1, the following decisions would apply under Alternative C:

DECISIONS:

Personal use of timber would be allowed on all lands except within the Beaver Creek WSR Corridor and the RNAs.

Commercial timber salvage sales would be allowed on all lands.

Commercial timber sales (large and small) would be allowed on all lands except within the Beaver Creek WSR Corridor and the RNAs.

Commercial use of forest products would be allowed on all lands except within the RNAs.

2.10.2.2.2.2. Land Tenure

Same as Alternative B.

2.10.2.2.2.3. Land Use Authorizations

DECISIONS:

Same as Alternative B, except no new transportation corridors or right-of-way avoidance areas would be designated.

2.10.2.2.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals. In addition to the decisions listed as Common To All Subunits in section 2.6.3.5, the decisions in the following mineral sections would apply under Alternative C.

2.10.2.2.2.4.1. Fluid Leasable Minerals

DECISIONS:

Same as Alternative B.

The subunit, approximately 1,020,000 acres would be closed to fluid leasable minerals (Map 35).

2.10.2.2.2.4.2. Solid Leasable Minerals

DECISIONS:

The same areas closed to fluid leasable minerals under this alternative, would also be closed to solid leasable minerals (Map 35).

2.10.2.2.2.4.3. Locatable Minerals

DECISIONS:

Same as Alternative B, the entire subunit 1,020,000 acres would be closed to locatable mineral entry (Map 34).

2.10.2.2.2.4.4. Salable Minerals

DECISIONS:

Under Alternative C, The Beaver Creek WSR Corridor (69,000 acres) would be closed to salable minerals.

All remaining lands, 951,000 acres would be open to salable minerals.

2.10.2.2.2.5. Recreation

DECISIONS:

Same as Alternative B, the White Mountains SRMA would include 1,016,000 acres of lands including Beaver Creek WSR Corridor, the White Mountains NRA, and associated lands (Map 54). Under Alternative C, the White Mountains SRMA would include 7 Recreation Management Zones (RMZs), the management of which are described more fully in Section H.3.2, "White Mountains Alternative C"Appendix H.3.2.

Table 2.22. White Mountain Recreation Management Zones, RSC Settings and OHV Designations, Alternative C

Name	Acres	RSC Setting[a] [b]	OHV designation
Research Natural Areas	13,000	Primitive	CLOSED
White Mountains Spine Area	14,000	Primitive	LIMITED
White Mountain Highlands	102,000	Semi-Primitive	LIMITED
Beaver Creek Corridor	69,000	Semi-Primitive	LIMITED
Cache Mountain	382,000	Backcountry	LIMITED
White Mountain Foothills	397,000	Middlecountry	LIMITED
Nome Creek	31,000	Frontcountry	LIMITED
Wickersham Dome/Blixt Cabin	8,000	Frontcountry	LIMITED
Other BLM lands	4,000	N/A	LIMITED

[a]Table 2.5

[b]RSC are descriptive conditions describing management parameters at the implementation level. These are not land use planning decisions

2.10.2.2.2.6. Travel Management

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative C.

DECISIONS:

Under Alternative C, the entire White Mountains Subunit would be delineated as a Travel Management Area. For lands within the SRMA, specific Travel Management Zones (TMZs) have

also been delineated and are the same polygons used for RMZ delineations and subsequent RSC settings for this alternative. Each TMZ also contains a specific OHV designation of Open, Limited, or Closed (Table 2.22).

A comprehensive travel management network has been defined for the White Mountains Subunit. This is described fully in Appendix B, *Travel Management Plan: White Mountains*. Decisions from the travel management plan are summarized below.

The primary differences between Alternative C and Alternative B are in location and size of the Recreation Management Zones, some allowance of off-trail travel for game retrieval, and some allowance for use of UTVs. Snowmobiles are defined as 50 inches or less in width, and 1,000 pounds curb weight or less. ATVs are defined as 50 inches or less in width, and 1,000 pounds curb weight or less. UTVs are defined as 64 inches or less in width and 1,500 pounds curb weight or less.

Travel Management Prescriptions Common to All Lands

The BLM may continue to issue temporary emergency closures based on a determination of considerable adverse effects pursuant to 43 CFR 8341.2, special rules. This includes considerable adverse impacts to soil, vegetation, wildlife habitat, or cultural resources. The agency can maintain this closure until the effects are mitigated and measures are implemented to prevent future recurrence.

All forms of non-motorized uses would allowed, including the use of horses and mountain bikes. Cross-country travel by non-motorized means would be allowed.

The following trails would be limited to non-motorized uses: Ski Loop Trail, Table Top Trail, Summit Trail, Two-Step Louis Trail, and Fishing Trail inside Cripple Creek Campground.

Camping and/or campfires would be prohibited within 25 feet of BLM-maintained trails within the White Mountains NRA.

Trapping and placement of bait and wildlife lures (scents) for the purpose of trapping fur bearers would be prohibited within 25 feet of the cleared edge of BLM-maintained trails. Trapping includes but is not limited to the use of marten pole sets, snares, conibear, or leg hold traps. These restrictions would not apply to sections of trail on land managed by the State of Alaska where the BLM maintains access to the White Mountains NRA.

Aircraft use would be unrestricted (except in Primitive RMZ), with the following provisions: Minimal clearing of rocks, downed logs, and brush would be allowed; construction or formal improvement of landing areas would occur by permit only; Use of gravel bars and winter snow areas would be allowed.

Motorboat use allowed without specific authorization consistent with ANILCA sections 1110(a) and 811 with the following reasonable regulation.

- Launching boats with motors exceeding 15 horsepower without written authorization from the AO is prohibited in the Nome Creek Valley.
- Airboats, hovercraft, and personal watercraft would be prohibited in the White Mountains Special Recreation Management Area.

Travel Management Prescriptions for the Primitive RMZ

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed except within the research natural areas which are closed to OHV use.

A permit or approved Plan of Operations would be required for all summer OHV use.

Aircraft landings would be allowed within the RNAs and the White Mountain Spine Area, with the following provisions: No clearing of vegetation would be allowed without a permit from the Authorized Officer.

In areas with a Closed OHV designation (Research Natural Areas) subject to reasonable regulations, a free permit may be issued for access via snowmobiles for traditional activities and for travel to and from villages and homesites (ANILCA Sec. 1110). Similarly, federally Qualified Subsistence Users, subject to reasonable regulations and with a free permit, can use snowmobiles or other means of surface transportation traditionally employed for subsistence purposes (ANILCA Sec. 811) in areas with use limitations for casual users. Free permits may be obtained in person, by mail, and by phone from the BLM Fairbanks District Office and other appropriate locations.

RATIONALE: The federal government established a system of Research Natural Areas (RNAs) in 1927. RNAs are tracts of federal land and water established and managed for the primary purpose of research and education (43 CFR 8223.0-1). RNAs were selected to contain examples of significant natural ecosystems, areas suitable for ecological study, and rare species of plants and animals. Federal and state agencies have cooperated in Alaska since 1973 in selecting, documenting, and describing RNAs.

Four RNAs were designated in the planning area in 1986 (BLM 1986a and 1986b). The RNAs were designated to provide areas where natural ecosystems and processes are undisturbed so that they can be studied and understood, and to provide an undisturbed area for comparison with other areas so that effects of management and use can be assessed. The principle of maintaining reference conditions for scientific comparison is basic to the purposes of the system of RNAs.

Motorized vehicle access in the RNAs, including snowmobile use in winter, has the potential to damage vegetation, geologic structures, and soils. Any such disturbance has the potential to reduce the value of the area for future research by altering natural conditions. Although specific natural features were identified prior to designation and in reports for each RNA, other features could be equally valuable in future research. In other words, it is not possible now to identify what resources will be most valuable later for scientific study.

Although snow cover and frozen ground is considered adequate to protect vegetation and soils from snowmobiles in most areas, effects on vegetation do often occur from such use. Shrubs and small trees near or above the snow surface can be damaged and broken. The spinning of a snowmobile track can quickly remove considerable snow cover, especially high-power machines with paddle tracks. On steep slopes (typical in many of the RNAs), high snow depths may be required to avoid impacting low vegetation and ground cover. Repeated travel on trails can pack snowcover, decreasing insulation value of the snow, and in some places cause subsurface water flow to occur on the surface and "glaciering" to occur. The later melt of this ice in spring can impact vegetation growth and change vegetation type.

Title VIII of ANILCA protects access to public lands by subsistence users via motorboat, snowmobile, and other means of surface transportation traditionally employed by local residents and subject to reasonable regulations. Title XI of ANILCA allows for use of snowmobiles, motorboats, and airplanes for traditional activities and travel to and from villages and homesites within WSRs, the Steese National Conservation Area and the White Mountains NRA, subject to reasonable regulation.

Travel Management Prescriptions for the Semi-Primitive RMZ

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

Travel Management Prescriptions for the Backcountry RMZ

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

Travel Management Prescriptions for the Middlecountry RMZ

Same as Management Common to All Lands, with the following additions:

ATVs 50" width and less, and 1,000 pounds curb weight and less, would be allowed on designated trail only (May 1 through October 14 except for Wickersham Creek Trail). Wickersham Creek Trail from Mile 28 Elliott Highway to its intersection with 23.5 mile trail is open to the summer use of ATVs from June 1 through October 14. Summer use is delayed to protect costly improvements to trail tread from rutting and erosion, and allow the ground to thaw. The use of motorized travel, except snowmobiles, ends October 14, unless posted otherwise, so as not to impact winter trail grooming activities. Travel off of designated trails would be allowed only to retrieve legally harvested game within the Middlecountry RMZ. Designated motorized trails include (Map 54):

1. Wickersham Creek Trail from Mile 28 Elliott Highway to the intersection with Trail Creek Trail.
2. Trail Creek Trail from the intersection with Wickersham Creek Trail to Lee's Cabin.
3. Mile 23.5 Elliott Highway to intersection with Wickersham Trail.
4. Trail Creek Trail from Lee's Cabin to Beaver Creek WSR Corridor boundary.
5. McKay Creek Trail from the White Mountains NRA boundary to Beaver Creek WSR Corridor.
6. Lower Nome Creek Trail from McKay Creek Trail intersection to Nome Creek Road.
7. Bear Creek Trail from Nome Creek Road to Richards Cabin, Richards cabin NE along Bear Creek.
8. Sled Dog Rocks Trail from Richards Cabin to Sled Dog Rocks.
9. Quartz Creek Trail from Nome Creek Road to Quartz Creek.
10. Champion Ridge Trail from Quartz Creek Trail west 3 miles.
11. Moose Creek Ridge Trail from Nome Creek Road to top of ridge, then east to Quartz Creek Trail and west along ridge to Moose Creek.

12. White Mountains NRA Boundary Trail from McKay Creek Trail west along boundary 11 miles.
13. Globe Peak Trail from Globe Peak to intersection with Big Bend Trail.
14. Big Bend Trail from Globe Peak west along ridge top, south to Beaver Creek WSR Corridor and north to Colorado Creek Cabin.
15. Colorado Creek Trail from Colorado Creek cabin, west to White Mountains NRA boundary.
16. Ridge Trail from Colorado Creek Trail to VABM Beaver.
17. Portion of Haystack Mountain access on BLM-managed lands.
18. Little Champion Creek extension.

UTVs 64" width and less, and 1,500 pounds curb weight or less, would be allowed on designated trails only. Designated trails for UTVs include:

1. Quartz Creek Trail from Nome Creek Road to Quartz Creek.
2. Wickersham Creek Trail from Mile 28 Elliott Highway to the intersection with Trail Creek Trail.
3. Trail Creek Trail from the intersection with Wickersham Creek Trail to Lee's Cabin.
4. Mile 23.5 Elliott Highway to Wickersham Creek Trail.

Additional designated trails could be added in the future, once a trail is improved and sustainable for this use. No game retrieval by UTVs would be allowed off of the designated trail.

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

Travel Management Prescriptions for the Nome Creek Frontcountry RMZ

Same as Management Common to All Lands, with the following additions:

The Table Top Mountain Trail, Two-Step Louis Trail and Fishing Trail, inside the Cripple Creek Campground, are limited to non-motorized use only.

ATVs 50" width and less, and 1,000 pounds curb weight and less would be allowed on designated trails only (May 1 through October 14). Travel off of designated trails would be allowed only to retrieve legally harvested game within the Frontcountry RMZ. Designated trails include (Map 54):

1. Moose Creek Ridge Trail from Nome Creek Road to top of ridge, then east to Quartz Creek Trail and west along ridge to Moose Creek.
2. Bear Creek Trail from Nome Creek Road to Richards Cabin.
3. Quartz Creek Trail from Nome Creek Road to Quartz Creek.
4. Lower Nome Creek Trail from McKay Creek Trail intersection to Nome Creek Road.

Additional trails could be added to the designated trail system as they are identified or designed and constructed by the BLM in a sustainable fashion.

UTVs 64" width and less, and 1,500 pounds curb weight or less, would be allowed on the Quartz Creek Trail only. Additional trails may be provided in the future once a trail is improved and sustainable for this use. No game retrieval by UTVs is allowed off of the designated trail.

The intent of management for the Nome Creek tailings area is to continue to allow access and recreation opportunities within the disturbed, gravel area. The use of licensed, highway vehicles (including, but not limited to trucks and motorhomes) and OHVs weighing 1,500 pounds

curb weight and less, and 64" and less is allowed. Travel off of the disturbed rock tailings by motorized means is not allowed. The tailings area would be classified as "Limited" to such motorized uses as to not adversely affect the area. Travel by motorized vehicle up or down Nome Creek or its tributaries is not allowed. Motorized users may cross Nome Creek or its tributaries at right angles only.

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

Launching of boats in the Nome Creek Valley is restricted to 15hp or less.

Travel Management Prescriptions for the Wickersham Dome-Fred Blixt Frontcountry RMZ

Same as Management Common to All Lands, with the following additions:

ATVs 50" width and less, and 1,000 pounds curb weight and less would be allowed on designated trails only (May 1 through October 14 except for Wickersham Creek Trail). Wickersham Creek Trail from Mile 28 Elliott Highway to its intersection with 23.5 mile trail is open to the summer use of ATVs from June 1 through October 14. Summer use is delayed to protect costly improvements to trail tread from rutting and erosion, and allow the ground to thaw. The use of motorized travel, except snowmobiles, ends October 14, unless posted otherwise, so as not to impact winter trail grooming activities. Travel off of designated trails allowed only to retrieve legally harvested game. Designated trails include:

1. Wickersham Creek Trail from Mile 28 Elliott Highway to the intersection with Trail Creek Trail.
2. Trail Creek Trail from the intersection with Wickersham Creek Trail to Lee's Cabin.
3. Mile 23.5 Elliott Highway to intersection with Wickersham Creek Trail.

UTVs 64" width and less, and 1,500 pounds curb weight or less, would be allowed on designated trails only (May 1 through October 14 except for Wickersham Creek Trail, same as above). No game retrieval by UTVs is allowed off of the designated trail. Designated trails for UTVs include (Map 54):

1. Wickersham Creek Trail from Mile 28 Elliott Highway to the intersection with Trail Creek Trail.
2. Trail Creek Trail from the intersection with Wickersham Creek Trail to Lee's Cabin.
3. Mile 23.5 Elliott Highway to intersection with Wickersham Creek Trail.

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

Travel Management Prescriptions for Other BLM lands

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

Summer use (May 1 through October 14) of OHVs weighing 1,500 pounds curb weight and less (cross-country travel allowed except where this use may interfere with active mining operations).

A permit or approved Plan of Operations would be required for all other OHV uses.

RATIONALE: Limiting the use of OHVs by weight, seasonal closure, and/or to designated routes are nationally accepted methods for protecting resources from damage by OHV use. The White Mountains NRA is a fragile landscape with seasonally frozen ground and permafrost making summer use of OHVs difficult. Traveling on ice-rich permafrost areas causes thawing, ground degradation, and vegetation damage. Limiting the use of OHVs by weight, seasonal closure, or to designated routes, would help maintain the appropriate recreational setting, help protect the trails from excessive erosion and rutting, and protect the investment the BLM has made to improve the trails. Allowing for off-route travel by ATV for game retrieval would somewhat increase impacts to natural resources but would provide additional opportunity for motorized assisted hunting, consistent with recreation opportunity settings.

The Wild and Scenic Rivers Act states that rivers classified as "wild" are generally inaccessible except by trail, and are to represent vestiges of primitive America (Wild and Scenic Rivers Act, Section 2). Beaver Creek WSR has been managed for its wild, natural character as a remote, float-boating experience, focused on a non-motorized recreation experience for the past 30 years since its designation and classification as a "wild" river. Beaver Creek has outstanding remarkable scenic, recreational, geologic, fish and fish habitat, and wildlife values. Prohibiting the use of hovercraft, airboats, and personal watercraft would protect and enhance these outstandingly remarkable values. Additionally it would reduce disturbance of sensitive wildlife species such as nesting peregrine falcons and Dall sheep.

Airboats, hovercraft and personal watercraft generate noise levels which are disruptive to some recreationists and would diminish the Semi-Primitive experience managed for and expected by those recreationists on a "wild" river. These types of use are not considered compatible with the values for which the "wild" river is to be managed.

Nome Creek is generally too narrow for two-way traffic. Allowing boats capable of traveling upstream on Nome Creek may pose a safety risk for float-boaters that mainly travel downstream.

2.10.2.2.2.7. Withdrawals

DECISIONS:

Same as Alternative B.

2.10.2.2.3. Special Designations

2.10.2.2.3.1. Research Natural Areas

DECISIONS:

The three existing RNA designations would be maintained: Limestone Jags (5,170 acres), Serpentine Slide (4,270 acres), and Mount Prindle (3,150 acres). Management of RNAs would be the same as Alternative B, except that primitive camping and development of primitive hiking trails would be allowed. Natural processes, including wildfire, continue with as little interference as possible. Hiking, hunting, and natural appreciation are allowed. No surface-disturbing

activities allowed except BLM-authorized research projects and primitive hiking trails. The RNAs would remain closed to mineral entry and mineral leasing.

2.10.2.2.3.2. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

ORVs would be designated for Beaver Creek. No rivers would be recommended suitable for designation under the Wild and Scenic Rivers Act.

RATIONALE: ANILCA closed the White Mountains NRA to the location of new mining claims and in all alternatives of this EIS, the Fossil Creek area would be closed to mineral leasing and OHV use would be limited to the winter. These decisions would protect the values of Fossil Creek. There is no known public or state support for designating Fossil Creek. For these reasons, Fossil Creek has been determined to be not suitable for designation under Alternative C.

2.10.2.3. Alternative D: White Mountains Subunit

2.10.2.3.1. Resources

2.10.2.3.1.1. Cave and Karst Resources

DECISIONS:

Same as Alternative C.

2.10.2.3.1.2. Cultural Resources

DECISIONS:

Same as Alternative B.

2.10.2.3.1.3. Fish and Aquatic Species

DECISION:

In addition to the decisions listed as Common To All Subunits in section 2.6.2.3, the following decisions would apply under Alternative D:

The following watersheds would be managed as RCAs (Map 10).

1. Beaver Creek (HUC # 190404022104)
2. Beaver Creek (HUC # 190404022109)
3. Beaver Creek (HUC # 190404022208)
4. Montana Creek-South Beaver Creek (HUC # 190404022206)
5. South Beaver Creek (HUC # 190404022202)
6. South Beaver Creek (HUC # 190404022207)
7. Victoria Mountain-Beaver Creek (HUC # 190404022406)
8. Yellow Creek- Beaver Creek (HUC # 190404022408)

The Sumner Creek-Nome Creek watershed (HUC# 190404022004) would be a High Priority Restoration Watershed and emphasized for active restoration.

Complete watershed assessments Section I.5, "Watershed Assessment Process" as necessary for management.

2.10.2.3.1.4. Visual Resources

Proposed VRM classes for Alternative D are displayed on Map 22. Recreation Management Zones (RMZs) are displayed on Map 55. Areas where wilderness characteristics would be maintained are displayed on Map 76.

DECISIONS:

The Beaver Creek WSR/RMZ (RSC Class of Semi-Primitive) would be managed as VRM Class I. The Serpentine Slide, Mount Prindle, and Limestone Jags RNAs (RSC Class of Primitive) would be managed as VRM Class I. Management of VRM Class I is to preserve the existing characteristics of the landscape, but allows for limited management activities where changes should be very low and must not attract attention of the casual observer.

That portion of the Cache Mountain RMZ managed for maintenance of wilderness characteristics, (RSC Class of Backcountry) would be managed as VRM Class II. Developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

The remainder of the Cache Mountain RMZ (RSC Class of Backcountry) would be managed as VRM Class III. Developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with moderate changes to landform and vegetation and may attract the attention of the casual observer.

The White Mountains Foothills RMZ (RSC Class of Middlecountry), and Nome Creek and Wickersham Dome - Blixt RMZs (RSC Class of Frontcountry) would be managed as VRM Class IV. In VRM Class IV areas, management actions would be taken to protect the Wild and Scenic River view shed and adjacent VRM Classes. Development activities would be designed to harmonize with the visually dominating elements of the surrounding landscape but major modification of the landscape would be allowed.

Areas to be managed for wilderness characteristics associated with Beaver Creek RMZ, and Serpentine Slide, Mount Prindle and Limestone Jags RNAs would be managed as VRM Class I while those associated with the Cache Mountain RMZ would be managed as VRM Class II.

All remaining BLM-managed lands would be assigned a VRM Class IV.

2.10.2.3.1.5. Wilderness Characteristics

OBJECTIVE:

Allow for multiple use while maintaining naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 205,000 acres so that these lands retain their wilderness characteristics for the life of the RMP.

DECISIONS:

Consistent with allocation decisions in the RMP, allow other multiple-uses on lands where wilderness characteristics would be maintained, while applying management restrictions (such as conditions of use or mitigation measures) to avoid or minimize impacts to wilderness characteristics and meet the objective retaining wilderness characteristics over the life of the RMP.

Under Alternative D, wilderness characteristics would be maintained on 205,000 acres (20 percent of the lands with wilderness characteristics in this subunit). These lands occur within the Beaver Creek WSR Corridor, the northeast portion of the Cache Mountain Backcountry Recreation Management Zone, and the Research Natural Areas (Map 76).

RATIONALE: Wilderness characteristics would be maintained because of the status of the area as national recreation area and decisions in this alternative to protect caribou and Dall sheep habitats, close lands to mineral leasing, manage for Primitive, Semi-Primitive, and Backcountry recreation settings, and set OHV designations. Management for Primitive, Semi-Primitive, and Backcountry recreational opportunities would be consistent with maintaining wilderness characteristics. Additionally, BLM-authorized uses would be further analyzed through the NEPA process for impacts to size, naturalness, primitive recreation, and solitude, and stipulated mitigation measures would be applied where needed to minimize impacts.

More than 20 percent of the lands in the White Mountains NRA would likely is their wilderness characteristics over the life of the plan because of its designation as a national recreation area, ANILCA withdrawal of the entire area from mining, and limited probability of major rights-of-way or other large surface disturbing activities.

2.10.2.3.1.6. Wildlife

DECISIONS:

Alternative D is similar to Alternative C, except the Wildlife Conservation Area is smaller and ungulate mineral lick provisions apply only to the area within one-half mile of ungulate mineral licks. Under Alternative D, approximately 181,000 acres would be identified as the White Mountains Wildlife Conservation Area (Map 66) to protect caribou calving and postcalving habitat for the White Mountains caribou herd and Dall Sheep habitat.

Within a distance of one-half mile of designated ungulate mineral licks, limit all permitted uses and development of facilities for permitted uses from May 10 through August 31 to activities which will not reduce sheep use of licks. Allowed uses would be managed to maintain caribou and Dall sheep habitat.

The area is and would remain generally free of summer motorized vehicle use (May 1 through October 14 sheep habitat; May 10 through July 15 remainder). Winter motorized use in Dall sheep habitat is currently minimal, but would be monitored and, if use begins to approach a level which may result in altered distribution of Dall sheep, such use may be restricted in the future (through alteration of maintained trails or, if necessary, limited closures (limited areas and/or time periods).

2.10.2.3.2. Resource Uses

2.10.2.3.2.1. Forest and Woodland Products

In addition to the decisions listed as Common To All Subunits in section 2.6.3.1, the following decisions would apply under Alternative D:

DECISIONS:

Same as Alternative C, except personal use of timber would also be allowed in the Beaver Creek WSR Corridor and RNAs.

2.10.2.3.2.2. Land Tenure

DECISIONS:

Same as Alternative C, except the Perhaps Creek portion of PLO 4176 would not be retained. The withdrawal would be modified to make this parcel available for State selection.

2.10.2.3.2.3. Land Use Authorizations

DECISIONS:

Same as Alternative C.

2.10.2.3.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals. In addition to the decisions listed as Common To All Subunits in section 2.6.3.5, the decisions in the following mineral sections would apply under Alternative D.

2.10.2.3.2.4.1. Fluid Leasable Minerals

DECISIONS:

Approximately 451,000 acres in the Foothills Middlecountry RMZ would be open to fluid mineral leasing, subject to minor constraints.

The remainder of the subunit, 569,000 acres would be closed to fluid leasable minerals (Map 37).

2.10.2.3.2.4.2. Solid Leasable Minerals

DECISION:

Approximately 451,000 acres in the Foothills Middlecountry RMZ would be open to solid mineral leasing.

The remainder of the subunit, 569,000 acres would be closed to solid mineral leasing (Map 37).

2.10.2.3.2.4.3. Locatable Minerals

DECISIONS:

The White Mountains NRA would remain withdrawn from staking of new mining claims. Locatable minerals would be available through a leasing program on a limited number of acres as described below.

2.10.2.3.2.4.4. Leasing of Hardrock Minerals

When preparing the Draft RMP/EIS, the BLM understood the provisions under the Alaska National Interest Lands Conservation Act (ANILCA) for hardrock leasing in the White Mountains NRA (implemented by 43 CFR 3585) to apply only to removal of hardrock minerals from mining claims that existed before November 16, 1978. Since there are no longer any mining claims of record within the NRA, it was thought that no one could meet the requirements to lease hardrock minerals. This interpretation was determined to be incorrect, as the BLM, through its regulations at 43 CFR part 3580, has interpreted Section 1312 of ANILCA as allowing for disposal of hardrock minerals by lease in the White Mountain NRA even in the absence of an underlying unperfected mining claim, subject to certain findings by the Secretary.

To analyze an adequate range of alternatives and obtain public comment on hardrock mineral leasing in the White Mountains NRA, the BLM issued a Supplement to the Draft RMP/EIS. The Supplement amended Alternative D to include the hardrock mineral leasing scenario. Therefore, approximately 160,000 acres in the White Mountains NRA would be recommended open for leasing of hardrock minerals (Figure 2.1 in Appendix M).

- 64,000 acres of lands with known placer deposits of gold and high development potential would be open for leasing. Competitive leases issued in Quartz Creek will contain stipulations requiring mining by suction dredging only;
- 85,000 acres of lands with known placer deposits of gold and medium development potential would be open for leasing; and,
- 11,000 acres of lands with known deposits of four rare earth elements, lanthanum (La), praseodymium (Pr), Cerium (Ce), and neodymium (Nd), would be open for leasing.

The Standard Operating Procedures (SOPs) and Leasing Stipulations in Appendix A of this document would apply to hardrock mineral leasing and exploration licenses. The BLM has the authority to include special lease stipulations for the protection of the surface, its resources and use for recreation (43 CFR 3585). The BLM would use this authority to develop additional lease stipulations as appropriate at the time of a lease sale or approval of an exploration license.

SOPs specific to the White Mountains mineral leasing program include setbacks from public use cabins and trails and additional reclamation requirements similar to those required in riparian conservation areas. These SOPs are included in section A.3 of this document.

2.10.2.3.2.4.5. Salable Minerals

DECISION:

Under Alternative D, the entire subunit, 1,020,000 acres, would be open to salable minerals.

2.10.2.3.2.5. Recreation

DECISIONS:

Special Recreation Management Areas (SRMA): The White Mountains SRMA would include approximately 1,016,000 acres including the Beaver Creek WSR Corridor and the White Mountains NRA and associated lands (Map 55). Under Alternative D, the White Mountains SRMA would include six Recreation Management Zones (RMZs), the management of which are described in Section H.3.3, "White Mountains Alternative D".

Table 2.23. White Mountain Recreation Management Zones, RSC Settings and OHV Designations, Alternative D

Name	Acres	RSC Setting[a] [b]	OHV designation
Research Natural Areas	13,000	Primitive	CLOSED
White Mountain Highlands	N/A	N/A part of RMZ 4	N/A part of RMZ 4
Beaver Creek Corridor	69,000	Semi-Primitive	LIMITED
Cache Mountain	444,000	Backcountry	LIMITED
White Mountain Foothills	451,000	Middlecountry	LIMITED
Nome Creek	31,000	Frontcountry	LIMITED
Wickersham Dome/Blixt Cabin	8,000	Frontcountry	LIMITED
Other BLM lands	4,000	N/A	LIMITED

[a]Table 2.5

[b]RSC are descriptive conditions describing management parameters at the implementation level. These are not land use planning decisions

2.10.2.3.2.6. Travel Management

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative D.

DECISIONS:

Under Alternative D, the entire White Mountains Subunit would be delineated as a Travel Management Area. For lands within the SRMA, specific Travel Management Zones (TMZs) have also been delineated and are the same polygons used for RMZ delineations and subsequent RSC settings for this alternative. Each TMZ also contains a specific OHV designation of Open, Limited, or Closed (Table 2.23, "White Mountain Recreation Management Zones, RSC Settings and OHV Designations, Alternative D").

A comprehensive travel management network has been defined for the White Mountains Subunit (Appendix B, *Travel Management Plan: White Mountains*). Decisions from the travel management plan are summarized below.

The primary differences between Alternatives C and D are the location and size of the RMZs, that cross-country use of all-terrain vehicles (ATVs) would be allowed in some areas, and some additional allowance for use of utility terrain vehicles (UTVs) as described below. Snowmobiles are defined as 50 inches or less in width, and 1,000 pounds curb weight or less. ATVs are defined as 50 inches or less in width, and 1,000 pounds curb weight or less. UTVs are defined as 64 inches or less in width and 1,500 pounds curb weight or less.

Travel Management Prescriptions Common to All Lands

Within all zones, the BLM may continue to issue temporary emergency closures based on a determination of considerable adverse effects pursuant to CFR 8341.2, special rules. This includes considerable adverse impacts to soil, vegetation, wildlife habitat, or cultural resources. The agency can maintain this closure until the effects are mitigated and measures are implemented to prevent future recurrence.

All forms of non-motorized uses would be allowed, including the use of horses and mountain bikes. Cross-country travel by non-motorized means would be allowed.

The following trails would be limited to non-motorized uses: Ski Loop Trail, Table Top Trail, Summit Trail, Two-Step Louis Trail, and Fishing Trail inside Cripple Creek Campground.

Camping and/or campfires would be prohibited within 25 feet of BLM-maintained trails within the White Mountains NRA.

Trapping and placement of bait and wildlife lures (scents) for the purpose of trapping fur bearers would be prohibited within 25 feet of the cleared edge of BLM-maintained trails. Trapping includes but is not limited to the use of marten pole sets, snares, conibear, or leg hold traps. These restrictions would not apply to sections of trail on land managed by the State of Alaska where the BLM maintains access to the White Mountains NRA.

Aircraft use would be unrestricted (except in Primitive RMZ), with the following provisions: Minimal clearing of rocks, downed logs, and brush would be allowed; construction or formal improvement of landing areas would occur by permit only; Use of gravel bars and winter snow areas would be allowed.

Motorboat use allowed without specific authorization consistent with ANILCA sections 1110(a) and 811 with the following reasonable regulation.

- Launching boats with motors exceeding 15 horsepower without written authorization from the AO is prohibited in the Nome Creek Valley.
- Airboats, hovercraft, and personal watercraft would be prohibited in the White Mountains Special Recreation Management Area.

Travel Management Prescriptions for the Primitive RMZ

Same as Management Common to All Lands, with the following additions:

Aircraft landings would be allowed within the RNAs, with the following provisions: No clearing of vegetation would be allowed without a permit from the Authorized Officer.

A permit or approved Plan of Operations would be required for all OHV use.

In areas with a Closed OHV designation (Research Natural Areas) subject to reasonable regulations, a free permit may be issued for access via snowmobiles for traditional activities and for travel to and from villages and homesites (ANILCA Sec. 1110). Similarly, federally Qualified Subsistence Users, subject to reasonable regulations and with a free permit, can use snowmobiles or other means of surface transportation traditionally employed for subsistence purposes (ANILCA Sec. 811) in areas with use limitations for casual users. Free permits may be obtained in person, by mail, and by phone from the BLM Fairbanks District Office and other appropriate locations.

RATIONALE: The federal government established a system of Research Natural Areas (RNAs) in 1927. RNAs are tracts of federal land and water established and managed for the primary purpose of research and education (43 CFR 8223.0-1). RNAs were selected to contain examples of significant natural ecosystems, areas suitable for ecological study, and rare species of plants and animals. Federal and state agencies have cooperated in Alaska since 1973 in selecting, documenting, and describing RNAs.

Four RNAs were designated in the planning area in 1986 (BLM 1986a and 1986b). The RNAs were designated to provide areas where natural ecosystems and processes are undisturbed so that they can be studied and understood, and to provide an undisturbed area for comparison with other areas so that effects of management and use can be assessed. The principle of maintaining reference conditions for scientific comparison is basic to the purposes of the system of RNAs.

Motorized vehicle access in the RNAs, including snowmobile use in winter, has the potential to damage vegetation, geologic structures, and soils. Any such disturbance has the potential to reduce the value of the area for future research by altering natural conditions. Although specific natural features were identified prior to designation and in reports for each RNA, other features could be equally valuable in future research. In other words, it is not possible now to identify what resources will be most valuable later for scientific study.

Although snow cover and frozen ground is considered adequate to protect vegetation and soils from snowmobiles in most areas, effects on vegetation do often occur from such use. Shrubs and small trees near or above the snow surface can be damaged and broken. The spinning of a snowmobile track can quickly remove considerable snow cover, especially high-power machines with paddle tracks. On steep slopes (typical in many of the RNAs), high snow depths may be required to avoid impacting low vegetation and ground cover. Repeated travel on trails can pack snowcover, decreasing insulation value of the snow, and in some places cause subsurface water flow to occur on the surface and "glaciering" to occur. The later melt of this ice in spring can impact vegetation growth and change vegetation type.

Title VIII of ANILCA protects access to public lands by subsistence users via motorboat, snowmobile, and other means of surface transportation traditionally employed by local residents and subject to reasonable regulations. Title XI of ANILCA allows for use of snowmobiles, motorboats, and airplanes for traditional activities and travel to and from villages and homesites within WSRs, the Steese National Conservation Area and the White Mountains NRA, subject to reasonable regulation.

Travel Management Prescriptions for the Semi-Primitive RMZ

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

RATIONALE: Except for the 15 horsepower limitation on motorboats launching at Nome Creek, use of motorboats is not restricted on Beaver Creek. This is a means of protecting the Semi-Primitive setting while still allowing for ANILCA protected access into inholdings.

Travel Management Prescriptions for the Backcountry RMZ

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

Travel Management Prescriptions for the Middlecountry RMZ

Same as Management Common to All Lands, with the following additions:

ATVs 50" width and less, and 1,000 pounds curb weight and less would be allowed (May 1 through October 14 except for Wickersham Creek Trail). Wickersham Creek Trail from Mile 28 Elliott Highway to its intersection with 23.5 mile trail would be open to the summer use of ATVs from June 1 through October 14. Summer use is delayed to protect costly improvements to trail tread from rutting and erosion, and allow the ground to thaw. The use of motorized travel, except snowmobiles, ends October 14, unless posted otherwise, so as not to impact winter trail grooming activities. Cross-country travel by ATV would be allowed except on the Summit and Ski Loop trails, and within the Wickersham Creek Closed Area.

UTVs 64" width and less, and 1,500 pounds curb weight or less, would be allowed on designated trails only. Designated motorized trails include (Map 55):

1. Quartz Creek Trail from Nome Creek Road to Quartz Creek.
2. Wickersham Creek Trail from Mile 28 Elliott Highway to the intersection with Trail Creek Trail.
3. Trail Creek Trail from the intersection with Wickersham Creek Trail to Lee's Cabin.
4. Mile 23.5 Elliott Highway to intersection with Wickersham Creek Trail.
5. Trail Creek Trail from Lee's Cabin to Crowberry Cabin.
6. McKay Creek Trail from the White Mountains NRA boundary to Beaver Creek WSR Corridor.
7. White Mountains Boundary Trail from McKay Creek Trail west along boundary approximately 11 miles.
8. Moose Creek Ridge Trail from Nome Creek Road to top of Ridge, then east to Quartz Creek Trail and west along ridge to Moose Creek.
9. Globe Peak Trail from Globe Peak to intersection with Big Bend Trail.
10. Big Bend Trail from Colorado Creek Cabin to Beaver Creek WSR Corridor.
11. Colorado Creek Trail from Colorado Creek cabin, west to White Mountains NRA boundary.
12. Ridge Trail from Colorado Creek Trail to VABM Beaver.
13. Portion of Haystack Mountain access on BLM-managed lands.
14. Little Champion Creek extension.

Additional trails could be designated in the future once a trail is improved and sustainable for this use.

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

Travel Management Prescriptions for the Nome Creek Frontcountry RMZ

Same as Management Common to All Lands, with the following additions:

The Table Top Mountain Trail, Two-Step Louis Trail and Fishing Trail inside the Cripple Creek Campground would be limited to non-motorized use only.

ATVs 50" width and less, and 1,000 pounds curb weight and less would be allowed on designated trails only (May 1 through October 14). Travel off of designated trails allowed only to retrieve legally harvested game. Designated motorized trails include (Map 55):

1. Moose Creek Ridge Trail from Nome Creek Road to top of Ridge, then east to Quartz Creek Trail and west along ridge to Moose Creek.
2. Bear Creek Trail from Nome Creek Road to Richards Cabin.
3. Quartz Creek Trail from Nome Creek Road to Quartz Creek.
4. Lower Nome Creek Trail from McKay Creek Trail intersection to Nome Creek Road.

UTVs would be allowed on designated trails only (May 1 through October 14). No game retrieval by UTVs would be allowed off of the designated trail. Designated motorized trails for UTVs include (Map 55):

1. Moose Creek Ridge Trail from Nome Creek Road to top of Ridge, then east to Quartz Creek Trail and west along ridge to Moose Creek.
2. Quartz Creek Trail from Nome Creek Road to Quartz Creek.

Additional trails could be added to the designated trail system as they are designed and constructed in a sustainable fashion.

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

The management intent for the Nome Creek tailings area is to continue to allow access and recreation opportunities within the disturbed, gravel area. The tailings area would be classified as a Limited Area Designation. The use of licensed, highway vehicles (including, but not limited to trucks and motorhomes) and OHVs weighing 1,500 pounds curb weight and less, and 64" width and less would be allowed. Travel off of the disturbed rock tailings by motorized means would not be allowed. Travel by motorized vehicle up or down Nome Creek or its tributaries would not be allowed. Motorized users may cross Nome Creek or its tributaries at right angles only.

Travel Management Prescriptions for the Wickersham Dome-Fred Blixt Frontcountry RMZ

Same as Management Common to All Lands, with the following additions:

The Ski Loop and Summit trails would be limited to non-motorized use only.

ATVs 50" width and less, and 1,000 pounds curb weight and less would be allowed (May 1 through October 14) except for Wickersham Creek Trail. Wickersham Creek Trail from Mile 28 Elliott Highway to its intersection with 23.5 mile trail would be open to the summer use of ATVs from June 1 through October 14. Summer use is delayed to protect costly improvements to trail tread from rutting and erosion, and allow the ground to thaw. The use of motorized travel, except snowmobiles, ends October 14, unless posted otherwise, so as not to impact winter trail grooming activities. Cross-country travel would be allowed except within the Wickersham Creek Closed Area.

UTVs 64" width and less, and 1,500 pounds curb weight or less, would be allowed on designated trails only (Same seasonal restrictions apply to Wickersham Creek Trail as above). Designated motorized trails include (Map 55):

1. Wickersham Creek Trail from Mile 28 Elliott Highway to the intersection with Trail Creek Trail.
2. Trail Creek Trail from the intersection with Wickersham Creek Trail to Lee's Cabin.
3. Mile 23.5 Elliott Highway to intersection with Wickersham Creek Trail.

Additional trails could be added to the designated trail system as they are designed and constructed in a sustainable fashion.

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

A permit or approved Plan of Operations would be required for all other OHV use.

Travel Management Prescriptions for Other BLM lands

Same as Management Common to All Lands, with the following additions:

Cross-country winter use (October 15 through April 30) of snowmobiles weighing 1,000 pounds curb weight and less would be allowed.

Summer use (May 1 through October 14) of OHVs weighing 1,500 pounds curb weight and less (cross-country travel allowed except where this use may interfere with active mining operations).

A permit or approved Plan of Operations would be required for all other OHV uses.

RATIONALE: Limiting the use of OHVs by weight, seasonal closure, and/or to designated routes are nationally accepted methods for protecting resources from damage by OHV use. The White Mountains NRA is a fragile landscape with seasonally frozen ground and permafrost making summer use of OHVs difficult. Traveling on ice-rich permafrost areas causes thawing, ground degradation and vegetation damage. Limiting the use of OHVs by weight, seasonal closure, or to designated routes, would help maintain the appropriate recreational setting, reduce impacts to soil, water, vegetation, fish, and wildlife, reduce potential for damage to maintained trails, and would help protect the NRA's scenic, scientific, cultural, and wildlife values. Allowing for cross-country travel by ATV in the Middlecountry Zone would increase impacts to natural resources but would provide additional opportunity for motorized recreation, consistent with recreation opportunity settings.

The Wild and Scenic Rivers Act states that rivers classified as "wild" are generally inaccessible except by trail, and are to represent vestiges of primitive America (Wild and Scenic Rivers Act, Section 2). Beaver Creek WSR has been managed for its wild, natural character as a remote, float-boating experience, focused on a non-motorized recreation experience for the past 30 years since its designation and classification as a "wild" river. Beaver Creek has outstanding remarkable scenic, recreational, geologic, fish and fish habitat, and wildlife values. Prohibiting the use of hovercraft, airboats, and personal watercraft would protect and enhance these outstandingly remarkable values. Additionally it would reduce disturbance of sensitive wildlife species such as nesting peregrine falcons and Dall sheep.

Airboats, hovercraft and personal watercraft generate noise levels which are disruptive to some recreationists and would diminish the Semi-Primitive experience managed for and expected by

those recreationists on a "wild" river. These types of use are not considered compatible with the values for which the "wild" river is to be managed.

Nome Creek is generally too narrow for two-way traffic. Allowing boats capable of traveling upstream on Nome Creek may pose a safety risk for float-boaters that mainly travel downstream.

2.10.2.3.2.7. Withdrawals

DECISIONS:

Same as Alternative B, except for the following:

Revoke that portion of PLO 4167 on Perhaps Creek (200 acres) and make it available for conveyance to the State of Alaska (FM., T.5N., R.5E., Section 17, SW ¼ ; Section 20, N ½ N ½ NW ¼).

Approximately 451,000 acres in the Middlecountry RMZ would be open to the mineral leasing laws.

2.10.2.3.3. Special Designations

DECISIONS:

Management of RNAs and WSRs would be the same as Alternative C. ORVs would be designated for Beaver Creek. No rivers would be recommended suitable for designation under the Wild and Scenic Rivers Act

RATIONALE: ANILCA closed the White Mountains NRA to the location of new mining claims and in all alternatives of this EIS, the Fossil Creek area would be closed to mineral leasing and OHV use would be limited to the winter. These decisions would protect the values of Fossil Creek. There is no known public or state support for designating Fossil Creek. For these reasons, Fossil Creek has been determined to be not suitable for designation under Alternative D.

2.10.2.4. Alternative E (Proposed RMP): White Mountains Subunit

2.10.2.4.1. Resources

2.10.2.4.1.1. Cave and Karst Resources

GOAL: Manage significant cave and karst systems to protect and maintain their resource, educational, scientific, and recreational values.

DECISIONS:

Manage Bison Bone Cave (AK-029-001), Cave #AK-029-002, and Cave #AK-029-003 as significant caves.

Management objective: Manage significant caves in the White Mountains NRA to preserve their scientific integrity.

Management objective: If needed to prevent resource damage, develop hiking trails that allow for recreational use while preserving scientific integrity of cave and karst resources.

Setting Prescription: Primitive

Administrative designation: All three caves are located in the Limestone Jags Research Natural Area. No additional designation is recommended.

2.10.2.4.1.2. Cultural Resources

DECISIONS:

Same as Alternative B.

2.10.2.4.1.3. Fish and Aquatic Species

DECISION:

In addition to the decisions Common To All Subunits listed in section 2.6.2.3, Fish and Aquatic Species, the following decisions would apply under Alternative E:

The following watersheds would be managed as Riparian Conservation Areas (Map 8). These are the same as Alternative B.

1. Bear Creek (HUC # 190404021803)
2. Beaver Creek (HUC # 190404022104)
3. Beaver Creek (HUC # 190404022109)
4. Beaver Creek (HUC # 190404022208)
5. Deadwood Creek-Victoria Creek (HUC # 190404022304)
6. Headwaters Victoria Creek (HUC # 190404022301)
7. Montana Creek-South Beaver Creek (HUC # 190404022206)
8. Ophir Creek (HUC # 190404022003)
9. Outlet Victoria Creek (HUC # 190404022305)
10. South Beaver Creek (HUC # 190404022207)
11. South Beaver Creek (HUC # 190404022202)
12. Victoria Mountain-Beaver Creek (HUC # 190404022406)
13. Victoria Creek (HUC # 190404022303)
14. Yellow Creek- Beaver Creek (HUC # 190404022408)

The Sumner Creek-Nome Creek watershed (HUC# 190404022004) would be a High Priority Restoration Watershed and emphasized for active restoration.

Complete watershed assessments Section I.5, "Watershed Assessment Process" as necessary for management.

2.10.2.4.1.4. Visual Resources

Proposed VRM classes for Alternative E are displayed on Map 23. Recreation Management Zones (RMZs) are displayed on Map 56.

DECISIONS:

Management of VRM Class I is to preserve the existing characteristics of the landscape, but allows for limited management activities where changes should be very low and must not attract attention of the casual observer.

Within VRM Class II areas, developments would be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes to landform and vegetation.

The objective for VRM class IV is to provide for management activities that may be visible within the view shed or be a major focus of viewer's attention.

Alternative E Visual Resource Management Allocations for the White Mountain Subunit (Maps 23 and 56)			
Area	**RSC Class**	**VRM Class**	**Acres**
The Serpentine Slide, Mount Prindle, and Limestone Jags RNAs, and White Mountains Spine Area	Primitive	I	27,000
Beaver Creek WSR/RMZ	Semi-Primitive	I	69,000
White Mountains Highlands RMZ	Semi-Primitive	II	102,000
Cache Mountain RMZ	Backcountry	II	382,000
White Mountains Foothills	Middlecountry	II	397,000
Nome Creek RMZ	Frontcountry	IV	31,000
Wickersham/Fred Blixt RMZ	Frontcountry	IV	8,000
Remaining BLM lands	N/A	IV	4,000

2.10.2.4.1.5. Wetlands and Floodplains

In addition to the Water Resource decisions listed as Common To All Subunits in section 2.6.2.10, the following decisions would apply under Alternative E:

DECISIONS:

Within five years of signing the ROD or by management direction, undertake development of a step-down Watershed Management Plan (WMP) for the Beaver Creek WSR watershed. Watershed planning helps address water quality problems in a holistic manner by fully assessing the potential contributing causes and sources of pollution including uplands, then prioritizing restoration and protection strategies to address these problems. Site specific soil and water management determinations (e.g., watershed, floodplain-wetland, or riparian rehabilitation techniques, monitoring techniques and schedule, and the design and placement of improvements) will be developed in the interdisciplinary Watershed Management Planning phase for resource programs. The "Watershed Assessment Matrix" (Table I.1), depicting range of desired conditions for aquatic habitats would be incorporated in the Watershed Management Plan as well as other science-based watershed assessment tools. Relevant new science and new empirical water resource data would also be incorporated in the WMP. Additional SOPs and Fluid Mineral Leasing Stipulations for land uses may be developed through the step-down watershed management plan.

The upper section of Nome Creek known as "the maze", upstream of the confluence with Moose Creek (T 6 N, R 4 E, Section 24) and downstream of the Nome Creek Bridge (T 6 N, R 5 E, Section 15) would be preserved in its current state because of its unique character and historical significance. Excavation of gravels from the "maze" or modifications to the stream channel would be restricted.

Downstream of the Nome Creek Bridge (T. 6N., R. 5E., Section 21, NW 1/4) 3.45 acres of wetland/shallow pond area would be constructed in consultation with the U.S. Army Corps of

Engineers (USACE), as compensatory mitigation acreage for the irretrievable loss of 1.71 acres of wetlands during the BLM 2010 road improvement-culvert replacement project for East and West Twin Creek crossings, Nome Creek Road. Additional excavation of road materials from this area would be restricted. By management direction and in consultation with USACE an alternate wetland compensatory mitigation site within Nome Creek Valley may be selected.

Restoration and enhancement of floodplain areas should be approached through management of the entire watershed rather than just focusing on a narrow floodplain-riparian zone. Prior to initiating restoration measures, a determination must be made of site potential and the primary causes of a degraded ecological condition. The natural recovery processes operating in an area should be evaluated prior to considering structural measures. While stream systems and watersheds are undergoing major geomorphic or hydrological adjustment, structural measures should not be initiated. Consider implementing structural measures only if (1) proper management prescriptions will not achieve management objectives within the desired time frame, (2) costs incurred to achieve accelerated rehabilitation are justified by the benefits to be achieved, and (3) natural recovery has not progressed to a point that will stabilize stream banks and/or wetlands basins.

In setting reclamation priorities for floodplain-wetland areas, consider the extent to which the floodplain-wetland may deteriorate if restoration or improvement action is not immediately implemented. Floodplain-wetland areas that may suffer substantial further degradation and have high potential for improvement should be given top priority. Those that have been degraded but appear stable may be given lower priority for restoration and improvement. Other factors, such as special status species, water quality, competing water uses, fisheries, and recreation values should also be considered when establishing priorities.

2.10.2.4.1.6. Wildlife

In addition to the goals and decisions listed as Common To All Subunits in section 2.6.2.13, the following would apply under Alternative E:

GOAL:

Priority will be given to maintaining the value of crucial caribou and Dall sheep habitat and ungulate mineral licks.

DECISIONS:

Same as Alternative B except for the following changes.

Domestic sheep, goats, and camelids (including alpaca and llama) are prohibited in Dall sheep habitat and adjacent lands.

Delineate approximately 417,000 acres as crucial caribou and Dall sheep habitat (map 67) to protect caribou calving and postcalving habitat, Dall sheep habitat, and ungulate mineral licks. Management of these areas will give priority to maintaining habitat effectiveness—the ability of habitats to support Dall sheep and caribou—including the following management:

Ungulate mineral licks: Within a distance of one mile of designated ungulate mineral licks, limit all permitted uses and development of facilities for permitted uses, from May 10 through August 31 to activities which would not reduce sheep use of licks.

Limit density of trails within crucial caribou and Dall sheep habitat to protect values for which they were designated.

Within crucial caribou and Dall sheep habitat cross-country winter use of vehicles weighing more than 1,500 pounds curb weight will not be allowed without a permit. Cross-country Summer OHV use will not be allowed without a permit. Summer OHV travel on BLM approved routes may be allowed where it is

compatible with maintenance of caribou and Dall sheep habitat effectiveness. These approved routes will be determined through travel management planning.

Winter motorized use in Dall sheep habitat would be monitored and, if use begins to approach a level which may result in altered distribution of Dall sheep, such use may be restricted in the future (through alteration of maintained trails or, if necessary, limited closures, e.g., limited areas and/or time periods).

Additional management prescriptions in crucial caribou and Dall sheep habitat for activities requiring a permit from the BLM:

Applicants proposing to conduct surface-disturbing activities or other intensive activities will, at the determination of the AO, be required to submit an approved plan (Caribou and Dall Sheep Impact Assessment and Mitigation Plan) describing methods to minimize impacts to caribou and Dall sheep and their habitat. This plan must describe the proposed project, the design and mitigation alternatives considered, the amount and quality of habitat to be affected, the mitigation and restoration to be applied, the residual impacts predicted, and the monitoring to be undertaken to confirm mitigation success.

Permanent roads will generally not be allowed, although long-term temporary roads may be, and roads will generally not be open to the public. Decisions subject to the ANILCA Title XI process in the National Recreation area will be made on a case-by-case basis pursuant to Title XI. Roads will be of the lowest practical profile. Road use may be restricted during caribou calving, postcalving, or Dall sheep lambing. Road construction will not be permitted if other means of access is practical (such as aircraft or winter ice-road). Facilities within crucial caribou and Dall sheep habitat that require year-round access will be located in forested areas where practical.

Permitted aircraft will follow a minimum flight level of 1,500 feet above ground level, except at landing and takeoff and when it would compromise safety. The AO may allow exceptions to these access requirements where impacts to caribou and Dall sheep are adequately minimized and where other resource considerations are of higher priority.

The footprint of facilities will be minimized. Permittees may be required to co-locate facilities and access to minimize habitat loss.

Reclamation and revegetation of disturbed areas will be required to meet performance standards set in site-specific reclamation plans with a goal of restoration of caribou and/or Dall sheep habitat, such as a required plant cover (percent) within a certain number of years before a performance bond is released.

2.10.2.4.1.7. Wilderness Characteristics

OBJECTIVE:

Reduce impacts of multiple-use activities to maintain naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values on 777,000 acres.

DECISIONS:

The BLM would manage 243,000 acres for other multiple uses as a priority over protecting wilderness characteristics.

The BLM would manage 777,000 acres to emphasize other resources values and multiple uses while applying management restrictions to reduce impacts to wilderness characteristics (Map 77). These lands are located within the White Mountains NRA and include Beaver Creek WSR, and Primitive, Semi-Primitive, Backcountry, and riparian conservation areas in Middlecountry recreation management zones. Within the White Mountains NRA recreation would be a priority use consistent with section 1312(a) of ANILCA.

The BLM would not manage any lands to protect wilderness characteristics as a priority over other resource values and multiple uses.

The types of activities/projects that could potentially affect wilderness characteristics would require further NEPA analysis. The BLM will monitor wilderness characteristics through this NEPA process. In addition, on-the-ground or aerial monitoring will be done in conjunction with monitoring for other resources.

RATIONALE: Under BLM Manual 6320 the BLM can manage areas to emphasize other resource values and multiple uses while applying management restrictions to protect wilderness characteristics. Given the large size of most of these areas in the White Mountains Subunit many land uses could occur that would not impact naturalness, solitude, or primitive recreation on a landscape scale, or the size of the units. Management for other resource drivers such as recreation, wild and scenic rivers, and wildlife are complementary to maintaining wilderness characteristics. Under Alternative E, management decisions to protect caribou and Dall sheep habitat, riparian habitat, and the Beaver Creek WSR would result in maintenance of wilderness characteristics in these areas. Additionally, when the RMP is implemented uses proposed in these areas would be further analyzed through the NEPA process for impacts to size, naturalness and solitude and stipulated mitigation measures would be applied where needed to minimize impacts.

2.10.2.4.2. Resource Uses

2.10.2.4.2.1. Forest and Woodland Products

In addition to the decisions listed as Common To All Subunits in section 2.6.3.1, the following decisions would apply under Alternative E:

DECISIONS:

Personal use of timber would be allowed on all lands.

Commercial timber salvage sales would be allowed on all lands.

Commercial timber sales (large and small) would be allowed on all lands except within the Beaver Creek WSR Corridor, RNAs, and crucial caribou and Dall sheep habitat.

Commercial use of forest products would be considered on all lands.

2.10.2.4.2.2. Land Tenure

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.2, the following decisions would apply under Alternative E. The criteria for land tenure zones is described in Appendix G, *Land Tenure*.

Retain lands within the White Mountains SRMA (includes the National Recreation Area, Beaver Creek WSR Corridor, Wickersham Dome, Cripple Creek campground, and U.S. Creek Wayside.)

Consider acquisition of private land inholdings from willing sellers within Zone 1 areas, such as the White Mountains NRA.

If federal mining claims outside of the White Mountains SRMA become null and void, and are not conveyed to the State, consider these lands for disposal or exchange.

Recommend modification of PLO 4176 Recreation site withdrawal (505 acres) to make the Perhaps Creek Parcel available for state selection. Recommend retaining that portion of the withdrawal that covers U.S. Creek, and Cripple Creek.

2.10.2.4.2.3. Land Use Authorizations

DECISIONS:

In addition to the decisions listed as Common To All Subunits in section 2.6.3.3, the following decision would apply under Alternative E:

Obtain a right-of-way from the State of Alaska for the portion of Colorado Creek trail from the Elliott Highway to the White Mountains NRA.

2.10.2.4.2.4. Minerals

Decisions for minerals management are broken down into four sections: Fluid Leasable, Solid Leasable, Locatable, and Salable Minerals. In addition to the decisions listed as Common To All Subunits in section 2.6.3.5, the decisions in the following mineral sections would apply under Alternative E.

2.10.2.4.2.4.1. Fluid Leasable Minerals

Fluid leasable minerals are defined by the Mineral Leasing Act and include oil, gas, coalbed natural gas, and geothermal resources.

DECISIONS:

The entire subunit, approximately 1,016,000 acres would be closed to fluid leasable minerals (Map 38).

Remaining lands in the subunit (4,000 acres in the Livengood area) would be recommended open to mineral leasing, subject to Standard Lease Terms, Fluid Mineral Leasing Stipulations, and Standard Operating Procedures.

2.10.2.4.2.4.2. Solid Leasable Minerals

Solid leasable minerals are defined by the Mineral Leasing Act and include coal, oil shale, native asphalt, phosphate, sodium, potash, potassium, and sulfur.

DECISIONS:

The entire subunit, approximately 1,016,000 acres would be closed to solid leasable minerals (Map 38), including coal.

Remaining lands in the subunit (4,000 acres in the Livengood area) would be recommended open to mineral leasing, subject to Standard Lease Terms and Standard Operating Procedures.

As stated in section 2.6.3.5.2 Common to All Alternatives, coal leasing is deferred because the coal screening process (as identified by 43 CFR 3420.1-4) has not been completed in the planning area. A RMP amendment would be needed before coal leasing could occur. Only those BLM-managed public lands that have development potential may be identified as acceptable for further consideration for coal leasing.

2.10.2.4.2.4.3. Locatable Minerals

Locatable minerals are minerals for which the right to explore, develop, and extract mineral resources is established by the staking of mining claims, under the General Mining Law of 1872. Examples of locatable minerals include gold, silver copper, zinc, certain limestones, and gypsum.

DECISIONS:

Similar to Alternative B, the White Mountains NRA and adjacent lands at Wickersham Dome, Cripple Creek, Perhaps Creek, and U.S. Creek (1,016,000 acres) would be remain closed to locatable mineral entry (Map 38).

Remaining lands in the subunit (4,000 acres) would be recommended open to mineral entry (Livengood area).

2.10.2.4.2.4.4. Salable Minerals

Salable minerals, also called mineral materials, include sand, gravel, dirt, and rock.

DECISIONS:

The Beaver Creek WSR Corridor (69,000 acres) would be closed to salable minerals.

All remaining lands, 951,000 acres would be open to salable minerals.

2.10.2.4.2.5. Recreation

OBJECTIVE:

SRMA specific outcomes-focused objectives, proposed recreation setting characteristics and the management framework for each RMZ can be found in Appendix H.

DECISIONS:

In addition to those decisions listed as Common To All Subunits under section 2.6.3.6, the following decisions would apply under the White Mountains Subunit under Alternative E.

Designate 1,016,000 acres of lands including Beaver Creek WSR Corridor, the White Mountains NRA, and associated lands as the White Mountains SRMA (Map 56). The SRMA would include seven Recreation Management Zones (RMZs) listed in the table below.

Implementation level management action:

Trapping and placement of bait and wildlife lures (scents)for the purpose of trapping fur bearers would be prohibited within 25 feet of BLM-maintained trails. Trapping includes but is not limited to the use of marten pole sets, snares, conibear, or leg hold traps. These restrictions would not apply to sections of trail on land managed by the State of Alaska where the BLM maintains access to the White Mountains NRA.

Table 2.24. White Mountain Recreation Management Zones, RSC Settings and OHV Designations, Alternative E

Name	Acres	RSC Setting[a] [b]	OHV designation
Research Natural Areas	13,000	Primitive	LIMITED
White Mountains Spine Area	14,000	Primitive	LIMITED
White Mountain Highlands	102,000	Semi-Primitive	LIMITED
Beaver Creek Corridor	69,000	Semi-Primitive	LIMITED
Cache Mountain	382,000	Backcountry	LIMITED
White Mountain Foothills	397,000	Middlecountry	LIMITED
Nome Creek	31,000	Frontcountry	LIMITED
Wickersham Dome/Blixt Cabin	8,000	Frontcountry	LIMITED
Other BLM lands	4,000	N/A	LIMITED

[a]Table 2.5

[b]RSC are descriptive conditions describing management parameters at the implementation level. These are not land use planning decisions

2.10.2.4.2.6. Travel Management:

In addition to those decisions listed as Common To All Subunits in section 2.6.3.7, the following decisions would apply under Alternative E.

The table above describes the Recreation Management Zones in the White Mountains SRMA under Alternative E (Map 56).

DECISIONS:

A comprehensive travel management plan for the White Mountains Subunit will be deferred until the completion of the RMP. Once the Record of Decision is signed for the RMP, additional data would be collected and a comprehensive travel management plan would be developed using a public process, allowing for additional public and agency input. This process will include publishing a *Federal Register* Notice, public scoping meetings and if any closures are proposed, a

formal hearing to address the closure procedures under 43 CFR 36.11 (h) as well as limitations affecting ANILCA provisions listed in Title VIII and Title XI.

Interim management prescriptions until completion of the Travel Management Plan: Current management outlined in Alternative A, No Action Alternative, with the addition of the following:

1,000 pound curb weight and 50 inch width limitation for snowmobiles to replace 1,500 pound GVWR limitation in the White Mountains SRMA.

1,000 pound curb weight and 50 inch width limitation for summer ATVs to replace 1,500 pound GVWR limitation in the White Mountains SRMA.

Beaver Creek WSR: Use of motorboats, hovercraft, and airboats is allowed without specific authorization. Launching of boats in the Nome Creek Valley (Nome Creek and Ophir Creek) is restricted to 15hp or less.

Weight and width limitations for UTV's: 64 inches width and less, and 1,500 pounds curb weight or less.

Designated trails and areas for UTVs:
1. Wickersham Creek Trail from Mile 28 Elliott Highway to the intersection with Trail Creek Trail.
2. Trail Creek Trail from the intersection with Wickersham Creek Trail to Lee's Cabin.
3. Mile 23.5 Elliott Highway to intersection with Wickersham Creek Trail.
4. Nome Creek tailings area.
5. Quartz Creek Trail from Nome Creek to Quartz Creek.

Additional trails could be added to the designed trail system through the travel management plan.

The Limestone Jags, Serpentine Slide, and Mount Prindle RNAs include limitations on OHV use. The OHV area designation in these RNA would change from Closed to Limited in this alternative. The RNAs would be limited to winter OHV use only by snowmobiles 1,000 pounds or less in weight and 50 inches or less in width.

Limitations on Travel Management Planning:

The step-down travel management plan will be developed within 5 years of the Record of Decision. Wildlife management decisions will set sideboards on what can be considered in the travel management plan.

Wildlife management prescriptions include limitations on OHV use in crucial caribou and Dall sheep habitat (Map 67). These will be implemented through travel management planning. Cross-country summer OHV use will not be allowed without a permit , but summer OHV travel on BLM-approved routes may be allowed where it is compatible with caribou and Dall sheep habitat.

Wildlife decisions identified in Alternative E include management prescriptions for non-motorized travel. Domestic sheep, goats and camelids (including alpaca and llama) are prohibited in Dall sheep habitat and adjacent lands.

Rationale: Limiting the use of OHVs by weight, seasonal closure, and/or to existing routes or in some cases considering dispersed cross-country travel will help maintain the appropriate recreational setting, reduce impacts to stream beds, soil, water, vegetation, fish and wildlife;

scientific and cultural resources. The White Mountains NRA is a fragile landscape with seasonally frozen ground and permafrost making summer sues of OHVs difficult. Traveling on ice-rich permafrost areas causes thawing, ground degradation, and vegetation slump. Management tools seek to protect the trails from excessive erosion and rutting and protect the investment the BLM has made to improve the trails. These decisions will be analyzed in the travel management plan.

Weight limitation changes from pounds gross vehicle weight rating GVWR to curb weight allows for the same types and sizes of vehicles allowed under Alternative A. Curb weight is consistent with the generally allowed uses on adjacent State lands.

2.10.2.4.2.7. Withdrawals

DECISIONS:

In addition to the decisions listed as common to all subunits in section 2.6.3.8 Withdrawals, the following decisions would apply to Alternative E.

Recommend to the Secretary of the Interior that ANCSA 17(d)(1) withdrawals within the White Mountains NRA be revoked to remove duplicate withdrawals.

Recommend to the Secretary of the Interior that PLO 5150 be modified to withdraw approximately 12,800 acres from the mining laws, including metalliferous minerals, at Wickersham Dome (FM., T. 4N., R. 2W., that portion of the township north and east of the Elliott Highway), for the purposes of maintaining recreation setting prescriptions and BLM facilities associated with the White Mountains NRA.

Modify PLO 4176, Recreation site withdrawal to allow for state selection of the Perhaps Creek parcel. The withdrawn lands are located at Perhaps Creek, U.S. Creek, and Cripple Creek, all of which are within FM., T.5N., R.5E.

Recommend to the Secretary of the Interior that ANCSA 17(d)(1) withdrawals be revoked to open approximately 4,000 acres outside the White Mountains NRA to locatable mineral entry and mineral leasing laws in the areas shown on Map 93.

RATIONALE: Removal of duplicate withdrawals will simplify and clean up the public land records for this area. Wickersham Dome provides access to the White Mountains NRA cabins and trails network and supports BLM facilities. Retaining a withdrawal on this area would help meet requirements under ANILCA to manage the NRA for recreational purposes. Retaining portions of PLO 4176 would protect Cripple Creek camp ground and U.S. Creek Wayside. The Perhaps Creek parcel is not developed for recreational use and should be made available for state selection.

2.10.2.4.3. Special Designations

2.10.2.4.3.1. Areas of Critical Environmental Concern

DECISIONS:

No ACECs would be designated.

2.10.2.4.3.2. Research Natural Areas

DECISIONS:

Three existing RNAs would be maintained: the Limestone Jags (5,170 acres), Serpentine Slide (4,270 acres), and Mount Prindle (3,150 acres) RNAs.

The RNAs would be limited to winter OHV use only; summer use of OHVs is prohibited. Natural processes, including wildland fire, would be allowed to continue with as little interference as possible. Hiking, hunting, and nature appreciation would be allowed. The RNAs would remain closed to mineral entry and mineral leasing. Primitive camping and hiking trails would be allowed in the RNAs. No surface-disturbing activities allowed except BLM-authorized research projects and primitive hiking trails.

2.10.2.4.3.3. Wild and Scenic Rivers

DECISIONS:

Decisions listed as Common To All Subunits in section 2.6.4.1 would apply.

Under Alternative E, no rivers would be recommended suitable for designation under the Wild and Scenic Rivers Act.

RATIONALE: ANILCA closed the White Mountains NRA to the location of new mining claims and in all alternatives of this EIS, the Fossil Creek area would be closed to mineral leasing and OHV use would be limited to the winter. These decisions would protect the values of Fossil Creek. There is not widespread public or state support for designating Fossil Creek. For these reasons, Fossil Creek has been determined to be not suitable for designation under Alternatives C, D, and E.

2.10.3. Comparison of Alternatives: White Mountains Subunit

Table 2.25, "White Mountains Subunit: Summary of Alternatives" provides a **comparison of major allocation decisions and decisions that vary by action alternative (B, C, D, and E)**. There are additional decisions that are common to all action alternatives that are not displayed in these tables. Decisions may be paraphrased to save space. All acres are approximate and rounded to the nearest 1,000 acres. For the full text of all decisions, see section 2.6 Management Common to All Subunits and All Action Alternatives, section 2.10 White Mountains Subunit, Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations* and Appendix H, *Recreation Management Zones*.

Table 2.25. White Mountains Subunit: Summary of Alternatives

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Fish and Aquatic Species	Riparian Conservation Areas (RCAs) not addressed.	Manage 14 watersheds (Map 8) as RCAs.	Manage 13 watersheds (Map 9) as RCAs.	Manage eight watersheds (Map 10) as RCAs.	Same as Alternative B.
	Ongoing restoration in Nome Creek.	Nome Creek is a High Priority Restoration Watershed.			
	Watershed assessments not addressed	Complete watershed assessments as necessary for management.			
Visual Resources	Assign all BLM-managed lands to VRM Classes. Manage according to the VRM class objectives described in section 2.6.2.9. Proposed VRM Classes are displayed on Maps 20, 21 , 22 and 23.				
	69,000 acres VRM Class I (Beaver Creek WSR Corridor)	96,000 acres VRM Class I (Beaver Creek WSR Corridor, RNAs, and Primitive RMZ).		82,000 acres VRM Class I (Beaver Creek WSR and RNAs).	Same as Alternatives B and C
	507,000 acres VRM Class II (RNAs, Primitive and parts of the Semi-Primitive Management units, view shed of Beaver Creek)	553,000 acres VRM Class II (Semi-Primitive and Backcountry RMZs).	217,000 acres VRM Class II (Semi-Primitive and part of Backcountry RMZs).	123,000 acres VRM Class II (Semi-Primitive and part of Backcountry RMZs).	882,000 acres VRM class II (Semi-Primitive, Backcountry, and middlecountry RMZ)
	428,000 acres VRM Class III (remainder Semi-Primitive Management Unit)	367,000 acres as VRM Class III (Middlecountry and Frontcountry RMZ).	267,000 acres as VRM Class III (remaining Backcountry RMZ).	321,000 acres VRM Class III (Backcountry RMZ).	None
	4,000 acres unclassified	4,000 acres VRM Class IV (other BLM lands).	440,000 acres VRM Class IV (Middle-, and Frontcountry RMZs and other BLM lands).	494,000 acres VRM Class IV (Middle-, and Frontcountry RMZs and other BLM lands).	42,000 acres VRM class IV (Frontcountry RMZ and other BLM lands)

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Wetlands and Floodplains	Watershed management planning not addressed	Within five years of signing the ROD, or by management direction, undertake development of step-down Watershed Management Plan for the Beaver Creek WSR watershed.			
	Decisions specific to the "Maze" and wetland mitigation acres are not addressed.				Protect a 3-mile section of Nome Creek known as the "Maze" for historic value. 3.45 acres of Nome Creek wetland area/ponds preserved as wetland mitigation acres as compensation for irretrievable loss of wetlands during 2010 road improvements.
Wilderness Characteristics	**Areas managed to protect wilderness characteristics as a priority over other resource values and multiple uses**				
	wilderness characteristics not addressed.	None	None	None	None
	Acres and Areas managed to emphasize other resource values and multiple uses while applying management restrictions to reduce impacts to wilderness characteristics				
	wilderness characteristics not addressed.	509,000 acres (50%). Primitive and Semi-Primitive RMZ (Map 74)	312,000 acres (31%). Primitive and Semi-Primitive RMZ and part of Cache Mountain. Backcountry RMZ (Map 75)	205,000 acres (20%). Primitive and Semi-Primitive RMZ and part of Cache Mountain. Backcountry RMZ (Map 76)	777,000 acres (76%). Primitive, Semi-Primitive, and Backcountry, and RCAs in middlecountry RMZs (Map 77)
	Acres managed to emphasize other resource values and multiple uses as a priority over protecting wilderness characteristics				
	wilderness characteristics not addressed.	511,000 acres (50%)	708,000 acres (69%)	815,000 acres (80%)	243,000 acres (24%)
Wildlife	Not addressed. No limits on types of pack animals for either casual or permitted use.	The use of domestic goats, alpacas, llamas, and other similar species would not be allowed in conjunction with BLM-authorized activities in Dall sheep habitat.			
		Domestic sheep, goats, and camelids (including alpaca & llama) are not allowed in Dall sheep habitat.	No prohibition on the use of domestic sheep, goats, and camelids (including alpaca & llama) for casual use.		Domestic sheep, goats, and camelids (including alpaca & llama) are not allowed in Dall sheep habitat.

<table>
<tr><th>Program or Resource</th><th>Alternative A (No Action)</th><th>Alternative B</th><th>Alternative C</th><th>Alternative D</th><th>Alternative E (Proposed RMP)</th></tr>
<tr><td rowspan="2">Forest and Woodland Products</td><td>Personal use of timber: allowed on all lands (1,020,000 acres).</td><td>Personal use of timber: allowed in non SRMA Lands (4,000 acres); not allowed within the White Mountains SRMA (1,016,000 acres).</td><td>Personal use of timber: allowed on 938,000 acres; not allowed within the Beaver Creek WSR Corridor and RNAs (82,000 acres).</td><td>Same as Alternative A.</td><td>Personal use of timber would be considered on all lands (1,020,000 acres).</td></tr>
<tr><td>No commercial timber harvest is allowed within the White Mountains NRA (1,000,000 acres). Not prohibited outside the NRA.</td><td>Commercial timber salvage sales: considered in non SRMA Lands (4,000 acres); not allowed within the White Mountains SRMA (1,016,000 acres).</td><td colspan="3">Commercial timber salvage sales considered on all lands (1,020,000 acres).</td></tr>
<tr><td rowspan="3">Forest and Woodland Products</td><td>No commercial timber harvest is allowed within the White Mountains NRA (1,000,000 acres). Not prohibited outside the NRA.</td><td>Commercial timber sales: considered on other BLM lands (4,000 acres); not allowed within the White Mountains SRMA (1,016,000 acres).</td><td colspan="2">Commercial timber sales: considered on 938,000 acres. Not allowed within the Beaver Creek WSR Corridor and RNAs (82,000 acres).</td><td>Commercial timber sales: Considered on 557,000 acres. Not allowed within the Beaver Creek WSR Corridor, RNAs, and crucial caribou and Dall sheep habitat (463,000 acres).</td></tr>
<tr><td rowspan="2">Forest products are reserved for local use only within the White Mountains NRA. BLM could consider commercial use of these products outside the NRA.</td><td colspan="4">Allow personal use of forest products on all lands (1,020,000 acres).</td></tr>
<tr><td>Commercial use of forest products would not be allowed within the White Mountains SRMA (1,016,000 acres). On remaining lands (4,000 acres) such uses would be considered.</td><td colspan="2">Commercial use of forest products would not be allowed within the RNAs (13,000 acres). On remaining lands (1,003,000 acres) such uses would be considered.</td><td>Commercial use of forest products would be considered on all lands (1,020,000 acres).</td></tr>
<tr><td rowspan="3">Land Tenure</td><td colspan="3">Retain the White Mountains NRA, Beaver Creek, Wickersham Dome, Cripple Creek, U.S. Creek, and Perhaps Creek in federal ownership.</td><td colspan="2">Same as Alternatives A-C except Perhaps Creek would be available for state selection.</td></tr>
<tr><td colspan="5">Consider acquisition of private inholdings within the White Mountains NRA.</td></tr>
<tr><td>Not addressed.</td><td colspan="4">If federal mining claims outside of the White Mountains SRMA (near Livengood)become null and void, and are not conveyed to the State, consider these lands for disposal or exchange.</td></tr>
<tr><td>Land Use Authorizations</td><td>Two designated transportation corridors (Map 19).</td><td>Retain one transportation corridor extending from U.S. Creek Road to Nome Creek (Map 57).</td><td colspan="3">None of the existing transportation corridors would be retained and no new corridors would be designated.</td></tr>
</table>

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Land Use Authorizations	No ROW avoidance areas.	The RNAs, White Mountains ACEC, and Beaver Creek WSR Corridor would be ROW avoidance areas.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Fluid Leasable Minerals (e.g., oil and gas)	The White Mountains Subunit (1,020,000 acres) closed to leasing by public land orders. 1986 RMP recommended opening 428,000 acres in the Semi-Primitive Motorized Management Unit, but decision was not implemented. (Map 48)	All BLM lands, 1,020,000 acres closed.	Same as Alternative B.	451,000 acres open with minor constraints; 569,000 acres closed.	4,000 acres open with standard lease terms and standard operating procedures; 1,016,000 closed.
Solid Leasable Minerals	The White Mountains Subunit (1,020,000 acres) closed to leasing by public land orders. 1986 RMP recommended opening 428,000 acres in the Semi-Primitive Motorized Management Unit, but decision was not implemented. (Map 48)	All BLM lands, 1,020,000 acres closed.	Same as Alternative B.	451,000 acres open; 569,000 acres closed.	4,000 acres open with standard lease terms and standard operating procedures; 1,016,000 closed.
		Coal leasing is deferred because the coal screening process (43 CFR 3420.1-4) has not been completed. A RMP amendment would be needed before coal leasing could occur. Only those BLM-managed public lands that have development potential may be identified as acceptable for further consideration for coal leasing			
Locatable Minerals (e.g., gold)	The White Mountains Subunit (1,020,000 acres) closed to leasing by public land orders. 1986 RMP recommended opening 428,000 acres in the Semi-Primitive Motorized Management Unit, but decision was not implemented.	All BLM lands, 1,020,000 acres closed.	Same as Alternative B.	160,000 acres open to leasing: 149,000 acres for gold and 11,000 acres for rare earth metals.	Same as Alternative B.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Salable Minerals (e.g., gravel)	1,020,000 acres open to disposal of sand, gravel, rock, and other saleable minerals if compatible with other provisions of the plan.	371,000 acres open to salable minerals; 649,000 acres closed.	951,000 acres open; 69,000 acres closed (Beaver Creek WSR Corridor).	1,020,000 acres are open; 0 acres closed.	Same as Alternative C.
Recreation	Plan does not identify the White Mountains as a SRMA, but it is managed as such.	Designate 1,016,000 acres as the White Mountains SRMA. Establish desired recreation setting character classes (Table 2.5, "Recreation Setting Character Matrix for the Eastern Interior Planning Area").			
	Four recreation management units: Primitive, Semi-Primitive Motorized, Wild and Scenic River, and Research Natural Areas (Map 48)	Establish seven RMZs (Appendix H and Map 53).	Establish seven RMZs (Appendix H and Map 54).	Establish six RMZs (Appendix H and Map 55).	Establish seven RMZs (Appendix H and Map 56)
Travel Management	OHV area designations: 4,000 acres undesignated; 13,000 acres Closed; 1,003,000 acres Limited.	OHV area designations: 13,000 acres closed (RNAs); 1,007,000 acres Limited (includes 4,000 acres near Livengood)	Same as Alternative B.	Same as Alternative B.	OHV area designations: 1,020,000 acres Limited
	13,000 acres (RNAs) closed to motorized OHV use yearlong.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.	Winter motorized use allowed under interim management.
Travel Management	563,000 acres (Primitive Management Unit and Beaver Creek) limited by season of use (no summer OHV use).	635,000 acres (Semi-Primitive, Backcountry, and White Mountains Spine RMZs) limited by season of use (no summer OHV use).	567,000 acres (Semi-Primitive, Backcountry, and White Mountains Spine RMZs) limited by season of use (no summer OHV use).	513,000 acres (Semi-Primitive and Backcountry RMZs) limited by season of use (no summer OHV use).	Interim Management: Same as A, except for: change from GWVR to curb weight; RNAs classified as LIMITED and open to winter snowmobile travel; designated trails for UTVs; allowance of airboats and hovercraft. A Travel Management Plan would be developed
	440,000 acres limited by weight (summer). Cross-country use allowed for vehicles 1,500 lbs. gross vehicle weight rating or less.	4,000 acres (other BLM lands) limited by weight (summer)	Same as Alternative B.	459,000 acres limited by weight (summer). Includes Middlecountry and Wickersham Dome Frontcountry. Cross-country use allowed except in	

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
				Wickersham Creek Closed Area.	within five years of the ROD.
Travel Management	0 acres limited to designated routes.	368,000 acres (Middlecountry and Frontcountry RMZs) limited to designated routes, weight and width (summer).	436,000 acres (Middlecountry and Frontcountry RMZs) limited to designated routes, weight and width (summer).	31,000 acres (Nome Creek Frontcountry RMZ) limited to designated routes, weight, and width (summer). UTVs limited to UTV designated trails all zones.	Interim Management: Same as A, except for designated trails for UTVs.
	Summer cross-country travel allowed limited by weight (1,500 lbs. gross vehicle weight)	Summer OHV use limited to 139 miles of trails (Maps 53 and 54).	Same as Alternative B.	Summer cross-country travel allowed in some zones.	Interim Management: Same as A, except for designated trails for UTVs. A Travel Management Plan would be developed within five years of the ROD.
	0 miles of trail open to UTV use.	Same as Alternative A.	27 miles trails open to UTV use.	112 miles trails open to UTV use. (Map 55).	27 miles of trails open to UTV use under interim management. Additional trails may be added by Travel Management Plan.
Travel Management	117 miles winter trails closed to summer use.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.	Interim same as A. Deferred to Travel Management Plan.
	1,003,000 acres limited by weight (winter).	1,008,000 acres limited by weight (winter).	Same as Alternative B.	Same as Alternative B.	Interim same as A. Deferred to Travel Management Plan.
	Airboats and hovercraft prohibited in White Mountains NRA.	Airboats, hovercraft, and personal watercraft would be prohibited in the White Mountains Special Recreation Management Area.			Airboats, hovercraft, and personal watercraft allowed under interim management.
	Motorboat use allowed without specific authorization consistent with ANILCA with the following reasonable regulation: Launching boats with motors exceeding 15 horsepower is prohibited in the Nome Creek Valley.				

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Withdrawals	Recommend retaining PLO 4176 Recreation site withdrawals (505 acres).	Recommend retain PLO 4176, Recreation site withdrawal (505 acres); Perhaps Creek, U.S. Creek, and Cripple Creek. (FM. T.5N., R.5E.); Manage Perhaps Creek to provide a gravel source for maintenance or construction of recreation facilities.		Recommend modification of PLO 4176 withdrawal to make the Perhaps Creek Parcel available for state selection. Retain that portion of the withdrawal covering U.S. Creek and Cripple Creek.	
	Section 1312(b) of ANILCA withdraws the White Mountains NRA from state selection and location, entry under the U.S. mining laws.				
	The White Mountains NRA is withdrawn by ANCSA (PLO 5180)	Recommend partial revocation of PLO 5180 to remove overlapping withdrawals within the White Mountains NRA.			
	PLO 5150 allows for mining of metaliferous minerals.	Recommend modification of PLO 5150 on 12,800 acres at Wickersham Dome (outside the NRA) to withdraw these lands to mining of metaliferous minerals.			
	Modification of PLOs to allow for disposal not addressed	Recommend modification of PLOs as needed to allow for disposal of Land tenure Zone 3 lands (Appendix G).			
	Existing RMP does not cover 4,000 acres near Livengood.	Recommend retain 17(d)(1) withdrawal on 4,000 acres to prevent further encumbrance.			Partially revoke 17(d)(1) withdrawals to open 4,000 acres to locatable mineral entry and location.
Areas of Critical Environmental Concern	No ACECs designated.	Designate the White Mountains ACEC (576,000) acres. (Map 64)	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Research Natural Areas	Serpentine Slide (4,270 acres), Limestone Jags (5,170 acres) and Mount Prindle (3,150 acres) are designated as RNAs. These areas would be managed to maintain a Primitive recreation setting (Appendix H.3) and would be closed to mineral location, mineral leasing, and motorized vehicles.				Designated RNAs same as Alternative A. OHV use in RNAs limited to winter; no summer use of OHVs.
	No surface-disturbing activities allowed except BLM-authorized research projects. Closed to camping. Primitive campsites may be established outside the RNA boundaries and improved access in the form of trails could be developed.	Same as Alternatives A and B except primitive camping and development of primitive hiking trails would be allowed in the RNAs.			

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Wild and Scenic Rivers	Outstandingly remarkable values have not been identified for Beaver Creek.	Identify Outstandingly Remarkable Values for Beaver Creek WSR as scenic, recreation, geologic, fisheries, and wildlife.			
	Other rivers in area have not been studied for eligibility or suitability.	Fossil Creek recommended suitable for classification as "scenic" (23 miles) (Map 77).	No rivers recommended suitable	Same as Alternative C.	Same as Alternative C.

2.11. Comparison of Impacts

2.11.1. Impacts Common to All Subunits

The following table provides a comparison of the impacts that are common to all four subunits in the planning area.

Table 2.26. Comparison of Impacts: Common to All Subunits

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Air Quality	Impacts on air quality from wildland fire management include smoke and fugitive dust, which could affect human health and visibility. The effects would vary from short-term and localized, for small wildland fires, to moderate term (weeks) and widespread for large wildland fires. Large wildland fires would result in substantial and uncontrollable air quality impacts. Surface-disturbing activities could directly affect air quality in the short-term by generating fugitive dust, smoke, or motor vehicle emissions; implementation of resource protection measures, permitting requirements, and emissions-control strategies, would minimize impacts. Increased motorized activity has the potential for degradation of air quality from recreation vehicle emissions. Expected air quality effects would typically be minor and localized for small groups. Large-scale group activities may have moderate short-term impacts on air quality, including visibility. Long-range atmospheric transport of emissions from other countries (ADEC, 2011a ; Law and Stohl, 2007) occurs periodically, and may impair air quality and visibility.				
Greenhouse Gas Emissions	Based on current and projected development, future BLM-authorized actions would have low potential to affect climate change, as indicated by estimates of relatively low current and future GHG emissions. Because the planning area is sparsely populated with no substantial industrial development, fossil fuel development, or changes in land use/land cover projected to occur, it is anticipated that no substantial change in anthropogenic GHG emission levels would occur during the life of the plan. GHG emissions associated with local communities would continue to be the largest anthropogenic source of GHG emissions in the planning area. In 2010 the Fairbanks and Delta areas contributed the most GHG emissions 1,893,205 and 196,382 metric tons of carbon dioxide equivalent ($MTCO_2Eq.$) respectively. Seasonal placer mining is the single largest BLM-authorized industrial activity in the planning area. In 2014 active placer operations (exploration, suction dredge, small and large placer mines) on BLM-managed lands contributed, in total, approximately 4,410 $MTCO_2Eq.$; less than 20 percent of the 25,000 $MTCO_2Eq.$ annual emissions level, above which quantitative reporting of GHG emissions is recommended by CEQ (2014). For comparison, total GHG emissions for all subunits under Alternative D, the most pro-development alternative, were estimated at 8,007 $MTCO_2Eq.$ annually, well below the 25,000 $MTCO_2Eq.$ reporting limit. See section 4.3.1.1.1.2 Greenhouse Gas Emissions for more detail.				
Climate Change	Climate change is occurring and affecting resources in the planning area, primarily from warming seasonal and annual air temperatures. Average annual temperatures (1949–2005) increased approximately 4 degrees F. at Interior Alaska climate stations, Bettles, Big Delta, Fairbanks, and McGrath. Most of the warming occurred since the mid-1970s, with the greatest seasonal change in winter, approximately 8 degrees F., and spring about 5 degree F., and the least amount of change in autumn, 0.2 degree F. Annual precipitation has varied but not substantially. Current and future projected climate change, due to regional and global conditions, will continue to impact BLM-managed resources and current and future BLM-authorized actions in the planning area. Impacts are primarily related to a warming climate and include 1) thawing permafrost, 2) increased length of growing season, and 3) increased wildfire frequency. 1) Much of Interior Alaska is underlain by discontinuous permafrost—frozen ground with highly variable ice content that restricts water drainage and strongly influences landscape water balance as well as the design and maintenance of infrastructure. Thawing permafrost increases permeability of previously frozen soils and changes the distribution of surface waters across the landscape through increasing or decreasing wetland surface area depending upon site-specific conditions. 2) The length of the growing season in Interior Alaska has increased on average from 83 to 123 days over the last century (Wendler and Shulski, 2009). Changes in dates of snowmelt and freeze-up associated with the longer growing season benefit agriculture and forestry and decrease annual use of heating fuels with warmer temperatures. Negative impacts may include reduced water storage, altered timing of the spring break-up, and increased risk of more extensive wildfire and insect outbreaks, as well as disrupted seasonal migration of birds and other animals (Chapin, et. al., 2014).				

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	3) The increase in fire severity has occurred during a period of warmer spring seasons associated with earlier snowmelt, drying of wetlands, and lengthening growing seasons. Increasing temperatures have resulted in increased over-winter survival of bark beetles, and a consequent increase in the number of acres of forest destroyed by these insects. Dead trees combined with warmer, drier conditions leave the forests more vulnerable to wildfires (Karl et al. 2008). The increase in fire occurrence has coincided with, and likely has been at least partially driven by, increases in lightning frequency since the 1990s (Faruch et al. 2011). More extensive and severe wildfires could shift the forests of Interior Alaska during this century from dominance by spruce to broadleaf trees (Barrett, et. al., 2011).				
Cultural and Paleontological Resources	Cultural and paleonotological resources may be directly and adversely affected by surface and subsurface-disturbing activities. These activities can permanently disturb or destroy the fossils, artifacts, features, and architecture found at sites, or destroy the spatial relationships among them. Any activity that alters or destroys the objects or spatial relationships in a site consequently destroys the ability to interpret the past. Direct impacts would be avoided by project redesign or mitigated through data recovery. Indirect effects could result from activities that allow or facilitate access of people onto the public lands, particularly areas that were previously isolated. With more access, there would likely be an increased number of people finding cultural and paleontological resources and adversely impacting them, either intentionally, or unintentionally.				
	The potential for both direct and indirect impacts would be the lowest under Alternative A. All lands would remain closed to mineral entry, and surface-disturbing activities and new access would be the most limited. Construction of recreational facilities to meet increasing recreation demand and increased visitation would increase the potential for impacts.	The potential for direct and indirect impacts would be slightly higher than in Alternative A, but lower than Alternatives C and D. Fifteen percent of the BLM land would be opened to mineral entry, slightly increasing surface-disturbing activities and new access. More lands would be managed for Primitive, Semi-Primitive or Backcountry recreational opportunities. Less emphasis on recreational facility construction would lead to fewer potential impacts.	The potential for both direct and indirect impacts would be higher than Alternative B, but less than Alternative D. Sixty-one percent of the BLM land would be opened to mineral entry, making surface disturbance and new access more likely to occur. More lands would be managed for Middlecountry or Frontcountry recreational opportunities, increasing the potential for impacts due to increased emphasis on recreational infrastructure development.	The potential for both direct and indirect impacts described above be the highest under Alternative D. Seventy-four percent of the BLM land would be opened to mineral entry, making surface disturbance and new access more likely to occur. The potential for impacts due to increased emphasis on recreational infrastructure development would be higher than Alternative C.	The potential for direct and indirect impacts would be slightly higher than Alternative B, but less than Alternative C. Twenty-six percent of the BLM land would be open to mineral entry, slightly increasing the potential for surface disturbance and increased access. Impacts from recreation management would be similar to Alternative C.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Fish and Aquatic Species	Fish and aquatic resources would be primarily affected by surface-disturbing activities which alter stream channels, remove or damage riparian vegetation, or result in soil erosion and sedimentation to aquatic habitat. Activities causing extensive stream channel or riparian alteration would likely result in unavoidable loss of fish and aquatic habitat, with both short- and long-term adverse impacts. Invasive species can adversely effect fish and aquatic resources through habitat change, predation, parasitic behavior, disease, competition, and hybridization. Initially, adverse impacts would be localized since the distribution of invasive species would be highly localized; if invasive species became widely established, however, major adverse impacts would be expected. The initial introduction of aquatic invasive species into the planning area would have adverse impacts at the local level; however as time progressed long-term, major adverse impacts would be expected as invasive species spread across the planning area. Measures proposed in the RMP aimed at limiting the introduction and spread of invasive species would benefit fish and aquatic resources. Management to avoid or minimize impacts to wilderness characteristics would potentially benefit fish and aquatic resources by minimizing surface-disturbing activities and decreasing recovery time from disturbance. Wildland fire directly and indirectly impacts fish populations and their prey through increased siltation, and changes in water quality and temperature. Wildland fire can change the nutrient input to water systems and changes to permafrost status can lead to altered hydrology. Fish will generally re-invade burned areas rapidly where movement is not limited by barriers. Fish population recovery generally tracks the increase in primary and secondary production that occurs in the early post fire period. Where sediment is continually delivered into the stream, there could be short-term negative effects on fish and macro-invertebrate communities. Forest harvest activity could reduce the natural source of large woody debris, reducing habitat complexity for fish. Removing trees within the riparian zone could also result in increased water temperatures and streambank erosion. Maintaining appropriately sized buffers along streams would greatly reduce impacts.				
	Suction dredging has been shown to locally reduce benthic invertebrates, cause mortality to early life stages of fish, destabilize spawning and incubation habitat, remove large roughness elements such as boulders and woody debris, increase suspended sediment, decrease the feeding efficiency of sight-feeding fish, and reduce living space by depositing fine sediment (Thomas 1985, Harvey 1986, Griffith and Andrews 1981, Harvey and Lisle 1998, Barrett et al. 1992). Conversely, suction dredging may temporarily improve fish habitat by creating deep pools or more living space by stacking large non-embedded substrate (Harvey and Lisle 1998). Dredge tailings may increase spawning sites in streams lacking spawning gravel or streams that are armored by substrate too large to be moved by fish (Kondolf et al. 1991). The reduction in the feeding efficiency of fish may be offset the reduced risk of predation at moderate levels of suspended sediment (Gregory 1993). Rehabilitation of fish habitat, including channel stability and proper riparian function, may take decades to attain after conventional placer mining (Tidwell et al. 2000). Sedimentation becomes a factor in the suitability of the habitat for fish until channel stability and riparian function is attained. Increased sedimentation can limit the ability of fish to obtain food, smother fish eggs and reduce the amount of intergravel space available for eggs, juvenile fish, other organisms, and overwintering habitat. It may also create stressful conditions that could increase susceptibility to disease. Placer mining reduces the diversity of habitats (i.e., pools, riffles, undercut banks, overhanging riparian vegetation, large woody debris) resulting in reduced fish densities within post-reclamation stream segments. Streams where placer mining has occurred, may experience short duration but chronically occurring episodes of elevated turbidity. Turbidity commonly exceeds the State standard during periods of high flow and occasionally, as a result of water control issues, during active mining operations. Disturbance to riparian habitats and streambanks from OHV use and recreation could directly and indirectly affect fish and aquatic habitats. Where trails cross streams, soil and vegetation may be altered or destroyed resulting in unstable and eroding streambanks. Temporary campsites or development of trails can also lead to streambank erosion. The loss of riparian vegetation and subsequent bank erosion may lead to increased stream sedimentation. Increased sedimentation could affect fish through mortality, reduction in suitable spawning gravels, reduction in summer and winter rearing habitat, suffocation and mortality of eggs, and displacement of individual fish.				

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	Road construction could have potential long-term impacts to fish and aquatic resources. Disturbance of soil during road construction creates a significant potential for erosion and sedimentation of nearby streams. Roads often increase the frequency of landslides, debris flow, and other mass movement. Culverts, if not properly designed and maintained, can create migration barriers to fish resulting in a loss of habitat. Up to 14 percent of the stream miles open to locatable minerals would fall within ACECs or RCAs. The collection of baseline hydrological data, active revegetation, and streambank stabilization in these areas, would increase the probability of meeting desired future conditions for aquatic habitat. If proposed reclamation efforts are properly implemented and sufficient to withstand flood events, desired habitat conditions may be achieved in three years, resulting in only minor and short-term impacts. Since designing and reconstructing fully functioning stream channels is very complex, combined with the harsh environmental conditions within the planning area, it's more likely that this level of reclamation would result in a strong positive trend toward the desired habitat conditions within 5 to 10 years.				
	Effects would generally be the lowest under Alternative A because the planning area is closed to new locatable mineral entry. Effects from off-trail OHV use would continue to occur.	Effects would be higher, 13 percent of the area would be opened to mineral entry, OHV use would be limited to existing or designated trails on much of the area, and the most RCAs would be identified.	Effects would be higher than under Alternatives A and B. Sixty percent of the BLM land would be opened to new mineral entry, OHV use would be limited to existing or designated trails on parts of the planning area, and fewer RCAs would be identified.	Alternative D would have the greatest potential to impact fish and aquatic resources 73 percent of the BLM land would be open to mineral entry and the fewest RCAs would be identified. Effects from OHV use would be similar to Alternative A.	Effects would be higher than Alternatives A and B, but less than Alternative C. Recommended withdrawal of RCAs, Black River, and ACECs from mineral entry would reduce potential impacts from mining compared to other action alternatives. Effects from OHV use would be similar to Alternative A.
Non-Native Invasive Species	Any disturbances on the landscape provide an opportunity for non-native invasive plants (invasive plants) to become established. Invasive plant seed and propagative parts and non-native invasive species (e.g., insects, pathogens, and invertebrates) may be transported to new locations on vehicles, watercraft, aircraft, equipment, or gear. The effect is compounded if vehicles, watercraft, aircraft, equipment, or gear come from outside the local area or the state. Infestations are concentrated around disturbances and areas of use; however, they may also occur downstream from mining operations and trail/road crossings. Climate change predictions, including longer frost-free seasons and thawing of permafrost, may accelerate the ability of non-native invasive species (invasive species) to become established (Rupp and Springsteen 2009). Infestations would be concentrated around disturbances and areas of use, such as trails, recreation sites, roads, mines, and other developments. Timely reclamation using native plant materials may diminish the potential for invasive plant species to become established at disturbed sites. Roadsides, trails, floodplains, and rivers are prime habitat for invasive plant species and vehicles, including watercraft and OHVs, are prime vectors for the introduction and spread of invasive plants along these corridors. Vehicles import (and export) seeds, often introducing previously unrecorded species. Any disturbance or use, including non-motorized, can contribute to introduction and spread of invasive plants. Additionally, seeds and other reproductive parts of invasive species can be transported by currents from upstream infestations to other areas of the waterways. Invasive plants are commonly introduced by the use of contaminated hay and straw. Hay is frequently fed at trail heads and seed can be passed once pack animals enter public lands. Introduction and spread of invasive plants could occur where infested gravel, fill, and other materials are moved from a source area to public lands. A weed-free gravel (WFG) certification program is being developed in Alaska. Certification programs, outreach/education efforts, and early detection and rapid response would reduce but not totally				

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	eliminate effects. Invasive plant management strategies would be developed as a step-down plan from the Proposed RMP/Final EIS. The strategy would include integrated pest management, which would also address large and difficult to treat infestations. The primary difference between the alternatives is the level of surface-disturbing activities, which would correlate with the potential for introduction and spread of invasive species. The decisions in Alternative B would result in the lowest potential impacts on invasive species and Alternative D would have the highest potential.				
	The planning area is closed to mining, limiting surface-disturbing activities. OHV use would occur off of existing trails, increasing potential for new infestations. Prohibiting summer OHV use on 11 percent of the planning area and limiting rights-of-way to six transportation corridors in the Steese and White Mountains subunits, would reduce effects in these areas.	Although 13 percent of the area would be opened to mining, additional surface disturbance would be limited. OHV use would be more constrained than in Alternative A. Summer OHV use would not be allowed or would be limited to existing trails on 47 percent and 27 percent of the area respectively. SOPs, transportation corridors, and four ROW avoidance areas would reduce the potential for spread and new infestations of invasive species. Alternative B has the lowest potential for introduction or spread of invasive plants.	Sixty percent of the area would be opened to mining, resulting in additional surface disturbance. OHV use would be less constrained than in Alternative B. Summer OHV use would not be allowed or would be limited to existing trails on 20 percent and 45 percent of the planning area respectively. SOPs and two transportation corridors in the Steese National Conservation Area would reduce the potential for spread and new infestations of invasive species.	Seventy-three percent of the area would be open to mining. Limitations on OHV use would be slightly more restrictive than Alternative A, with 16 percent of the area closed to summer OHV use. OHV use would occur off of existing trails, increasing potential for new infestations. SOPs would be implemented. Alternative D would have the highest potential for introduction or spread of invasive species.	Twenty-six percent of the area would be open to mining, resulting in additional surface disturbance. OHV use would occur off of existing trails, increasing potential for new infestations. Prohibiting summer OHV use on 11 percent of the planning area would reduce effects in these areas. Allowing snowmachine use in research natural areas would increase the potential for spread of invasive species into these areas.
Soil and Water Resources	Relatively minor surface disturbances can lead to long-term adverse impacts to soil and water resources as much of the planning area is underlain by permafrost. Erosion of soils and subsequent instream sedimentation are the most important concerns for maintaining soil health and water quality. Surface-disturbing activities (i.e., OHV use, mining, trail or road construction, wildland fire management) have the potential to result in direct adverse impacts to soil and water resources regardless of subunit and alternative. Impacts may include increased soil erosion and sedimentation in streams, altered soil chemistry and nutrient composition, and reduced diversity of native plants (Hawkins 2000; Chapin et al, 2000). Management to maintain Special Status Species, vegetative communities, wilderness characteristics, and wildlife habitat, and special designations would generally benefit soil and water resources, as would management to reduce introduction and spread of invasive species. The implementation of SOPs which protect upland and riparian vegetation, would also contribute to water quality and healthy soils. These beneficial effects would be substantially similar for watersheds in all subunits and alternatives, mitigating impacts to surface and subsurface waters as well as wetlands and floodplain areas. Measures to restore disturbed fish and aquatic habitats and to protect healthy watersheds would result in long-term beneficial impacts to soil and water resources. Water and soils resources would be managed to reduce soil-erosion, minimize impacts to soil profiles, and comply with State of Alaska water quality requirements and storm water pollution prevention permit requirements. BLM-authorized uses would be analyzed				

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	through the NEPA process and measures enacted to protect and/or restore healthy functioning watersheds, and minimize disturbance of soil resources. Not all effects could be mitigated. In general, effects would vary by the acreage open to surface-disturbing activities. Alternative D would be the least protective of resources and Alternative B would provide the greatest protection.				
	No RCAs are identified. Planning area is closed to mining thereby limiting surface-disturbing activities. Some OHV use would likely occur off of existing trails, increasing potential for adverse impacts to soil and water resources. Prohibiting summer OHV use on 11 percent of the planning area and limiting rights-of-way to six transportation corridors in the Steese and White Mountains Subunits would reduce impacts in these areas. On remaining lands the only limitation on OHV use would be 1,500 pound GVWR weight limit; cross-country travel is allowed.	Additional protection of soil and water resources would be provided by management of 73 RCAs. Although 13 percent of the area would be opened to mining, additional surface disturbance would be limited. OHV use would be more constrained than in Alternative A. Summer OHV use would be closed on 47 percent of the area and would be limited to existing designated trails on 27 percent of the area. SOPs, transportation corridors, and four ROW avoidance areas would reduce the potential for adverse impacts to soil and water resources. Alternative B has the lowest potential for disturbance and adverse impacts to soil and water resources.	Soil and water resource protection would be provided by management of 45 RCAs. Sixty percent of the area would be opened to mining, resulting in additional surface disturbance. OHV use would be less constrained than in Alternative B. Summer OHV use would be closed on 20 percent and limited to existing trails on 45 percent of the planning area. SOPs and two transportation corridors in the Steese National Conservation Area would reduce the potential for disturbance of soil and water resources.	Protection of soil and water resources would be provided by management of 22 RCAs. Seventy-three percent of the area would be open to mining. Limitations on OHV use would be slightly more restrictive than Alternative A, with 16 percent of the area closed to summer OHV use. OHV use would occur off of existing trails, increasing potential for disturbance of soil and water resources. SOPs would be implemented. Because of the relatively large areas open to mining Alternative D would have the highest potential for surface disturbance and adverse impacts to soil and water resources.	Additional protection would be provided by withdrawal of 73 RCAs and Black River watershed from mineral entry. Twenty-six percent of the area would be open to mining, resulting in potential surface disturbance. Prohibiting summer OHV use on 11 percent of the planning area would reduce effects in these areas. OHVs would be limited by weight over the entire planning area. Some off-trail use of OHVs would occur with impacts on soil and water resources similar to Alternative A. Research natural areas would be open to winter snowmachine use increasing the potential for impacts to soil and water resources in these areas.
Wetlands and Floodplains	Same as Soil and Water Resources				

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Special Status Species	Effects on BLM Alaska sensitive species are similar to those described in the Vegetative Communities, Wildlife, and Fish and Aquatic Species sections. Given that effects from allowed activities are predicted to remain fairly localized, and that most habitats would remain in natural condition, it is not anticipated that any alternative would trend any sensitive species toward federal listing. Actions affecting wetland, riparian, and aquatic habitats could result in impacts because these habitat types support many sensitive animal species. All action alternatives open significant areas to placer mining, which could result in substantial local impacts to riparian and aquatic habitats and species, although in varying degree. Alternatives that maintain water quality and limit impacts to riparian habitats will best minimize impacts to sensitive animal species. Where established, RCAs will reduce impacts to riparian and aquatic habitats, primarily by improving reclamation. RCAs do not exist in Alternative A (although no areas are open to locatable or leasable minerals), are most extensive in Alternatives B and E, and least extensive in Alternative D. Reclamation requirements in all action alternatives, may increase reclamation success and reduce impacts. SOPs would have protective effects on some species. The potential for impacts to sensitive species is highest in Alternative D, lowest in Alternative B, and intermediate in Alternatives C and E. Alternative E (Proposed RMP) opens 26 percent of the planning area to mineral entry.				
	Placer mining activity could degrade riparian areas, stream habitats, and water quality, resulting in localized impacts to sensitive aquatic species. Continued management of Birch Creek WSR would provide some protection to the Alaska endemic mayfly. For all subunits except the White Mountains (closed to locatables), the expected impact to fish and aquatic resources (including sensitive species) from locatable minerals would be highest for Alternative D, and progressively less for Alternatives C, E, B, and A. Some terrestrial sensitive animal species may benefit from activities that promote early-successional habitats (e.g., timber removal, prescribed fire) while most would be negatively impacted from these types of activities. The rusty blackbird is most dependent on wetlands, making protection of lake and pond habitats more important for conservation of this species. Suitable lake and pond habitats are quite rare on BLM lands relative to the Yukon Flats and Tetlin National Wildlife Refuge, so it is very unlikely that any alternative could result in population-level impacts to this species. Potential impacting uses on golden eagles and short-eared owls include recreational activities near nest sites (especially along river cliffs), large-scale mining operations, improperly designed power lines, towers, or similar structures, and high levels of summer OHV use. The impact of approved activities on nesting golden eagles will be limited by the SOPs. The relatively low densities of eagles and short-eared owls and the low level of activities predicted will likely lead to low area-wide levels of impacts to populations of either species in any alternative. Most sensitive plant species occur in habitats with specialized conditions. Potential impacts to sensitive plant habitats occur mostly from summer OHV use, road and trail construction, and large mineral developments in upland habitats. Alternatives that allow locatable and leasable mineral development (or other activities that may create new roads and trails), and also allow cross-country OHV use in the same areas, represent greater potential impacts to sensitive plant species. Additionally, these activities are likely to facilitate the spread of non-native invasive plants, which may be the largest potential impact to sensitive plant species. Alternatives that close areas to cross-country OHV use will limit the potential effects.				
Special Status Species	Mosquito Flats would not be designated as an ACEC, but is withdrawn from mineral entry. Benefitting trumpeter swans and short-eared owls.	Mosquito Flats would not be designated as an ACEC and would be open to mineral entry. Increasing the potential for impacts to trumpeter swans and short-eared owls.			Management of the Mosquito Flats ACEC would provide benefits to trumpeter swans and short-eared owls.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Vegetation	Management to maintain soil, water quality, fish habitat, Special Status Species, visual resources, wilderness characteristics, and subsistence, and special designations will generally benefit natural diversity of vegetative communities. The effects of solid leasable minerals, salable minerals, lands and realty, and renewable energy is predicted to be small due to the limited activity expected. The SOPs (Appendix A) would reduce potential impacts to vegetative communities in the action alternatives. RCAs would reduce impacts to riparian vegetation where they are identified. The potential impact of introduction and spread of non-native invasive plants (invasive plants) is large and most often occurs in conjunction with surface-disturbing activities or use of motorized vehicles. Requirements for weed-free hay, mulch, seed, and gravel sources would reduce potential for establishment of invasive plants. Cross-country OHV use, especially in recently burned areas, may represent the largest potential impact to vegetative communities, through spread of invasive plants. Wildland fire is the major determinant of vegetative communities. A natural fire regime is considered desirable and is maintained for most of the planning area through the Limited Management Option. Areas near the road system and communities are typically within Modified, Full, or Critical fire management options and fire suppression will artificially modify the fire regime in these areas. Greater public presence and establishment of human infrastructure, which could result from decisions in this plan, often leads to greater fire suppression which can cause deviations away from normal fire regime. Effects to vegetation of a longer fire return interval include older stand ages, changes in community composition, trend towards less productivity and growth, and larger areas of similar vegetation. Climate change is predicted to result in major changes to vegetation in the next 30 years as fire frequency increases. Activities which facilitate the spread of invasive plants will compound the effects of climate change and the regional increase in prevalence of invasive plants. Harvest of timber can have major effects on vegetation, although assumed low levels of harvest will result in minor impacts at the planning area scale. Potential impacts include: loss of vegetation cover, conversion of vegetation to an earlier successional state, and introduction of invasive plants. Regeneration of tree species can sometimes be delayed by heavy grass cover following harvest. Roads and trails created for forest harvest can result in both direct and indirect impacts on vegetation, including facilitating recreational OHV use and creation of new trails.				
	There would be no seismic exploration.	Clearing of seismic lines causes direct destruction of vegetation and recovery of vegetation is slow. Lines may be used for OHV travel, which can exacerbate impacts and slow or prevent vegetation recovery. Impacts would be localized and limited due the low level of exploration anticipated.			
	Impacts from locatable minerals include both direct loss of habitat and changes in human use due to improved access. Placer mining disturbs riparian and near-stream vegetation and the stream channel which may result in downstream effects on riparian vegetation. Mining typically changes the vegetation from late seral to early seral communities. Recovery of habitats is highly variable and may be very slow. Aufeis formation can result in erosion and prevent or slow vegetation growth. It may require 50 years or more (following end of mining) for riparian habitat quality to approach pre-mining conditions. Lode mining disturbs upland vegetation, results in permanent change to the landscape, and typically requires high-standard road access. In addition to direct loss of habitat, roads can cause changes to vegetation through melting permafrost, obstruction or change in drainage, aufeis formation, erosion and deposition into streams, and dust deposition on adjacent vegetation. Invasive plants are frequently spread along roadways. Roads facilitate access to areas which may previously have been remote and inaccessible, resulting in indirect impacts.				
	Effects from mining would be limited to 21,000 acres of existing mining claims in the Fortymile, Steese,	834,000 acres in the Steese and Fortymile subunits (13 percent of planning area) would be opened to mineral entry. Effects	3,887,000 acres in the Steese, Fortymile, and Upper Black River subunits (60 percent of planning area) would be	4,755,000 acres in the Steese, Fortymile, and Upper Black River subunits (73 percent of planning area) would	Effects would occur on 1.713,000 acres (26 percent of planning area) open to mineral entry. Effects would be lower

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	and White Mountains subunits.	from mining would be higher than Alternative A.	opened to mineral entry. Effects would be higher than Alternatives A and B.	be opened to mineral entry. Effects would be highest in this alternative.	than Alternative C, but higher than Alternative B.
	Recreational facilities impact vegetation directly from loss of habitat, and indirectly through visitor use. High levels of visitors can impact vegetation through trampling. Recreationists using motorized vehicles typically have larger impacts to vegetation, both in area impacted and degree of modification. Effects of non-motorized recreation typically occurs in only limited areas of concentrated use. Impacts to vegetation from snowmobiles would be low and noticeable impacts limited to local areas of heavy use. Summer use of OHVs both on and off trails can affect the vegetation including: crushing and breakage of shrubs, exposure of mineral soil, changes in drainage patterns, compression of the organic layer, and increased thaw depth. In permafrost soils, this can lead to thermokarsting and erosion. In user-created trails, vegetative cover and composition may change or vegetation may be totally lost in the trail tread. Trails with exposed soil (whether managed or user-created) serve as routes of spread for invasive plants.				
	Effects from OHV use would be the highest due to the lack of OHV designations on 63 percent of the planning area. Eleven percent is closed to summer OHV use. On remaining lands the only limitation on OHV use is a 1,500 pound GVWR weight limit; cross-country travel is allowed.	Effects from OHV use would be the lowest as less than 1 percent of the planning area would be closed to all motorized use, 47 percent would be closed to summer OHV use, and 27 percent would be limited to designated or existing trails. In the Steese Subunit subsistence users would be allowed summer OHV access, introducing impacts to areas limited to no summer OHV use in other alternatives.	Effects would be higher than Alternative B. Less than 1 percent would be closed to all motorized use, 20 percent would be closed to summer OHV use, and 45 percent would be limited to designated or existing trails. Cross-country summer use of OHVs 1,000 pounds curb wight and less would be allowed on 35 percent (all in the Upper Black River subunit).	Effects would be higher than Alternative C but less than Alternative A. Less than 1 percent would be closed to all motorized use and 16 percent would be closed to summer OHV use. Cross-country summer use of OHVs 1,000 pounds curb weight and less (1,500 pounds in Fortymile subunit) would be allowed on 83 percent.	Effects would be similar to Alternative A with the following differences. Research natural areas would be open to winter snowmachine use increasing the potential for impacts in these areas. OHVs would be limited by weight over the entire planning area.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Visual Resources	Surface-disturbing activities such as mining, trail construction, or facilities development effect visual resources due to changes in line, form, color, and texture on the landscape. Field camps temporarily impact visual resources by introducing different colors into a predominately green and brown landscape. Wildland and prescribed fires change line, color, and texture of burned areas in contrast to the surrounding unburned areas. Proper management of air quality, soils, vegetation, fish, and wildlife would generally protect or enhance visual resources, as would Special Designations such as WSR or ACECs. Recreation Management Zones are managed for different physical settings which include remoteness, naturalness and visitor facilities. Generally, areas managed for Primitive, Semi-Primitive or Backcountry settings would protect or enhance visual resources. Evaluation of individual projects for effects to visual resources, would reduce impacts in all alternatives and VRM Classes.				
	Effects described above would occur but would be limited by existing mineral closures, which should result in fewer surface-disturbing activities. Conversely, there would be fewer special designations, summer OHV use would be less constrained, and recreation setting character and VRM Classes are not identified for all lands.	Effects would be higher than Alternative A. Acres of surface disturbance would be slightly higher. Acres within special designations would include the largest area, OHV use would be the most limited, more lands would be managed for a Primitive, Semi-Primitive, or Backcountry setting, and 81 percent of the area would be managed as VRM Class I-II.	Effects would be higher than Alternative B. More lands would be opened to mineral entry, resulting in more surface disturbance. OHV use would be less limited than in Alternative B, but more limited than Alternative A. Fewer acres would be under special designations or managed for Primitive, Semi-Primitive, or Backcountry settings than in Alternative B. Thirty-four percent of the area would be managed as VRM Class I-II.	Effects would be the highest. This alternative would open the most land to mineral entry and have OHV limitations similar to Alternative A. Fewer acres would be under special designation of any alternative, except A. Less land would be managed for a Primitive or Semi-Primitive setting and 13 percent of the area would be managed as VRM Class I-II.	Effects would be higher than Alternative B, but lower than Alternative C. This alternative would open 26 percent of the lands to mineral entry. Levels of summer OHV use would be similar to Alternative A. More acres would be managed for a Backcountry setting than in Alternative C, protecting or enhancing visual resources. Sixty-one percent of the area would be managed as VRM Class I-II.
Wilderness Characteristics	Short-term and long-term effects to naturalness could occur from surface-disturbing activities associated with management of resources, mining activity, or land use authorizations. Increased access due to BLM-authorized activities may decrease opportunities for solitude while increasing opportunities for primitive, unconfined recreation. Visual resource management would help maintain naturalness. Recreation prescriptions would help maintain naturalness in areas where wilderness characteristics would be maintained. In other areas, recreation and travel management decisions may impact naturalness and opportunities for solitude. Effects on wilderness characteristics would be the lowest under Alternative B, somewhat higher under Alternatives C and E, and the greatest under Alternative D.				
	Not addressed.	Wilderness characteristics would be maintained on 5,012,000 acres (78 percent) in the Fortymile, Steese, Upper Black River, and White Mountains subunits.	Wilderness characteristics would be maintained on 2,074,000 acres (32 percent) in the Fortymile, Steese, Upper Black River, and White Mountains subunits.	Wilderness characteristics would be maintains on 741,000 acres (11 percent) in the Fortymile, Steese, and White Mountains subunits.	Wilderness characteristics would be maintains on 3,456,000 acres (53 percent) in the Fortymile, Steese, Upper Black River, and White Mountains subunits.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Wildland Fire	In areas where wildland fire exclusion is attempted larger more severe wildland fires, that may be outside the range of natural variability, could occur. Areas that are in the Critical, Full, or Modified fire management options have the potential to lose key ecosystem components due to fire exclusion and move from Fire Regime condition class 1 to condition class 2 or 3. These effects may be mitigated through fuel management projects or changes to fire management options.				
Wildlife	Management to maintain soil and water resources, Special Status Species, vegetative communities, visual resources, wilderness characteristics, and subsistence will generally benefit wildlife and their habitat, as would management of invasive plants. The effects of solid leasable minerals, salable minerals, lands and realty, and renewable energy are anticipated to be small due to the limited activity expected. The SOPs (Appendix A) will apply in all action alternatives and would reduce potential impacts to habitat and many wildlife species. A SOP which does not allow use of domestic sheep, goats, or llamas as pack animals by BLM-permittees (such as commercial outfitters) would reduce the potential for disease transmission to Dall sheep. Members of the public, however, could use these pack animals (except in Alternatives B and E) and potential impacts to Dall sheep are considerable. Measures to minimize impacts to fish habitat will generally benefit wildlife and habitat because of the high value of riparian habitats to many species. RCAs and High Priority Restoration Watersheds will reduce impacts to riparian vegetation, especially stream bank vegetation, resulting in lesser impacts to wildlife in general, and more specifically to BLM Alaska sensitive species and Bird Species of Conservation Concern. Invasive plants have the potential for impacts to wildlife due to alteration of habitat. Introduction and spread of non-native animal species is also a potential impact. All action alternatives include measures to monitor and control the spread of invasive species. These measures will reduce impacts, but some increased abundance of invasive plants are inevitable and loss of habitat for native wildlife species can be expected. Roads and trails (and associated vehicle use) are recognized as the primary avenues of spread of invasive plants. Alternatives which minimize creation of roads and trails, and off-trail summer use of OHVs will reduce potential spread and impacts of invasive plants. Treatment of invasive plants infestations may impact wildlife habitats, but generally less than continuation and spread of invasive plants at the site.				
	A natural fire regime is considered beneficial to wildlife and is maintained over most of the planning area through the Limited Fire Management Option. Fire may improve habitat components for some species while degrading habitat for others. Over time, as vegetation recovers from fire, various species of wildlife would benefit from various successional stages of vegetation. Prescribed fire may be used to improve moose habitat. If browse is not a limiting factor on moose populations, there would be little impact on populations over the short-term. The short-term effects of fire on caribou winter range are negative. Lichens, primary winter forage for caribou, are highly susceptible to fire. Impacts to habitat include reduced availability of forage lichens for 60 to 80 or more years after wildfire (Klein 1982, Joly et al. 2003, Collins et al. 2011). On caribou summer ranges, forage quality of vascular plants is improved by fire. Caribou actively avoid burned areas for 35-50 years after a fire (Joly et al. 2003) and select stands greater than 80 years for foraging. It is speculated that, over the long-term, fire would likely be beneficial to caribou as it helps maintain the ecological diversity of the habitat and may prevent mosses from out-competing forage lichens. Periodic fires create a mosaic of fuel types and fire conditions that naturally preclude large, extensive wildland fires (BLM 2004b). Wildlife habitat may be destroyed, fragmented, or degraded due to construction of fire breaks or use of OHVs. Firelines may result in unplanned OHV trails and associated use. Degradation of firelines by thermokarst or erosion may prevent vegetation reestablishment. Impacts from fire suppression would be infrequent.				
	No seismic exploration would occur.	Seismic exploration in the Steese and Upper Black River subunits would directly impact wildlife. Direct loss of habitat occurs with clearing of seismic lines and recovery of vegetation is slow. Caribou would be temporarily displaced by winter seismic survey activities and/or increase movements. Continued vehicle use of seismic lines by recreational users may result in longer-term displacement of wildlife. In general, large and medium mammal responses to seismic activities are expected to be temporary avoidance of the local area. Small rodents			

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
		such as voles could suffer direct mortality, but this would be insignificant to populations in the area. Most birds are absent at the time of year seismic exploration would occur (December-April), but resident species could be temporarily displaced and some early-nesters (such as owls) may have their nests destroyed. A total of 20 miles of seismic line is anticipated on BLM lands within the life of the plan. Impact of this amount of activity would likely be small and local in nature.			
Forest and Woodland Products	Measures to protect other resources, such as limits on the method, timing, and amount of harvest, could make harvest less economically feasible. Implementing closures to protect resource values or specially designated areas would result in the loss of some available acreage and opportunities for harvest. These restrictions and closures would have minimal impact under all alternatives, due to low timber values, lack of demand, and lack of access on BLM lands.				
	Effects would be the lowest under Alternative A, as closures and restrictions on harvest affect the fewest acres.	Effects would be the highest under Alternative B, as nearly half of lands would be closed to various types of harvest. Large areas would also fall under some type of special designation.	Effects would be somewhat lower than under Alternative B. Thirteen percent of lands would be closed to various types of harvest and fewer acres would fall under special designations.	Effects could be slightly higher than Alternative A but less than alternatives B and C. Only 5 percent of lands would be closed to various types of harvest and slightly less acreage would fall under special designation.	Effects would be higher than Alternatives A, C, and D, but less than Alternative B as 30 percent of lands would be closed to various types of harvest. Slightly more acres would fall under special designation than in Alternative C.
Lands and Realty	The primary effect would be the potential for requiring relocation, redesign, or denial of realty authorizations to protect other resources. In some cases, proposed projects could be denied in VRM Class I and II areas. In alternative B, designation of right-of-way avoidance areas would likely make it more expensive and difficult to obtain rights-of-way in these areas. Designation of ACECs in all alternatives may make it more expensive and difficult to obtain rights-of-ways within ACECs. This effect would be the most pronounced in the Fortymile Subunit. The potential for adverse impact decreases from Alternative B to Alternative E to Alternative C to Alternative D because the acres under VRM Class I and II designation decreases from 79 percent in Alternative B to 12 percent in Alternative D and the acres designated as ACECs decreases from 43 percent in Alternative B to 21 percent in Alternative D.				
Leasable Minerals e.g., oil and gas	Although all lands are closed in Alternative A, and Alternatives B, C, D, and E propose to close between 5.7 million acres and 1.3 million acres, to fluid mineral leasing, closure decisions would have little effect due to the lack of these resources on BLM-managed lands. Alternatives B, C, D, and E would open 834,000 to 5.2 million acres, to fluid mineral leasing. Little interest in exploration and no interest in leasing is anticipated in any subunit or alternative. Although decisions in Alternatives B, C, D, and E propose to open from 834,000 to 5.2 million acres, to solid mineral leasing, these decisions would have no effect due to the lack of these resources on BLM-managed lands and a decision to defer coal leasing to a future planning effort.				
Salable Minerals e.g., sand and gravel	All lands are open to salable minerals.	Alternatives B, C, D, and E would close 2,751,000 to 145,000 acres to salable minerals. The unavailability of salable minerals could make projects more logistically challenging or uneconomic. This effect would be minor as demand for salable minerals on BLM-managed lands would be low due to the remote nature of the closed areas, lack of infrastructure, and availability of mineral materials on state and private land.			

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Recreation Management	Measures to protect natural resources would generally benefit recreation by enhancing scenic quality and opportunities for fish and wildlife related recreation. The protection and interpretation of cultural sites would provide beneficial experiences for those seeking historical and cultural appreciation opportunities. Visual Resource Management would have would have long-term, beneficial impacts on recreational activities that include scenic qualities as part of the experience. Negative effects may occur due to restrictions on trail, site, or facility development to avoid sensitive areas, protect view shed, or to prevent resource degradation. Resource development activities such as timber harvest, land use authorizations, gravel pits, or mining could result in increased trails, potential dislocation of wildlife and alteration of scenic visages. Gravel pits may also provide parking and motorized free-play areas. These could impact recreation resources and experiences of naturalness and closeness to nature in Semi-Primitive and Backcountry Zones. In Middlecountry and Frontcountry Zones, impacts would be less due to the more developed nature of these settings. The delineation of a recreation management areas (SRMA) would protect and enhance recreational resources while encouraging specific targeted outcomes (i.e., activities, experiences, benefits, and settings) in these areas. Travel management decisions would provide for a range of motorized and non-motorized recreation experiences, while protecting resource values and minimizing user conflicts. Proposed management in RNAs, ACECs, and WSRs would encourage recreation activities of a more non-motorized, Semi-Primitive nature. As the size or number of these areas increase, opportunities for non-motorized forms of recreation would also increase. Additional restrictions on OHV use or other recreational activities would reduce opportunities for some types of recreational experiences. Management of designated WSR to preserve and enhance Outstandingly Remarkable Values would provide long-term, beneficial impacts to users seeking recreation activities in these areas.				
	Not addressed.	Recreation users and BLM-permittees could not use domestic goats, sheep, or camelids as pack animals in Dall sheep habitat.	There would be no prohibition on the use of domestic goats, sheep, and camelids as pack animals for casual recreational use. However, these animals could not be used by BLM-permittees in Dall sheep habitat.		Same as Alternative B.
Travel Management	Measures to protect natural and cultural resources may reduce opportunities for travel-related activities. Trails may be rerouted to avoid sensitive sites or emergency closures may be implemented. Special designations such as ACECs, RNAs, or WSRs may result in additional limitations on travel. These decisions would limit the accessibility and availability of public lands and features, including roads, primitive roads, and trails. Activities that result in development of new access may increase opportunities for travel-related activities. Assignment of VRM classes generally benefits travel management by maintaining scenic character. Some limitations on trail construction could be applied based on the VRM class. Transportation facilities would need to be designed to meet VRM class objectives. In VRM Class I and II areas, transportation facilities should not attract the attention of the casual observer. In VRM class III areas, such facilities may attract attention and in VRM Class IV areas they may dominate the landscape. Resource development activities such as timber harvest, land use authorizations, or mining could affect travel management through the expansion of the existing transportation network or by degrading existing trails through heavy use. Mineral material sales could facilitate development or improvement of trails, by providing a source of materials close to project sites. Material sales could slightly increase the opportunities available for OHVs by constructing gravel pits and access roads.				

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Economics	Recreation use is expected to grow slowly with increased population in the region. The largest economic effect would be from fluid leasable (oil and gas) and locatable minerals. Economic effects would be low for all alternatives, but slightly higher in Alternative D than in Alternatives A, B, C, and E. Non-market and Non-use values would be highest in Alternative A, mineral closures prevent most development. Under Alternatives B, C, D, and E, these values would decrease in proportion to acreage protected through mineral closures, Primitive or Semi-Primitive recreational settings, maintenance of wilderness characteristics, or special designations.				
	Alternative A could result in at total of 207 jobs and $9.9 million income related to mining, mostly in the Fortymile and Steese subunits.	Alternative B could result in 37 additional jobs and up to $1.2 million in additional income relative to Alternative A. New jobs would be in the Fortymile and Steese subunits.	Alternative C could result in 115 additional jobs and up to $3.7 million additional income relative to Alternative A. New jobs would be in the Fortymile and Steese subunits.	Alternative D could result in 193 additional jobs and up to $9 million in additional income relative to Alternative A. New jobs would be in the Fortymile and Steese subunits.	Same as Alternative B.
Environmental Justice	In twelve communities within the planning area, minorities, primarily Alaska Natives, make up 50 to 100 percent of the population. These communities have significantly subsistence oriented economies. Activities restricting subsistence practices, access, and resources may affect a segment of the local population. Activities likely to occur, other than those associated with mineral extraction or oil and gas, would primarily be transitory in nature, of short duration, and highly localized. Activities could temporarily divert, deflect, or disturb subsistence species from their normal patterns. These activities could alter the availability of subsistence species in traditional harvest areas, which could in turn affect harvest patterns by requiring hunters to travel further in pursuit of resources. Increased travel distances would result in greater expenditures for fuel and equipment. There could be an effect on the subsistence harvest activities of local minority populations as a result of these activities. The effects would likely be minor, short-term, and highly localized. Mining of locatable minerals could result in additional jobs and income to local residents in the environmental justice population, in the Fortymile and Steese Subunits. Increases in recreational use could result in positive effects if employment in guiding or associated activities accrue to local populations. This would be most likely under Alternative D.				
Social Conditions	Impacts to social conditions would result from a wide range of management decisions. Most impacts result in positive benefits to some individuals and groups, with negative impacts to others. Most impacts to individuals and groups would be minor to moderate in part because other opportunities exist for the activities within the planning area and on nearby lands managed by the State of Alaska or Native corporations. While it is possible for impacts from multiple resources to adversely affect individuals and groups in a cascading fashion, most individuals and communities exhibit sufficient resiliency to adapt.				
Subsistence	Any land disturbing activities have the potential to alter habitat, create barriers or directly disturb subsistence resources and therefore impact distribution and availability of the resources. Management measures to protect fish and wildlife, vegetation, soil and water resources would generally benefit subsistence resources through maintenance of healthy, functioning watersheds, riparian areas and high quality habitats to support healthy populations of fish, wildlife, and plant resources.				

2.11.2. Comparison of Impacts Fortymile Subunit

The following table outlines impacts that would occur in the Fortymile Subunit. These are in addition to the impacts discussed as common to all subunits under Table 2.26, "Comparison of Impacts: Common to All Subunits".

Table 2.27. Fortymile Subunit: Comparison of Impacts

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Fish and Aquatic Species	Effects from mining, recreation, travel management and special designations could occur. Species affected would typically be Arctic grayling and whitefish species. Effects from recreation would be minimal under all alternatives.				
	No Riparian Conservation Areas (RCAs) are identified.	11 RCAs would provide additional protection to high priority fish habitat.	One RCA would be identified, but would have limited effect as it includes very little BLM land.	No RCAs are identified.	Withdrawal of 11 RCAs from mineral entry would provide additional protection to high priority fish habitat.
	Mining could occur on 10,000 acres of existing claims, covering 78 stream miles. Approximately 970 acres (14 stream miles) could be directly disturbed by placer mining. Both suction dredging and placer mining would impact fish. Impacts from suction dredging would be localized and minor assuming active spawning areas are avoided. Impacts from mining would be low to moderate, but could have long-term effects resulting in decreased levels of fish populations at the local level. This alternative likely provides the greatest protection to fish and aquatic resources because disturbance would be limited to fewest acres	Mining could occur on 43 percent of the subunit, or 1,400 stream miles, 1 percent of which are within RCAs. Approximately 1,200 acres (17 stream miles) could be directly disturbed by placer mining. Suction dredging and placer mining would affect impact fish over a larger area. The likelihood of impacts would be greatest in areas of medium to high mineral potential. Over 800 miles of stream with medium to high mineral potential and 44 percent of the stream miles within the subunit would be open to locatable minerals. Impacts may be low to moderate with long-term (10 to 20 years) effects. This would result in decreased levels of fish populations and habitat at the local level.	Mining could occur on 67 percent of the subunit, or 2,100 stream miles, none within RCAs. Approximately 1,200 acres (18 stream miles) could be directly disturbed by placer mining. Suction dredging and placer mining would affect impact fish over a slightly larger area. Over 1,200 miles of stream with medium to high mineral potential and 62 percent of the stream miles within the subunit would be open to locatable minerals. Impacts may be moderate with long-term (10 to 20 years) effects. This would result in decreased levels of fish populations and habitat at the local level. Based on the amount of potential disturbance, adverse impacts to fish and aquatic habitat under this alternative would	Mining could occur on 91 percent of the subunit, or 2,900 stream miles. Approximately 1,400 acres (21 stream miles) could be directly affected by placer mining. Over 1,400 miles of stream with medium to high mineral potential and 90 percent of the stream miles within the entire subunit would be open to locatable minerals. Impacts to fish and aquatic resources in this alternative may be moderate with long-term (10 to 20 years) effects. This would result in decreased levels of fish populations and habitat at local and potentially subunit levels. Alternative D would have the greatest potential for adverse impacts on fisheries and aquatic resources. Cross-country OHV use would be allowed in 97 percent of the subunit. Only 3 percent would be closed to summer use of OHVs.	Mining could occur on 60 percent of the subunit, or 1,900 stream miles. Same as Alternative B, approximately 1,200 acres (17 stream miles) could be directly disturbed by placer mining. Impacts from suction dredging would be the same as Alternative B. Over 1,400 miles of stream with medium to high mineral potential and 59 percent of the stream miles within the subunit would be open to locatable minerals. Impacts may be low to moderate with long-term (10 to 20 years) effects, leading to decreased levels of fish populations and habitats at the local level. The majority of the high value fish and aquatic resources would likely remain intact and functioning. Based on the amount of potential disturbance, adverse impacts to fish would be higher than Alternatives

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	and stream miles. Trail proliferation and cross-country OHV use resulting in increased erosion and sedimentation could have moderate, adverse short- and long-term impacts on fish and aquatic resources. Impacts from OHV use would be higher than other alternatives.	Based on the amount of potential disturbance, adverse impacts to fish and aquatic habitat would be greater than under Alternative A and less than Alternatives C and D. OHV use would be restricted to existing routes and 30 percent of the subunit would be closed to summer OHV use. This Alternative would provide the greatest protection and Impacts from Travel Management would be minimal.	be greater than under Alternative A and B, but less than Alternative D. Effects from Travel Management would be similar to Alternative B, although only 6 percent of the subunit would be closed to summer OHV use.	Unauthorized proliferation of trails may increase with a resulting increase in erosion and sediment impacts. Travel Management could have minor, long-term adverse impacts on fish and aquatic habitats. Effects would be higher than Alternatives B and C, but less than Alternative A.	A and B, but less than Alternatives C and D. Impacts from OHV use would similar to Alternative A. Removal of current restrictions on motorboat use would have little impact on fish or aquatic resources.
	The Fortymile WSR is closed to mineral entry and leasing, except for valid existing claims. Fish and aquatic species would benefit as habitat generally remains intact.	Effects from management of the Fortymile WSR would be similar to Alternative A. Dome and Gold Run Creeks would be recommended suitable for designation as WSRs, benefitting fish and aquatic resources because of development limitations. Designation of the Fortymile ACEC would provide additional protection to fish habitat.	Effects from management of the Fortymile WSR would be similar to Alternative A. The Fortymile ACEC would be designated. The ACEC would be smaller and management less protective than under Alternative B, but its designation would still benefit fish and aquatic species due to the increased resource protection within the ACEC.	Management of the Fortymile ACEC would be less protective. However, fish and aquatic resources could potentially benefit from increased protections the ACEC. Adverse impacts could occur in the "scenic" segments of the Fortymile WSR which would be open to locatable minerals.	Effects from management of the Fortymile WSR would be similar to Alternative A. Designation of the Fortymile and Mosquito Flats ACECs would benefit fish and aquatic resources by limiting adverse impacts from mining on valid existing claims.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Soil and Water Resources	Impacts could result from locatable mineral activity on 10,000 acres of current mining claims, many of which have been previously worked. It is unlikely extensive additional access roads would need to be constructed in order to reach known mineral deposits. Impacts would be reduced through site-specific analysis and stipulations attached to permits for mining authorizations.	800,000 acres would be opened to placer mining with subsequent construction of roads and/or staging areas. Placer mining utilizing heavy equipment may adversely impact soil resources and water quality through erosion, unintended discharge of sediment laden water, and subsequent increased downstream turbidity. Mining operations could impact the natural flow characteristics of selected river segments. Disturbance would be reduced by SOPs and the site-specific analysis of subsequent authorizations.	The types of impacts would be the same as Alternative B, but would affect more acres. 1,253,000 acres would be open to locatable minerals and new development would likely occur. Since more acres would be open to mineral development than under Alternative B, there would be greater potential for adverse impacts to soil and water resources. Disturbance would be reduced by SOPs and the site-specific analysis of subsequent authorizations.	The types of impacts would be the same as Alternatives B and C, but would affect more acres. 1,713,000 acres would be open to locatable mineral entry. Since more acres would be open to mineral development, there would be a greater potential for adverse impacts. Alternative D would likely result in the greatest disturbance to soil resources and adverse impacts to water quality. Disturbance would be reduced by SOPs and the site-specific analysis of subsequent authorizations.	The types of impacts would be the same as Alternative B. Although approximately 1.1 million acres would be open to locatable mineral entry in Alternative E, the foreseeable level of mining activity is the same as Alternative B. Disturbance would be reduced by SOPs and the site-specific analysis of subsequent authorizations.
	No substantial disturbance of soils or impacts to water quality would be expected from recreation unless there were a substantial increase in development or recreation use levels.	Use of trails, picnic and camping areas, and facilities would likely result in moderate soil disturbance and limited impacts to water quality in localized areas.		Effects would be similar to Alternatives B and C, except there would be an increased potential for adverse effects to soil and water resources because there would be more emphasis on recreational infrastructure development.	Impacts would be similar in magnitude and extent to Alternatives B and C.
	Impacts from Travel Management would depend on size of vehicle, season of travel, and number of trips. With no OHV	Impacts would be lower than Alternative A due to implementation of OHV designations. OHV use would be limited to existing trails on 71	OHV use would be limited to existing trails on 94 percent of the subunit. Impacts on soil and water resources would be somewhat	This alternative differs in that cross-country summer use of OHVs would be allowed on 97 percent of the subunit. Since Alternative D would increase the acreage	Impacts to soil and water resources would be similar to Alternatives A and D. Cross- country OHV use would be allowed, however, use would be slightly more

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	designation in place outside of the WSR Corridor, there may be detrimental impacts to soil resources and watersheds from proliferation of user-created trails, subsequent soil erosion, and increased siltation in streams.	percent of the subunit. No substantial adverse impacts are expected because measures to reduce impacts to soil and water resources include trail maintenance on existing trails, summer OHV use restrictions and OHV weight restrictions.	greater when compared to Alternative B because of the increased acreage open to summer OHV use and the allowance for off-trail travel for game retrieval.	open to cross-country OHV travel compared to other Alternatives it would have the greatest potential for direct and indirect adverse impacts to soil and water resources associated with OHV use.	restricted than in Alternative A because weight limitations would apply to the entire subunit. Summer OHV use would be closed in the Mosquito Flats ACEC, providing protection for soil, water, and wetland resources.
Wilder-ness Char-acteristics	Wilderness characteristics would not be directly protected.	Wilderness characteristics would be protected on 51 percent of the subunit. Lack of activity and other management actions could indirectly protect wilderness characteristics on the remaining 49 percent of the subunit. Naturalness may be impacted over the short-term in localized areas.	Wilderness characteristics would be protected on 26 percent of the subunit. Lack of activity and other management actions could indirectly protect wilderness characteristics on the remaining 74 percent of the subunit. Naturalness may be impacted over the short-term in localized areas.	Wilderness characteristics would be protected on 3 percent of the subunit. Lack of activity and other management actions could indirectly protect wilderness characteristics on the remaining 97 percent of the subunit. Naturalness may be impacted over the short-term in localized areas.	Wilderness characteristics would be protected on 30 percent of the subunit. Lack of activity and other management actions could indirectly protect wilderness characteristics on the remaining 70 percent of the subunit. Naturalness may be impacted over the short-term in localized areas.
Wildlife	The subunit is closed to leasable minerals.	Although 47 percent of the lands would be open to leasable minerals, many sensitive wildlife habitats would be closed. If exploration occurred, there may be localized impacts to wildlife and habitat.	Effects would be similar to Alternative B, except a larger area and more of the caribou calving habitat would be open to leasing.	Effects would be similar to Alternatives B and C, except a larger area and most of the caribou calving habitat would be open to leasing.	Although 60 percent of the lands would be open to leasable minerals, many sensitive wildlife habitats would be closed. If exploration occurred, there may be localized impacts to wildlife and habitat.
	This alternative would minimize the potential for impacts to wildlife. Mining is occurring only on existing	Although 47 percent of the lands would be opened to locatable minerals, many sensitive wildlife habitats would	Effects would increase as 67 percent of the lands would be opened. Potential impacts to caribou calving and	About 91 percent of the lands would be opened, including most of the caribou calving/postcalving habitat on BLM land. Of	Although 60 percent of the lands would be opened to locatable minerals, many sensitive wildlife habitats would remain closed.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	mining claims (10,000 acres). Current mining is mostly suction dredging and small placer mines and is concentrated along and near the road- and river-accessible portions of the Fortymile WSR. These effects are mostly local in nature.	remain closed. Impacts on caribou and Dall sheep would be minor. Increased levels of suction dredging may result in disturbance to nesting peregrine falcons. Although the increase in mining activity is predicted to be small, the location of mining may change, requiring access (roads and trails) which may have larger impacts on wildlife. Application of SOPs would result in relatively minor reductions in impacts.	postcalving habitats will be greater, but the most important caribou habitats on the BLM land would remain closed, as would Dall sheep range and mineral licks. Increased levels of suction dredging may result in disturbance of more peregrine falcon nest sites. Although, the increase in mining activity is predicted to be small, new mines may be initiated in remote areas, requiring access which may have larger impacts on wildlife. Application of SOPs would result in relatively minor reductions in impacts.	the Fortymile caribou herd's recent calving/postcalving range, the only large area closed to locatable minerals would be within the Yukon-Charley Rivers NP. Seventy percent of the areas most highly used for caribou calving will be open to mineral entry. At predicted levels of mining, impacts on caribou would be modest during life of the plan. However, the increase in mining could be larger than predicted or located in key habitats, resulting in larger impacts. Increased levels of suction dredging may result in disturbance of more peregrine falcon nest sites. Despite the SOPs, disturbance of caribou, sheep, and undocumented raptor nests will still occur.	Potential impacts to caribou calving and postcalving habitats would be less than in Alternative D and similar to Alternative C. Of BLM lands in the area of concentrated calving/postcalving used during the last 16 years, 51 percent would remain closed to mineral entry. As would Dall sheep range on BLM land. Although the increase in mining activity is predicted to be small, operations may be larger than predicted. Also new mines may be located in remote areas, requiring access (roads and trails) which may have larger impacts on wildlife.
	Recreation affects wildlife primarily along the Taylor Highway and road-accessible river sections. Wildlife is displaced, at least temporarily, by recreational activities, and that effect is greater at high use sites. Disturbance of nesting raptors can potentially lead to	Impacts would be similar to Alternative A. The Fortymile SRMA (798,000 acres) has specific management objectives and prescription settings. Most of the SRMA would be managed for Semi-Primitive or Backcountry settings. This high proportion of Semi-Primitive and Backcountry management	Only the Fortymile WSR Corridor is included in the SRMA. The smaller SRMA would probably result in little difference in management, use or effects, in the near future. However, more accessible portions will likely see greater recreation-related changes, and access could be developed to some currently remote	As in Alternative C, only the Fortymile WSR Corridor is included in the SRMA. Some sections would be managed to allow greater recreation-related change to the landscape (e.g., more Frontcountry and Middlecountry), resulting in corresponding increases to impacts to wildlife, particularly in the more accessible portions of the subunit. Impacts to nesting	Same as Alternative C.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	nest abandonment or reduced survival of nestlings and likely occurs at times along the Fortymile River. Recreational OHV users are becoming more abundant, traveling further and expanding the zone of impact, though use and impacts are still concentrated closer to roads.	will limit impacts to wildlife. Potential impact to nesting raptors may be reduced by implementation of the SOPs (Appendix A).	areas for purposes such as mining. Objectives for more intensive use in portions of the Fortymile WSR Corridor would result in somewhat greater changes to wildlife habitats than in Alternative B. Impacts to nesting raptors may be reduced due to the SOPs.	raptors may be reduced due to the SOPs.	
	There are no OHV designations and OHV use is relatively unrestricted outside of the Fortymile WSR Corridor. The summer cross-country use of OHVs has resulted in a proliferation of trails leading to local habitat impacts and disturbance impacts. The network of user-created, unsustainable trails can be expected to grow substantially under this alternative, with corresponding increase in impacts to wildlife.	Summer use of OHVs would be prohibited in Semi-Primitive areas (30 percent). On the remainder of the subunit, summer use of OHVs would be limited by weight (1,000 pounds curb weight; 1,500 pounds in Fortymile subunit) and to existing routes. These restrictions would greatly reduce potential impacts to wildlife through minimizing proliferation of new trails and reducing impacts to wildlife habitats from off-trail use.	Summer OHV use on existing routes would be allowed in essentially the entire subunit, except the Semi-Primitive portions of the Fortymile WSR Corridor (6 percent). The increase in impacts to wildlife would be small, because existing routes are very limited in the portion of the corridor which would be opened to OHV use (head of Hutchinson Creek). New managed trails that may be created, would be routed to minimize impacts to wildlife. Effects relative to Alternative B is dependent on extent of new access created for other activities.	The area where summer OHV use would be allowed would expand relative to Alternative C, due to less area in Semi-Primitive classifications (3 percent). In areas open to summer use, OHVs would be allowed to travel cross-country. Impacts under this alternative would be similar to Alternative A. Although summer OHVs would be limited to 1,000 pounds curb weight (1,500 pounds in Fortymile subunit), an expanding network of user-created trails can be expected.	Effects from OHVs will be similar to Alternative D because cross-country summer OHV travel will be allowed. Additionally summer OHV use would be allowed in essentially the entire subunit (except the Mosquito Flats ACEC). Use of airboats and hovercraft in the Mosquito Fork upstream into the Mosquito Flats wetlands could affect waterfowl nesting and moose calving. Timing of motorboat use may reduce impacts. Future travel management planning, to be completed within five years, may reduce impacts of summer OHVs.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	No ACECs exist, meaning special management considerations are not afforded to sheep and caribou.	The Fortymile ACEC (690,000 acres) would be managed to protect Fortymile caribou calving/postcalving and Dall sheep habitat. The ACEC would be closed to leasable and locatable minerals. Potential impacts to caribou would be small, but larger than in Alternative A (which has no ACEC, but where all caribou habitat is closed to locatable minerals).	A smaller Fortymile ACEC would be designated (554,000 acres). Portions of the ACEC would be open to mineral entry and leasing. Relative to Alternative B, this alternative would increase the potential for fragmentation of caribou calving/postcalving habitat.	554,000 acres would be designated as the Fortymile ACEC. The vast majority of the ACEC, including the most highly used caribou calving habitat and all Dall sheep habitat, except mineral licks, would be open to locatable minerals. Some fragmentation of habitats and reduction in habitat quality for caribou and Dall sheep are likely under this alternative.	362,000 acres would be designated as the Fortymile ACEC and 37,000 as the Mosquito Flats ACEC. Both ACECs would be closed to mineral location and leasing. Designation of these ACECs would benefit caribou, Dall sheep, moose, and wildlife using wetlands habitats. The majority of trumpeter swan nesting on BLM lands within the planning area occurs in Mosquito Flats and the area supports an unusually dense population of short-eared owls.
Locatable	Potential for exploration and development would be limited to 10,000 acres of existing mining claims. Mining activity would likely decrease as there would be no opportunities to stake new federal claims to offset claim attrition.	1,076,000 acres would remain closed to locatable minerals. Closures in the Fortymile River would have the most impact as this area has high mineral potential. Operating mining claims in the drainage currently exist, but if they were lost no additional staking could be made. Closures would constrain extraction of the minerals and their benefits to society would remain unavailable for the foreseeable future. Additionally, the infrastructure that typically accompanies development would not occur.	623,000 acres would remain closed. Although substantially more area would be opened to locatable minerals, impacts would be similar to Alternative B as the higher potential and more accessible areas in the Fortymile WSR Corridor would remain closed. The Mosquito Flats medium potential area would be open.	163,000 acres in the "wild" and "recreational" segments of the Fortymile WSR Corridor would remain closed, limiting development in these high potential areas. The "scenic" segments of the Fortymile Corridor would be opened, allowing for staking of new claims in one high potential area with relatively good access. Extraction of minerals would be less constrained than under other alternatives.	745,000 acres would remain closed to locatable minerals. Estimated mining activity and impacts would be the same as Alternative B. As in other alternatives, closure of the Fortymile River would have the most impact as this area has high mineral potential. Mosquito Flats, an area with medium mineral potential, would be closed.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Recreation	Land use authorizations could result in additional development that may adversely affect those areas managed for Primitive or Semi-Primitive recreation experiences. Land use authorizations could also result in increased access opportunities. The Fortymile Subunit would continue to be managed for a variety of recreational opportunities. Existing facilities would be maintained. These actions would directly affect recreation management by ensuring that land- and water-based recreational opportunities continue to exist in both designated and undesignated areas.				
	Operators working state mining claims in the "wild" segments of the Fortymile WSR must camp below ordinary high water, because BLM does not allow long-term camping permits. The entire camp, as well as the suction dredging operation, is visible to recreational users. This may negatively effect those users anticipating a Primitive recreational experience on the "wild" segments of the Fortymile River.	The authorization of long-term camping permits in support of nearby state mining claims would not be allowed in any parts of the Fortymile WSR Corridor. This restriction would impact the scenic view shed and Primitive recreational experiences on any segment of the river where suction dredging was occurring on state mining claims. Effects would be similar to Alternative A, but would extend to the "scenic" and "recreational" segments of the Fortymile.	Effects from long-term camping would be the same as Alternative A.	The authorization of long-term camping permits in support of nearby state mining claims would be allowed in all segments of the Fortymile WSR Corridor. Camps associated with suction dredging could be located on the uplands. Recreational users of the river would still see the suction dredging operation, but camps would be screened from view, reducing impacts to scenic quality. The recreational experience on the "wild" segments of the Fortymile would likely be of a more Primitive nature.	Same as Alternative D.
	Mining and associated infrastructure could compromise the experiences of recreation users whose expectations include a high degree of solitude and tranquility, within a naturally-appearing landscape. Adverse impacts could also arise from intrusive noise and altered view shed. Impacts	Impacts would be similar to, but somewhat greater than Alternative A as mining activity increases in response to opening 800,000 acres to locatable minerals. These effects would mostly occur in areas of dispersed recreation use. Areas that currently have the most concentrated recreation use (e.g., Fortymile WSR Corridor, Fort Egbert	Impacts would be similar to, but slightly greater than under Alternatives A and B. 1,253,000 acres would be opened to locatable minerals. As in Alternative B, areas of concentrated recreational use would remain closed to new mineral entry.	Impacts would be similar to, but slightly greater than under Alternatives A, B and C. 1,713,000 acres would be open to locatable minerals. The "scenic" segments of the Fortymile WSR would be opened to new mineral entry. Unlike the other alternatives, there would be effects from new mineral entry within portions of the Fortymile WSR Corridor.	In this alternative, 1,132,000 acres would be open to locatable minerals. The predicted level of mining activity and impacts would be the same as Alternative B.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	would be limited to 10,000 acres of existing mining claims, some of which are in the Fortymile WSR Corridor.	Historic Site, and Eagle Recreational withdrawal) would remain closed, but mining could occur on existing claims.			
	The Fortymile WSR Corridor (248,000 acres) would be managed as an SRMA. Facility enhancements (e.g., toilets, boat ramps) may be added to accommodate recreation demand.	The Fortymile SRMA would include 799,000 acres. Ninety-eight percent of the SRMA would be managed for Semi-Primitive (78 percent) or Backcountry (20 percent) settings. A much greater portion of the subunit would be reserved for the Semi-Primitive experiences of non-motorized use. Construction of facilities would be limited. These decisions would provide high-quality recreation opportunities for those users who desire an experience characterized by solitude, tranquility, and self-reliance.	The SRMA would be 248,000 acres, resulting in less facility enhancements and fewer restrictions on OHV use. Slightly more motorized opportunities would be available. Similar to Alternative B, management in the SRMA would provide for multiple recreation activities within a variety of RSC settings. Ninety-one percent of the SRMA would be managed for Semi-Primitive (58 percent) or Backcountry settings (33 percent). Like Alternative B, Semi-Primitive accounts for the largest setting. Effects on recreation from these settings would similar to those described under Alternative B.	The SRMA would include the same lands as Alternative C, but management of the SRMA would differ. Similar to Alternatives B and C, management in the SRMA would provide for multiple recreation activities within a variety of RSC settings. Only 22 percent of the SRMA would be managed as Semi-Primitive. Consequently, a much greater portion of the subunit is reserved for the Backcountry and Middlecountry activities of motorized use. More motorized opportunities would be available and enhancement of recreation facilities would be more likely than in Alternative C.	The SRMA would be 248,000 acres and impacts would be the same as Alternative C.
	There are no OHV designations. Travel within the Fortymile WSR Corridor is limited by weight, while travel outside	The OHV designation would be limited. Semi-Primitive areas (626,000 acres) would be closed to summer OHV use. More area would	The OHV designation would be limited. Effects would be similar to Alternative B, except more area would be available for	The OHV designation would be limited. Effects would be similar to Alternative B, except more area would be available for recreational activities that involve	Effects would be similar to Alternatives A and D in that cross-country OHV use would be allowed. Use would be slightly more restricted than in Alternative

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	of the corridor is generally unrestricted. Resource and user conflict issues would not be addressed, possibly resulting in emergency closures to motorized use. There could be long-term, detrimental impacts to scenic view shed that enhance the quality of recreational experiences. While Alternative A would offer the most opportunities for motorized recreational activities; fewer opportunities would exist for semi-Primitive, non-motorized experiences.	be made available for recreational users seeking primitive, non-motorized forms of recreation. In contrast, less area would be available for those users seeking motorized forms of recreation. In the remainder of the subunit summer use of OHVs would be limited by weight and to existing routes. These management actions would negatively impact those users who utilize OHVs for accessing remote areas, and by those retrieving game. Alternative B offers the least opportunity for recreational activities involving motorized travel.	recreational activities that involve summer OHV use, because the Semi-Primitive area would be smaller (144,000 acres). In the remainder of the subunit, summer use of OHVs would be limited by weight and to existing routes, except for game retrieval. The would provide a direct benefit to recreational hunters who could retrieve legally harvested big-game animals off of pre-existing routes.	summer OHV use. The Semi-Primitive area (54,000 acres), which limits summer motorized use, encompasses only 3 percent of BLM lands, compared to 6 percent in Alternative C, 30 percent in Alternative B and none in Alternative A. These decisions could potentially diminish the recreational experience of users seeking a primitive, non-motorized type of experience, while increasing the area available for motorized use. There could be an increase in user conflict issues.	A because weight limitations would apply to the entire subunit. Summer use would be precluded in the Mosquito Flats ACEC (2 percent of BLM lands). All forms of motorized boat travel including hovercraft and airboats would be allowed in all segments of the Fortymile WSR. While providing more opportunity for motorize travelers, motorized boat use on wild segments of the river may detract from the naturalness enjoyed by most recreational users. Limitations in topography, access, and water levels will minimize the occurrence of user conflicts.
	No ACECs are designated.	Designation of the Fortymile ACEC (690,000 acres) would maintain or protect wildlife habitat, potentially resulting in beneficial impacts on wildlife viewing and hunting. Negative effects may also result, if additional restrictions are placed on recreational activities. Designation of Gold Run and Dome Creek	554,000 acres would be designated as the Fortymile ACEC. Effects would be the similar as those discussed under Alternative B, except less area would be designated to protect caribou and Dall Sheep habitat.	554,000 acres would be designated as the Fortymile ACEC. Effects would be the similar as those discussed under Alternative B, except management in the ACEC would be less protective of caribou and Dall sheep habitat. Thus, less potential would exist for beneficial impacts on wildlife viewing and hunting.	Designation of 362,000 acres as the Fortymile ACEC and 37,000 acres as the Mosquito Flats ACEC would maintain or protect wildlife habitat, with potential benefits on wildlife viewing and hunting opportunities. Negative effects may also result from designation where additional restrictions are placed on OHV use (Mosquito Flats ACEC) or other recreational activity. Positive effects of the Mosquito Flat

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
		as WSR rivers, would provide long-term, beneficial experiences for individuals seeking historical and cultural appreciation opportunities.			ACEC includes protection of a sensitive wetland environment used for moose hunting. Conflict between recreational users may be reduced.
Travel Management	Mineral development has the potential to affect travel and transportation management through the expansion of the existing route network. The construction of winter roads and trails for mineral development would provide a direct benefit to OHV users through the enhancement of public access opportunities. These effects would be the highest under Alternatives C and D, and the lowest under Alternatives A, B and E. Management of the Fortymile WSR would impact travel in the "wild" segments where the construction of new roads, primitive roads, trails, or other provisions for overland motorized travel would generally not be permitted (BLM 8351 Manual).				
	Although the Fortymile WSR is managed as a SRMA, Recreation Opportunity Spectrum (RSC) classes are not established. RSC provides a framework for identifying the types of recreation activities to be managed for and is directly related to the travel management.	The RSC setting would maintain 78 percent of the Fortymile SRMA as Semi-Primitive, catering to non-motorized summer use and the winter-use of snowmobiles. The remaining 22 percent would provide opportunities for summer OHV use, but would limit use to existing routes. This alternative would limit travel management the most.	Fifty-eight percent of the SRMA would be managed as Semi-Primitive. The remaining 42 percent would provide opportunities for summer OHV use but would limit use to existing routes, except for game retrieval. This alternative would limit travel management less than Alternative B, but more than Alternatives D and E.	Twenty-two percent of the Fortymile SRMA would be managed as Semi-Primitive. The remaining 78 percent would provide opportunities for summer OHV use, including cross-country travel. More opportunities would exist for motorized travel, compared to Alternatives B and C, but less than Alternatives A and D.	Same as Alternative C, 58 percent of the SRMA would be managed with an emphasis on non-motorized recreational activities and the winter use of snowmobiles. The remaining 42 percent of the SRMA would be managed for more motorized recreational access.
	With no OHV limits outside of the Fortymile WSR Corridor, this alternative would provide the greatest opportunity cross-country motorized activities. For travelers seeking non-motorized forms	OHV designations would be established. Summer OHV use would be restricted to existing routes and vehicle weight on 70 percent of the subunit. Thirty percent would be closed to summer OHV use. Weight restrictions would apply to all areas during	OHV designations would be established. Effects would be similar to Alternative B, except 94 percent of the subunit would be made available summer OHV travel and off route travel could occur to retrieve game. This would provide a direct benefit to	OHV designations would be established. Ninety-seven percent of the subunit would be available for cross-country OHV travel, subject to weight limitations. Only 3 percent of the subunit would be closed to summer OHV use. Weight restrictions would apply to all areas during the winter.	Impacts would be the similar to Alternative A with the exception of more restrictive weight limitations outside of the SRMA and accommodation for the use of UTVs. A positive effect on users and compliance with weight restrictions would be anticipated. Allowance for slightly larger

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	of transportation, the Fortymile Subunit would continue to be managed to provide opportunities of a more primitive nature.	the winter. Restrictions would impact users by limiting OHV use where no limits have been in place before. Limitations imposed on summer-use of OHVs, may make some areas inaccessible, due to lack of existing routes. There would be a greater affect on non-local users who visit during the summer when OHV use is most restricted.	recreational hunters who could retrieve legally harvested big-game animals off of existing routes. Impacts on travel management would be slightly less for this alternative, when compared to Alternative B.	Unlike Alternatives B and C, cross-country travel would be allowed under this alternative. While more area is available to motorized users, less area is available for users seeking a primitive, non-motorized type of experience.	vehicles (UTVs) within the SRMA would have little impact on existing trail width or condition. Allowance for all forms of motorboats, including hovercraft and airboats would not greatly increase the use of these types of craft, due to natural barriers and low water which limit access.
	No ACECs are designated.	Designation of the Fortymile ACEC could affect travel management if additional restrictions were placed on OHV use or trail construction. Impacts are expected to be negligible. Designation of Gold Run as a "wild" river would limit travel management options in the corridor. .	Effects of ACEC designation would be the similar to Alternative B, except the ACEC would be smaller, resulting in less effect to travel management. Additionally, part of the ACEC would be open to mineral exploration and development. If mining activity occurred, additional travel routes could be established and be added to the trail network.	Effects of ACEC designation would be the similar to Alternative B, except the entire ACEC would be open to mineral exportation and development, increasing the potential for establishment of additional travel routes.	Seasonal restrictions on summer OHV use in Mosquito Flats ACEC would limit motorized access within the wetlands (where travel is difficult due to wet conditions), but would not affect user-created routes surrounding the wetland. New routes may be pioneered around the ACEC to serve as new access points for non-motorized hunting within the ACEC. Management prescriptions for the Fortymile ACEC include no cross-country summer use. However, existing sustainable travel routes would likely be available for use limiting impacts to travelers.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Wild and Scenic Rivers	No rivers are recommended suitable for addition to the Wild and Scenic Rivers System.	Gold Run and Dome Creek would be recommended suitable for designation as WSR, protecting their free-flow and ORVs until Congress made a decision on designation. Surface-disturbing activities could affect water quality. Mining on existing claims in Dome Creek could destroy the historic mining values that make the creek eligible for designation and also impact its free-flow.	Gold Run and Dome Creeks would not be recommended as suitable for designation. Designation and management of the Fortymile ACEC would protect Gold Run creek from impacts due to mining.	Gold Run and Dome Creeks would not be recommended as suitable for designation.	Same as Alternative C.
Subsis-tence	Alternative A would not significantly restrict subsistence use by communities in and adjacent to the planning area, as impacts to subsistence resources would be minimal. Impacts to subsistence species are expected to be localized and temporary and are not expected to impact resources at the population level. No impacts to access by subsistence users are anticipated.	Alternative B would not significantly restrict subsistence use of or access to fish, wildlife and vegetative resources by residents in the subunit. Most impacts to subsistence resources would be beneficial, and any impacts by way of the limited amount of development allowed to occur under this alternative would be minimized by Fluid Mineral Leasing stipulations and SOPs (Appendix A).	Alternative C would not significantly restrict subsistence use by communities in the planning area. Most impacts to subsistence resources and uses would be negligible, and any impacts from the limited amount of development allowed to occur would be minimized by the Fluid Mineral Leasing Stipulations and SOPs. Impacts to subsistence species would be localized and temporary, and not expected to impact resources at the population level. No impacts to access by	Alternative D, in and of itself, would not significantly restrict subsistence use by communities in or near the planning area given anticipated levels of development and application of the Fluid Mineral Leasing stipulations and SOPs.	Alternative E would not significantly restrict subsistence use by communities in the planning area. Most impacts to subsistence resources and uses would be negligible, and any impacts from the limited amount of development allowed to occur would be minimized by the Fluid Mineral Leasing Stipulations and SOPs. Impacts to subsistence species would be localized and temporary, and not expected to impact resources at the population level. No impacts to access

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
			subsistence users are expected to occur.		by subsistence users are expected to occur.
	Alternatives A and B when combined with the cumulative case would not result in significant restrictions.		No reasonably foreseeable significant restrictions have been identified for Alternative C when combined with the cumulative case. Most habitat important to subsistence resources is within the Fortymile ACEC or afforded protection by other management prescriptions.	When combined with the cumulative case, Alternative D may result in a reasonably foreseeable and significant restriction of subsistence use for rural communities within the planning area if significant activity occurs within the calving grounds or other crucial habitat of the Fortymile caribou herd.	Same as Alternative C.

2.11.3. Comparison of Impacts Steese Subunit

The following table outlines impacts that would occur in the Steese Subunit. These are in addition to the impacts discussed as common to all subunits in Table 2.26, "Comparison of Impacts: Common to All Subunits". Most of the impacts discussed below would also occur within the Steese National Conservation Area.

Table 2.28. Steese Subunit: Comparison of Impacts

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Fish and Aquatic Species	Effects from mining, recreation, travel management and special designations could occur. Three species of salmon and numerous resident species could be affected. Effects from recreation would be minimal to minor and easily mitigated under all alternatives. The Birch Creek WSR Corridor is closed to mineral entry, benefitting high-value fish resources. Increased resource protection within the Mount Prindle and Big Windy Hot Springs RNAs could be beneficial to fish and aquatic resources.				
	No Riparian Conservation Areas (RCAs) are identified. However, few surface-disturbing activities are anticipated in riparian areas.	21 RCAs would provide additional protection to high priority fish habitat. Effects would be minimal due to lack of surface-disturbing activities.	18 RCAs would provide additional protection to high priority fish habitat. Effects would be minimal due to lack of surface-disturbing activities.	Eight RCAs would provide additional protection to high priority fish habitats. The protective effect would be limited as most RCAs overlay Birch Creek WSR which is closed to mining.	Same as Alternative B.
	No seismic exploration would occur.	Effects to overwintering fish from winter seismic surveys would be localized and would have little effect on fish populations.			
	Mining could occur on 7,000 acres of existing mining claims (5,000 acres in the Steese National Conservation Area), covering 100 stream miles. 370 acres (6 stream miles) could be directly disturbed by placer mining. Impacts from suction dredging would be localized and may be short or long-term. Impacts from mining would be low to moderate, but could have long-term effects resulting in an overall decrease in levels of fish populations at the local level. This alternative likely provide the	Effects from locatable minerals in the Steese National Conservation Area would be similar to Alternative A except that higher reclamation standards and SOPs would apply. Mining could occur on 41,000 acres (140 stream miles). Ten (6 percent) of these 140 stream miles occur in RCAs. Approximately 500 acres (seven stream miles) could be directly disturbed from placer mining. Impacts would likely be minor as only 9 percent of the stream miles are open to mining and only one mile falls in a high mineral potential area.	Mining could occur on 279,000 acres (430 stream miles), including parts of the Steese National Conservation Area. Ten (2 percent) of these 430 stream miles occur in RCAs. Approximately 770 acres (11 stream miles) could be directly disturbed from placer mining. Opening 250 stream miles to mining in medium to high mineral potential areas and the absence of higher reclamation standards on 95 percent of these streams, would result in readily detectable and long-term (10 to 20 years) adverse impacts. This could result in a downward trend of fish populations	Mining could occur on 699,000 acres (920 stream miles), including part of the Steese National Conservation Area. Sixty (6 percent) of these 920 stream miles occur in RCAs. Approximately 1,040 acres (15 stream miles could be directly disturbed from placer mining. Opening 413 stream miles in medium to high mineral potential areas, would increase the potential for impacts. Higher reclamation standards would only apply on 6 percent of these streams. 45 miles of anadromous stream in Preacher Creek basin could be directly impacted by	Mining could occur on 34,000 acres (140 stream miles) including existing mining claims. Mining within the Steese National Conservation Area and RCAs would be limited to valid existing claims. Impacts to fish and aquatic resources would likely be low and localized because all high value fish and aquatic resources (RCAs) would be closed to new mining claims. Only 8 percent of the stream miles within the subunit would be open and only one mile falls within a high mineral potential area. Based on the amount of land open mineral entry, this alternative would provide

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	greatest protection due to the small amount of potential disturbance. Benefits from the higher reclamation standards and SOPs designed reduce recovery time may not occur. Alternative A may have more adverse long-term impacts than other alternatives.		at the watershed scale. Alternative C would provide less protection than Alternatives A and B, but more protection than Alternative D.	placer mining. Localized loss of riparian and streambank vegetation and creation of areas with channel instability could be widespread, creating a matrix of degraded habitats interspersed with "islands" of intact riparian areas. These islands would likely exhibit degraded pool and spawning habitat quality resulting from catchment erosion and downstream sedimentation. There could be significant impacts to both Chinook salmon spawning habitat and the high quality resident fish habitat within Preacher Creek drainage.	more protection to fish and aquatic habitat than Alternatives B, C, and D, but less than A.
	Winter cross-country OHV travel is allowed on 99 percent of the subunit. Only 6 percent of the subunit is closed to summer OHV use. Unauthorized proliferation of trails would result in increased erosion and sediment impacts. There could be localized impacts on fish and aquatic habitats.	Limitations on summer use of OHVs over 99 percent of the subunit would generally benefit fish and aquatic resources because of reduced potential for erosion and sedimentation associated with trail proliferation.	Closing 52 percent of the subunit to summer OHV use would benefit fish and aquatic resources. In the remaining areas, summer OHV use would be limited to existing routes. Impacts to fish and aquatic resources would be highly localized and associated with route erosion and stream crossings. Impacts would be minor and generally short-term.	Effects from Travel Management would be similar to, but more beneficial than Alternative A, as 40 percent of the subunit would be closed to summer OHV use.	Effects from Travel Management would be similar to Alternative A. Use of snowmobiles in research natural areas would not affect fish. Use of hovercraft or airboats on Birch Creek are not likely to affect fish an aquatic resources. This alternative provides less protection to fish from OHVs than Alternatives B, C, or D.
	Management of Birch Creek WSR would benefit high-value	Effects from Birch Creek WSR and the RNAs would be the same as	Effects from Birch Creek WSR and the RNAs would be the	Effects from Birch Creek WSR and the RNAs would be the	Effects from Birch Creek WSR and the RNAs would be the

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	fish resources. Fish and aquatic resource values are not high within the Mount Prindle and Big Windy Hot Springs RNAs, however increased resource protection in these areas could be beneficial.	Alternative A. The Steese ACEC (924,000 acres) would provide additional protection to fish and aquatic habitat outside of the Birch Creek WSR Corridor. Big Windy Creek would be recommended suitable for designation as a WSR, providing additional protection to low-value fish and aquatic resources.	same as Alternative A. Proposed management of a smaller Steese ACEC (457,000 acres) would provide additional protection to fish and aquatic habitat.	same as Alternative A. The Steese ACEC (193,000 acres) would provide less protection to fish and aquatic habitats because the ACEC is smaller and includes less fish habitat.	same as Alternative A. Effects from the Steese ACEC (457,000 acres) would be the same as Alternative C.
Soil and Water Resources	Four transportation corridors are established in the Steese National Conservation Area. The construction of new trails or roads within the corridors would adversely impact soil and water resources through increased erosion and siltation of streams. Impacts to soil and water resources would be reduced through site-specific analysis of subsequent authorizations.	Concentrated use in two transportation corridors would likely impact soil resources and potentially water resources, but would limit disturbance to a discrete area. Impacts to soil and water resources would be reduced through SOPs and site-specific analysis of subsequent authorizations. Right-of-way avoidance areas would provide protection for soil and water resources.	Effects to soil and water resources would be similar to Alternative B; two transportation corridors would be retained. However, there would be no right-of-way avoidance areas.	This alternative would provide the least amount of protection for soil and water resources because more lands would be open to potential ground disturbing activities such as mining and road construction. No transportation or right-of-way avoidance areas would be designated.	Same as Alternative C.
	Impacts could result from locatable mineral activity on current mining claims (7,000 acres), some of which have been previously worked. Impacts would be	34,000 acres would be opened to mining and additional access routes would likely be constructed. Placer mine operations have the potential to adversely impact soil resources and	Impacts would be similar to Alternative B, except they would potentially affect more acres and require additional access. 274,000 acres would be open to locatable minerals and new development	Impacts would be similar to Alternatives B and C, but would affect more acres. 682,000 acres would be open to locatable mineral entry. Since more acres would be open to mineral development there	Impacts would be the same as Alternative B, except only 30,000 acres would be open to locatable mineral entry. Alternative E would have higher potential for adverse impacts to soil and water resources than

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	reduced through site-specific analysis and stipulations attached to permits for mining authorizations.	water quality through erosion of soils and fine-grain sediments and subsequent increased downstream turbidity in nearby streams. Mining operations could impact the natural flow characteristics of selected river segments. Impacts would be reduced through SOPs and site-specific analysis of subsequent authorizations.	would likely occur. Since more acres would be open to mineral development than Alternative B, there would be greater potential for adverse impacts to soil and water resources under Alternative C. Impacts would be reduced through SOPs and site-specific analysis of subsequent authorizations	would be greater potential for adverse impacts. Impacts would be reduced through application of SOPs and site-specific analysis of subsequent authorizations. Alternative D would likely result in the greatest disturbance to soil resources and adverse impacts to water quality.	Alternative A, but less than Alternatives C and D. Impacts would be reduced through SOPs and site-specific analysis of subsequent authorizations.
	Facility enhancements in the Steese National Conservation Area (e.g., roads, toilets, and parking areas) to accommodate increasing recreation demand would likely have limited impacts on soil or water resources. Recreation user activities may result in greater disturbance of soils or impacts to water quality because of limited oversight.	The Steese SRMA would be managed for Primitive recreation experiences of non-motorized use, minimal facilities development, and small user groups. These settings would provide additional protection for soil and water resources. Effects on non SRMA lands would be similar to Alternative A.	The Steese SRMA would be managed for more Semi-Primitive, Backcountry, Middlecountry, and Frontcountry experiences, allowing for increased development of facilities, landscape modifications, and larger group size. Alterative C provides less protection of soil and water resources than Alternative B, but more than Alternatives A and D. Effects on non SRMA lands would be similar to Alternative A.	Slightly fewer acres would be managed for Backcountry experiences and more for Middlecountry experiences compared to Alternative C. There would be an increased potential for adverse effects to soil resources relative to Alternatives B and C because there would be more emphasis on recreational infrastructure development. Effects on non SRMA lands would be similar to Alternative A.	More acres would be managed for Backcountry experiences and fewer acres for Middlecountry experiences compared to Alternative C. There would be an increased potential for adverse effects to soil resources relative to Alternative B, but a lower potential for adverse effects than in Alternatives C and D. Effects on non SRMA lands would be similar to Alternative A.
	Cross-country OHV use is allowed year round on 89 percent of the subunit subject only to weight restrictions; the remaining 11 percent is either closed (3,000 acres)	Same as Alternative A, 3,000 acres would be closed to OHV use. OHV use on 99 percent of the subunit would be limited to winter use of snowmobiles. Winter snowmobile use, both on and off trails, would	Effects to soil and water resources would be similar to Alternative B, but somewhat higher. 3,000 acres would be closed, 602,000 acres would be limited to existing trails, and 677,000 acres would	Effects would be similar to Alternative A but lower. 510,000 acres, or three times the area of Alternative A, would be closed to summer OHV use. Cross-country use of OHVs, subject	Impacts would be the same as Alternative A except 3,000 acres in research natural areas would be open to snowmobiles and use of airboats and hovercraft would be allowed. These exceptions

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	or limited by season of use (142,000 acres). This alternative would likely result in increased detrimental impacts to soil and water resources from proliferation of user-created trails and subsequent erosion.	have little effect on soil and water resources. There would be no substantial adverse impacts to soil and water resources.	be closed to summer OHV use. Limiting OHVs to existing trails on 52 percent of the subunit would reduce effects compared to Alternatives A and D.	to weight restrictions would be allowed year round 60 percent of the subunit. With more cross-country summer OHV use and increased visitation, Alternative D would increased potential for adverse impacts.	would not directly affect soil and water resources. Alternative E would be less protective of soil and water resources than Alternatives B, C, and D.
Wilderness Character-istics	Not Addressed	Wilderness characteristics would be protected on 94 percent of the subunit. Lack of activity and other management actions would indirectly protect wilderness characteristics on the remaining 6 percent of the subunit. Naturalness may be impacted over the short-term in localized areas.	Wilderness characteristics would be protected on 51 percent of the subunit. Low levels of activity and recreation settings would indirectly protect wilderness characteristics on the remaining 49 percent. Naturalness may be impacted over the short-term in localized areas.	Wilderness characteristics would be protected on 38 percent of the subunit. Low levels of activity and recreation settings would indirectly protect wilderness characteristics on the remaining 62 percent. Naturalness may be impacted over the short-term in localized areas.	Wilderness characteristics would be protected on 80 percent of the subunit through management of ACECs and RCAs. Low levels of activity and recreation settings would indirectly protect wilderness characteristics on the remaining 20 percent. Naturalness may be impacted over the short-term in localized areas.
Wildlife	There would be no effects from leasable minerals as the entire subunit is closed to leasing.	Only 34,000 acres near Circle would be open to leasable minerals. Winter seismic exploration could create local displacement of wildlife and some fragmentation of habitat.	274,000 acres would be open to leasable minerals. Effects from exploration would be similar to Alternative B, except that more lands are open to exploration.	682,000 acres would be open. Effects from seismic exploration would be similar to Alternative B, except more sensitive habitats are open, including some caribou calving and Dall sheep habitat.	30,000 acres near Circle would be open to leasable minerals. Winter seismic exploration in these areas could create local displacement of wildlife and some fragmentation of habitat.
	The subunit is closed to locatable minerals. However, mining is occurring on existing mining claims (7,000 acres). Impacts include localized disturbance	Only 34,000 acres near Circle would be open to locatable minerals. Caribou calving/postcalving and Dall sheep habitats would be closed. Impacts would be similar to Alternative	274,000 acres would be open. Dall sheep habitat and most current and historical caribou calving/postcalving habitat would be closed, minimizing impacts to	682,000 acres would be open. In addition to the sensitive habitats opened in Alternative C, this alternative would open additional caribou habitat and a corridor used by Dall	All but 30,000 acres near Circle would remain closed to locatable minerals eliminating potential impacts to Dall sheep and caribou calving habitat other than on existing

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	of wildlife and habitats by road, trails, and mining operations. The period of recovery of riparian and aquatic habitats is typically long. Roads and trails result in increased off-trail OHV use by recreation users. BLM lands historically used by the Fortymile caribou to access calving habitat north of the Steese Highway would be closed to locatable minerals, increasing the likelihood of reestablishment of caribou migration to calving habitat in the North Steese and White Mountains.	A, except near Circle. Additional access could be developed to reach claims. Little additional mining is expected. However, mineral price increases or changes in access could result in greater mining activity than anticipated.	sheep and caribou. Most known priority raptor nest sites are in closed areas. Substantial increases in placer mining activity are predicted, increasing localized disturbance to riparian and aquatic habitats and the miles of roads and trails needed for access. Roads and trails result in increased off-trail OHV use, however summer OHV use will be limited to existing trails in this alternative. Major portions of migration habitats are open to mineral location and leasing. Increased mining activity and density of roads could reduce the likelihood of reestablishment of caribou migration to calving grounds north of the Steese Highway, resulting in an effective loss of habitat.	sheep to access a mineral lick. Use of this corridor by Dall sheep could be impaired by mining or road activity. Impacts to riparian habitats and those due to increased access would be similar to Alternative C but would affect a larger area and may be more extensive as cross-country OHV use is allowed. Almost all of the area historically used by Fortymile caribou to access calving habitat north of the Steese Highway would be open to mineral entry. Relative to Alternative C, this alternative would provide less protection to north Steese National Conservation Area caribou calving/postcalving habitats and less assurance that migration of Fortymile caribou to these habitats will remain largely unimpeded.	claims. Placer mining on 100 existing claims would create areas of localized disturbance to riparian and aquatic habitats, which typically require long recovery periods, and may result in some road and trail construction for access. Almost all of the area historically used by Fortymile caribou to access calving habitat north of the Steese Highway would be closed to mineral entry increasing the potential that caribou will reestablish a pattern of migration north of the highway. Significant growth of the Fortymile herd may depend on expansion into calving range in the White Mountains (Boertje et al. 2012).
	Recreation affects wildlife primarily along the Pinnell Mountain Trail, Birch Creek, Mount Prindle, and in areas of OHV use. Wildlife is displaced, at least temporarily, by recreational activities.	The Steese SRMA would be managed as Primitive, Semi-Primitive, or Backcountry. The level of use expected would have very small impacts to wildlife. Most of the area would be in a Primitive classification (538,000 acres) and would prohibit	Impacts would be similar to Alternative B but more extensive. More lands are designated as Frontcountry and Middlecountry than in Alternative B, resulting in more facilities and greater recreational use, including motorized use. However, most key	The Alternative C Semi-Primitive RMZ adjacent to upper Birch Creek WSR Corridor is changed to Middlecountry or Frontcountry in Alternative D, potentially increasing recreational impacts to migrating caribou. The allowance	More acres would be managed for Backcountry and Semi-Primitive experiences and fewer acres as Middlecountry experiences compared to Alternative C resulting in fewer facilities and lower levels of recreational use, including motorized

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	Recreational OHV users are more abundant, are traveling further and expanding the zone of impact. Motor boat use on lower Birch Creek results in wildlife disturbance, including potential impacts to a few nesting bald eagles. Disturbance of nesting raptors along Birch Creek can potentially lead to nest abandonment or reduced survival of nestlings.	OHV use, including snowmobiles not used for subsistence purposes. This would largely eliminate potential impacts from recreational motorized vehicle use. Disturbance of raptors and temporary displacement of wildlife could still occur from non-motorized activities, but would be less likely.	wildlife habitats are in Primitive, Semi-Primitive, or Backcountry RMZs, with the exception of much of the caribou migration corridor.	of cross-country OHV use will compound the impacts in areas where allowed (Middlecountry and Frontcountry RMZs). Dall sheep use of a mineral lick on Preacher Creek (in the Preacher Creek RMZ) could potentially be affected by allowed cross-country OHV use, if that level of use increases.	use. Most key wildlife habitats are in Primitive, Semi-Primitive, or Backcountry RMZs with the exception of the caribou migration corridor.
	Most of the subunit is open to cross-country summer OHV travel. The area south of the Birch Creek Corridor, although open to OHVs, has received very little use due to the inability to legally cross Birch Creek and remoteness. If access were developed to the unit from the south, OHV use would likely occur in that area. Development of motorized access would expand the intensity and area of OHV use. Snowmobile use could potentially	Almost the entire subunit is closed to summer OHV use. No effects from recreational summer motorized use would occur, except on BLM lands near Circle and on Birch Creek. Winter OHV use would be allowed on 99 percent of the subunit. Extensive off-trail use could impact wildlife, especially caribou winter habitats that are sparsely or non-forested. However, this use would be monitored and adjusted to minimize impacts to caribou and Dall sheep.	The potential for impacts to wildlife from summer motorized vehicle use will be much reduced in this alternative relative to Alternative A, due to reduced area where OHVs are allowed and restricting of use to existing routes (48 percent is open to summer OHV routes). . Similar to Alternatives A and B, 99 percent of the subunit would be open for snowmobile use and impacts would be the same as Alternative B.	Potential for impacts from summer OHV use are greater than Alternative C due to increased area in which summer OHVs are allowed (61 percent of subunit) and allowance of cross-country use. Impacts would be very similar to Alternative A. Alternative D includes the Wolf Creek Semi-Primitive RMZ, which is closed to summer OHV use, while Alternative A allows such use in that area; however the area is essentially inaccessible. Extensive off-trail use by snowmobiles could potentially impact caribou	Impacts would be the same as Alternative A except 3,000 acres in research natural areas would be open to snowmobiles and use of airboats and hovercraft would be allowed. Potential for impacts from summer OHV use are much greater than Alternative C due to increased area in which summer OHVs are allowed (89 percent of subunit). All lands are open to snowmobile use and extensive off-trail use could impact caribou winter habitats that are sparsely or non-forested. However, this use would

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	impact wildlife, especially caribou winter habitats that are sparsely or non-forested.			winter habitats. There are no specific management provisions for monitoring this use and adjusting management.	be monitored and adjusted to minimize impacts to caribou and Dall sheep. Hovercraft and airboat use in Birch Creek could result in disturbance of wildlife.
	Two RNAs are designated. No camping is allowed in the RNAs, limiting human activity and disturbance of Dall sheep, gyrfalcon, and other species.	Effects from RNAs would be the same as Alternative A. The Steese ACEC (924,000 acres) would be designated and managed to maintain caribou and sheep habitat quality. Because of other decisions in Alternative B, ACEC designation would have little additional effect. Big Windy Creek would be recommended suitable for designation as a "wild" river. Designation would have little effect on wildlife due to other management constraints in the area. However, WSR designation would be more permanent than provisions in this RMP.	Allowing primitive camping in the RNAs, may result in slightly greater disturbance of Dall sheep, gyrfalcon, and other species. Relative to Alternative B, this alternative eliminates large areas (457,000 acres) of historical Fortymile caribou calving and migration habitat from the Steese ACEC which could result in reduced potential for future use of these habitats by caribou. The ACEC would result in significant modification of future management in portions of the Clums Fork drainage, an area with many existing mining claims. ACEC designation would limit motorized use and not allow new mining claims. The Clums Fork calving area was used by Fortymile caribou in the 1960s and 1970s. In Alternative A this area was closed to mineral entry to protect caribou calving habitat. The ACEC	Effects from RNAs would be the same as Alternative C. A smaller Steese ACEC (193,000 acres) would be less protective of caribou and Dall sheep habitat. The ACEC would be closed to mineral entry, location, and leasing. However, important sheep and caribou habitats outside the ACEC would be opened to mining and summer cross-country OHV use. Although activities in these areas are currently not heavy, the combined effects of opening them to mineral location, entry, and leasing and allowance of cross-country summer OHV use may result in degradation of wildlife habitat in these areas, including reduced use of the Preacher Creek Mineral lick by Dall sheep, reduced likelihood of reestablishing migration to White Mountains calving range by the Fortymile Herd, and reduced calving	Effects from RNAs would be the same as Alternative C. A Steese ACEC would not designated in this alternative. Instead, an area equivalent to the Steese ACEC in Alternative C would be delineated as crucial caribou and Dall sheep habitat and very similar management decisions and SOPs applied. Wildlife habitat values should be maintained as in Alternative C, although potentially given slightly lower priority relative to other resources and uses.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
			designation will maintain the mineral closure, and minimize motorized use at a level which will maintain the value of the habitat for caribou.	habitat quality in these areas.	
Locatable	Potential for exploration and development would be limited to 7,000 acres of existing mining claims. Mining activity would likely decrease as there would be no opportunities to stake new federal claims to offset claim attrition.	Closure of 1,233,000 acres to mineral entry, including some high potential lands, would constrain extraction of the minerals and their benefits to society would remain unavailable for the foreseeable future. Although 34,000 acres of low potential mineral lands would be opened to mineral location, mining opportunity would still be greatly limited.	993,000 acres would be closed. The minerals in closed areas would remain unavailable for the foreseeable future. Potential for mining would increase as 274,000 acres would be opened to mineral location, including some high potential lands with road and trail access.	585,000 acres would be closed. Potential for mining would increase as 682,000 acres would be opened to mineral location, including high potential areas in the North Steese.	1,237,000 acres would be closed to mineral location. Only 30,000 acres would be open to staking of new mining claims. Activity would be limited to small-scale operations due to the limited resource potential. This alternative would provide more opportunities than Alternative A, but would still greatly limit mining opportunity.
Recreation	The Steese National Conservation Area and Birch Creek WSR would continue to be managed to provide a range of recreation opportunities. Birch Creek would continue to be managed to enhance primitive recreational float-boat experiences. Existing facilities would be maintained, ensuring that recreational opportunities continue to exist. Land use authorizations could indirectly and directly impact recreation resources and experiences of naturalness and escape from crowds and pressures of life, in Primitive or Semi-Primitive, or Backcountry Zones.				
	Primitive and Semi-Primitive setting would not be impacted since there is no defined management for lands with wilderness characteristics under this alternative.	1,199,000 acres would protect Primitive and Semi-Primitive settings, enhance related recreational activities, and limit activities that impact wilderness characteristics by the maintenance of wilderness characteristics.	647,000 acres would protect Primitive and Semi-Primitive settings, enhance related recreational activities, and limit activities that impact wilderness characteristics by the maintenance of wilderness characteristics. Development of recreational facilities may be somewhat constrained on 154,000 acres of Backcountry.	483,000 acres would protect Primitive and Semi-Primitive settings, enhance related recreational activities, and limit activities that impact wilderness characteristics by the maintenance of wilderness characteristics. Development of recreational facilities may be somewhat constrained on 407,000 acres of Backcountry.	1,012,000 acres would protect Primitive, Semi-Primitive and Backcountry settings, enhancing related recreational activities and limiting activities that impact wilderness characteristics by the maintenance of wilderness characteristics. Development of recreational facilities may be somewhat constrained

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
					on 488,000 acres of Backcountry.
	Four transportation corridors would impact naturalness if development occurred. Corridors could impact up to 20,000 acres. However, development would be unlikely and as a result, impacts would be minimal. Corridors could also enhance recreation opportunities by providing additional access to remote areas.	Impacts from transportation corridors would be similar to Alternative A except only two corridors are identified. Identification of the Steese ACEC and RNAs as right-of-way avoidance areas would protect recreation resources and experiences of naturalness on 924,000 acres.	Impacts from transportation corridors would be similar to Alternative A, but would be more consistent with recreation management objectives as the corridors cross Middlecountry and Frontcountry Zones. Development of rights-of-ways within corridors would be more likely as some lands would be open to new mineral entry.	No transportation corridors are identified. Approval of rights-of-way would impact recreation resources and experiences such as naturalness. Impacts would depend on the size of the project, level of use, and associated facilities. Future rights-of-way would not be concentrated in corridors, so impacts may be more dispersed.	No transportation corridors are identified. Approval of rights-of-way would impact recreation resources and experiences such as naturalness. Impacts would depend on the size of the project, level of use, and associated facilities. Future rights-of-way would not be concentrated in corridors, so impacts may be more dispersed. Only 30,000 acres would be open to mineral entry, reducing the need for additional access.
	There would be no effects from leasable minerals.	Seismic exploration could both improve winter access and impact naturalness through clearing of seismic lines. The experience of escape from crowds would be impacted during seismic operations. Impacts would be minor as seismic exploration would be very limited.			
	Mining on 5,000 acres of existing claims in the Steese National Conservation Area would impact naturalness but could improve access. Closure of the remaining lands would protect naturalness and recreation resources.	Mining on existing claims and 34,000 acres of newly opened lands near Circle would impact naturalness but could improve access. Closure of remaining lands, including all of the Steese National Conservation Area, would protect naturalness and recreation resources. Recreation settings would be protected within the Steese National Conservation Area.	Mining on existing claims and 274,000 acres of newly opened lands would impact naturalness, but could improve access. Closure of 993,000 acres would protect naturalness and recreation resources. Recreation settings would be protected on 959,000 acres within the Steese National Conservation Area.	Mining on existing claims and 682,000 acres of newly opened lands would impact naturalness, but could improve access. Closure of 585,000 acres would protect naturalness and recreation resources. Recreation settings would be protected on 648,000 acres within the Steese National Conservation Area.	Mining on existing claims and 30,000 acres of newly opened lands would impact naturalness, but could improve access. Closure of 1,237,000 to mining would maintain naturalness and recreation resources. Recreation settings would be protected within the Steese National Conservation Area.
	The Steese National Conservation Area and Birch Creek WSR Corridor would be	Eighty-three percent of the SRMA would be managed for a Primitive setting; 7 percent for Semi-Primitive	Forty-one percent of the SRMA would be managed for a Semi-Primitive setting; 12 percent for	Eight percent of the SRMA would be managed for a Semi-Primitive setting; 33 percent for	Forty-two percent of the SRMA would be managed for a Semi-Primitive setting; 39 percent for

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	managed for recreation opportunities based on the recreation opportunity spectrum (RSC) and managed as an SRMA. Management would provide for multiple recreation activities. Facilities could be built to protect resources and to enhance recreation activities and experiences.	(Birch Creek WSR); and 10 percent for Backcountry. Most of the SRMA would be managed for Primitive experiences of non-motorized use, minimal facilities, and small user groups. In the Semi-Primitive and Backcountry areas, facility development would be limited. These settings would protect and enhance the experiences of naturalness, escape from crowds and solitude.	Backcountry; 36 percent for Middlecountry; and 11 percent for Frontcountry. The greater emphasis on Middlecountry and Frontcountry would provide for more facilities development, more motorized recreation opportunities, and larger group sizes than Alternative B. Opportunities for Primitive experiences would be limited as only one percent of the SRMA would be managed as such.	Backcountry; 49 percent for Middlecountry; and 10 percent for Frontcountry. The greater emphasis on Middle- and Frontcountry would provide for more facilities development, more motorized recreation opportunities, and larger group sizes than Alternatives B and C. Opportunities for Primitive experiences would be limited as only 1 percent of the SRMA would be managed as such.	Backcountry; 10 percent for Middlecountry; and 9 percent for Frontcountry. Greater emphasis on Semi-Primitive and Backcountry would result in less facility development and smaller group size. Until development of a travel management plan, Alternative A OHV management would apply. As a result, more extensive summer use of OHVs would impact naturalness through development of user-created trails. Opportunities for primitive experiences would be limited as only 1 percent of the SRMA would be managed as such.
	Closure of 3,000 acres in research natural areas to OHV use would somewhat limit motorized recreation but enhance opportunities for primitive experiences. Prohibitions on summer OHV use on 133,000 acres in Birch Creek and the Primitive Management Unit would negatively impact motorized assisted activities. Allowance of both	Closure of 3,000 acres to OHV use would somewhat limit motorized recreation but enhance opportunities for primitive experiences. Closure of 1,282,000 acres in Primitive, Semi-Primitive, and Backcountry zones to summer OHV use, except by permit, greatly would limit motorized recreation activities but would enhance opportunities for Primitive, Semi-Primitive, and Backcountry experiences.	Opportunities for summer motorized recreation would increase greatly compared to Alternative B. Closure of 3,000 acres to OHV use except by permit would result in impacts similar to Alternatives A and B. Prohibitions on summer OHV use in Semi-Primitive and Backcountry Zones (677,000 acres) and limiting summer OHV use to existing trails on the remaining lands (602,000 acres) would negatively	Opportunities for motorized recreation would increase compared to Alternatives B and C. Closure of 3,000 acres to motorized uses would limit motorized recreation but would enhance opportunities for Primitive experiences. Prohibitions on summer OHV use in Semi-Primitive and Backcountry Zones (510,000 acres) would negatively impact motorized assisted activities. Allowance	Research natural areas (3,000 acres) would be open to winter snowmobile use, negatively impacting non-motorized experiences while enhancing motorized experiences for those that benefit from motorized use. Until development of a travel management plan, Alternative A OHV management would apply. User conflicts would increase, naturalness would be negatively affected, and opportunity for solitude would decrease

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	summer and winter cross-country OHV use on the remaining lands could result in user conflicts and impacts to naturalness, but would provide opportunities for motorized recreation.	Prohibitions on summer OHV use would negatively impact motorized assisted activities such as hunting. Allowance of winter motorized use on 99 percent of the subunit could result in user conflicts and impacts to naturalness and solitude, but would enhance winter motorized opportunities.	impact motorized assisted activities. Allowance of winter motorized use on 99 percent of the subunit would have similar effects to Alternative B.	of both summer and winter cross-country use on 769,000 acres could result in user conflicts and impacts to naturalness, but would provide opportunities for motorized recreation. Same as Alternatives B and C, winter motorized use could occur on 99 percent of the subunit.	in all zones. The level of effect would depend on vegetation, soil type, and season of travel. Noise at 90–108 dbA from airboats or hovercraft on Birch Creek would negatively impact float boaters.
	Management of Big Windy and Mount Prindle RNAs (3,000 acres) would protect recreation resources and experiences of naturalness.				
	Prohibiting primitive camping in the RNAs would impact recreation experiences by not allowing users to camp in close proximity to the area of activity, increasing travel time, and possible creation of unsustainable social routes.		Allowing primitive camping in the RNAs would enhance recreation experiences by allowing users to camp in close proximity to the area of activity. Some unsustainable social routes may develop.		Impacts from camping same as Alternatives C and D. Winter motorized use would impact non-motorized experiences while enhancing motorized experiences or those that benefit from motorized use.
	There are no designated ACECs. No rivers are recommended suitable for addition to the Wild and Scenic Rivers System.	Designation of 924,000 acres as the Steese ACEC would protect recreation resources and experiences of naturalness. Impacts may occur if restrictions are placed on facilities development and use to protect habitat. The designation of Big Windy Creek as a "wild" river would ensure the protection and enhancement of the ORVs, providing long-term, benefits to recreation experiences of naturalness and a closeness to the sights	Designation of 457,000 acres as the Steese ACEC would protect recreation resources and experiences of naturalness. Impacts to recreation use may occur if restrictions are placed on facilities development and use.	Designation of 193,000 acres as the Steese ACEC would protect recreation resources and experiences of naturalness. Impacts to recreation use may occur if restrictions are placed on facilities development and use.	Same as Alternative A.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
		and sounds of nature on 4,500 acres.			
Travel Management	The construction of winter roads and trails for mineral development would provide a direct benefit to OHV users through the enhancement of public access opportunities. These effects would be the highest under Alternative D, followed by Alternatives C, E, B, and A. Travel management actions would continue to provide for a range of motorized and non-motorized opportunities, while protecting resource values and minimizing user conflicts. Research Natural Areas would be closed to motorized use limiting the areas to non-motorized travel only. Management of Birch Creek WSR, would impact travel in river corridor where the construction of new roads, primitive roads, trails, or other provisions for overland motorized travel would not be permitted (BLM 8351 Manual).				
	Maintaining four transportation corridors would allow for concentrated travel within these corridors and could possibly restrict the development of rights-of-ways (ROW) and other travel routes in other areas. Existing mineral closures would remain in place, limiting the need for new access associated with mining.	Relinquishing two of the transportation corridors could potentially limit access to parts of the Steese National Conservation Area. However, ROW could still be authorized, outside of these corridors and within the two remaining corridors. Designation of ROW avoidance areas could limit future transportation routes. Effects would likely be minimal as few ROW are anticipated.	Effects would be the same as Alternative B except there would be no ROW avoidance areas designated and ROW may be more likely since new areas would be opened to mineral entry. The two corridors retained access areas opened to mineral entry.	No transportation corridors are identified. ROWs would be considered throughout the subunit, potentially resulting in additional access.	
	This alternative would offer the most opportunities for recreational activities that involve the use of motorized travel, including hunting and OHV riding; fewer opportunities would exist for recreational users seeking a primitive, non-motorized type of experience. More than 99 percent of the	The recreation setting character (RSC) would maintain 1 percent of the subunit as available to non-motorized recreation opportunities only. The remaining 99 percent would be closed to summer motorized use, but open to winter use of snowmobiles. Only 1 percent would be available for summer motorized experiences without a permit.	The RSC would maintain 47 percent of the subunit as available for summer-motorized experiences (limited by weight and to existing routes) while 53 percent would remain closed. In contrast, during the winter more than 99 percent of the subunit would be open to winter use of snowmobiles. Compared to Alternative B, much greater opportunity	The RSC setting would maintain 60 percent of the subunit as limited (by weight) to summer-motorized experiences, while 40 percent would remain closed to summer use. Same as Alternatives B and C, more than 99 percent would be available to the winter use of snowmobiles. While this alternative would offer the least opportunity for	While the RSC settings assume maintaining 19 percent of the subunit as limited (by weight) to summer-motorized experiences, and 81 percent closed to summer-motorized use, travel decisions from Alternative A would be implemented until a travel management plan is developed. This would lead to an increase in user-created routes, user

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	subunit is available for winter motorized use and more than 84 percent is available for summer-motorized experiences.		would be available for recreational activities that involve summer motorized travel.	primitive, non-motorized experiences, more opportunities would exist for recreational activities that involve the use of motorized travel compared to Alternatives B and C.	conflict, and an inability to maintain recreation setting prescriptions in some areas. More opportunities would exist for motorized users.
	About 89 percent of the subunit is open to summer-motorized use; 99 percent is open to winter snowmobile use. Limited only by weight (1,000 pounds curb weight and less), except for RNAs, which are closed to OHV use, this alternative provides the greatest opportunity for users seeking cross-country motorized activities.	Less than 1 percent of the subunit would be closed to motorized use yearlong; 99 percent would be open to winter snowmobile use. Summer motorized access could be authorized by permit. This alternative would greatly limit summer motorized use and access compared to the other alternatives.	Less than 1 percent of the subunit would be closed to motorized use; 99 percent would be open to winter snowmobile use. Summer motorized use would be limited to existing trails on 47 percent of the subunit, and not allowed on 53 percent. This alternative would offer more opportunity for motorized use and access than Alternative B, but less than Alternative A.	Less than 1 percent of the subunit would be closed to motorized use; 99 percent would be open to winter snowmobile use. Cross-country summer motorized use (limited by weight) would be allowed on 60 percent of the subunit and not allowed on 40 percent. Summer motorized use would be more limited than Alternative A, but less restricted than in Alternatives B and C.	Impacts would be the same as Alternative A with the following exceptions: No lands would be closed to motorized use. The use of airboats and hovercraft would be allowed and would result in conflicts with float boaters, noise impacts, safety concerns, and increase in user-created OHV routes in Birch Creek WSR corridor. Snowmobile use in RNAs would conflict with the Primitive recreation setting and lead to additional user-created routes.
	There are no designated ACECs.	The Steese ACEC (924,000 acres) would be subject to restrictions to winter motorized use if necessary to protect wildlife habitat. Designation of Big Windy Creek as a "wild" river would prohibit new roads and trails.	The Steese ACEC (457,000 acres) would be subject to restrictions to winter motorized use if necessary to protect wildlife habitat. Effects would be less than Alternative B as the ACEC is smaller.	The Steese ACEC (193,000 acres) would be subject to restrictions to winter motorized use if necessary to protect wildlife habitat. Effects would be less than Alternative C as the ACEC is smaller.	There are no designated ACECs, however crucial caribou and Dall sheep habitat would be subject to restrictions to winter motorized use if necessary to protect wildlife habitat.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Wild and Scenic Rivers	No rivers are recommended suitable for addition to the Wild and Scenic Rivers System.	Big Windy Creek would be recommended suitable for designation as "wild," protecting its free-flow and ORVs until Congress made a decision on designation. Surface-disturbing activities may impact water quality and outstandingly remarkable scenic, geologic and wildlife values.	Big Windy Creek would not be recommended suitable for addition to the Wild and Scenic Rivers System. Big Windy Creek is located in the Steese National Conservation Area and is withdrawn from mineral entry. These factors in addition to management of this area for a Semi-Primitive or Backcountry setting would generally protect river values in the absence of designation.		
Subsis-tence	Alternative A would not significantly restrict subsistence use by communities in and adjacent to the planning area, as impacts to subsistence resources would be minimal. Impacts to subsistence species are expected to be localized and are not expected to impact resources at the population level. No impacts to access by subsistence users are anticipated. Alternative A when combined with the cumulative case would not result in significant restrictions to subsistence use.	Alternative B would not result in significant reductions in subsistence resources or uses by residents in the subunit. Most impacts to subsistence resources would be beneficial, and any impacts by way of the limited amount of development allowed to occur under this alternative would be minimized by Fluid Mineral Leasing Stipulations and SOPs (Appendix A). Alternative B when combined with the cumulative case would not result in significant restrictions to subsistence use.	Alternative C would not significantly restrict subsistence use by communities in the planning area. Most impacts to subsistence resources and uses would be minor, and any impacts from the development allowed to occur would be minimized by the Leasing Stipulations and SOPs. With the exception of locatable minerals, impacts to subsistence resources are expected to be localized and temporary, and are not expected to impact resources at the population level. No impacts to access by subsistence users are expected to occur. No reasonably foreseeable significant restrictions have been identified for Alternative C when	Alternative D in and of itself would not significantly restrict subsistence use by communities in or near the planning area given anticipated levels of development and use of SOPs and Fluid Mineral Leasing Stipulations to reduce impacts. Alternative D when combined with the cumulative case may result in a reasonably foreseeable and significant restriction of subsistence use for rural communities within the planning area, if significant activity occurs within the migration or other crucial habitat of the fish and wildlife. The level of impacts on subsistence use depend on the response to increased opportunity for development of locatable	Alternative E would not significantly restrict subsistence use by communities in the planning area. Most impacts to subsistence resources and uses would be minor, and any impacts from the development allowed to occur would be minimized by the Leasing Stipulations and SOPs. Impacts to subsistence resources are expected to be localized and temporary, and are not expected to impact resources at the population level. No impacts to access by subsistence users are expected to occur. No reasonably foreseeable significant restrictions have been identified for Alternative E when combined with the cumulative case.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
			combined with the cumulative case. Most habitat important to subsistence resources would be within the ACEC or afforded protection by other management prescriptions, including RCAs, riparian buffers and restrictions on off-trail OHV use.	minerals and cross-country use of OHVs. The Fortymile caribou herd could be impacted by activities in the Steese and Fortymile subunits.	

2.11.4. Comparison of Impacts Upper Black River Subunit

The following table outlines impacts that would occur in the Upper Black River Subunit. These are in addition to the impacts discussed as common to all subunits under Table 2.26, "Comparison of Impacts: Common to All Subunits".

Table 2.29. Upper Black River Subunit: Comparison of Impacts

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Fish and Aquatic Species	Effects from mining, recreation, travel management and special designations could occur to three species of salmon and several resident species. Effects from recreation would be minimal to minor and easily mitigated under all alternatives.				
	No Riparian Conservation Areas (RCAs) are identified.	28 RCAs would provide additional protection to high priority fish habitat.	13 RCAs would provide additional protection to high priority fish habitat.	Five RCAs would provide additional protection to high priority fish habitat.	Withdrawal of 28 RCAs from mineral entry would provide additional protection to high priority fish habitat.
	No seismic exploration would occur.		Effects to overwintering fish from winter seismic surveys would be localized and would have little effect on fish populations.		
	There would be no effects to fish and aquatic resources from locatable minerals as the entire subunit would be closed to this use.		4,144 miles of stream would be open to mining, with 559 (14 percent) of these miles occurring in RCAs and 1,000 miles in the Salmon Fork ACEC. Mining is not expected to occur due to lack of mineral potential. If development occurred, impacts would be moderate and short-term within the RCAs and ACECs, and moderate and long-term in other areas, resulting in decreased fish populations and habitat loss at the local level.	4,144 miles of stream would be open to mining with 360 (9 percent) of those stream miles occurring in RCAs and 1,000 miles in the Salmon Fork ACEC. Mining is not expected to occur due to lack of mineral potential. Impacts would be similar to Alternative C except 200 fewer miles of stream would be within RCAs.	916 miles of stream would be open to mining with 3 of those stream miles occurring in RCAs. This alternative provides substantially more protection to high value fish and aquatic resources than Alternatives C and D. Mining is not expected to occur on lands opened to mining due to lack of mineral potential. If mining did occur in these areas, impacts would be moderate and long-term.
	Impacts from unrestricted use of OHVs would likely be minimal. Most travel is by boat, snowmobile, or aircraft, which has little impact on fish and aquatic habitat.	OHV use would be limited by season and weight. Impacts would likely be minimal. Most travel is by boat, snowmobile, or aircraft which has little impact. This alternative would be slightly more protective than Alternative A.	OHV use would be limited by weight. Impacts would likely be minimal. Most travel is by boat, snowmobile, or aircraft which has little impact. These alternatives would provide more protection to fish and aquatic habitat than Alternative A, but less than Alternative B.		

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	Not addressed.	Fish and aquatic habitats would benefit, from designation of the Salmon Fork ACEC (621,000 acres) because the habitat would generally remain intact. The Salmon Fork would be recommended for designation as a WSR, providing additional protection of high-value fish and aquatic resources.	Travel management and locatable minerals decisions in the Salmon Fork ACEC (621,000 acres) would be less restrictive than in Alternative B providing less protection to fish and aquatic habitat. Fish and aquatic habitat benefit but to a lesser degree than Alternative B.	Management in the Salmon Fork ACEC (621,000 acres) would be less protective to fish and aquatic habitat than Alternative C. high-value habitats within the ACEC would rely on RCA management for protection. Fish and aquatic habitat would benefit less than under Alternatives B and C.	Fish and aquatic habitats would benefit, from designation of the Salmon Fork ACEC (623,000 acres) and withdrawal of the area from mineral entry because the habitat would generally remain intact.
Soil and Water Resources	The subunit is closed to locatable mineral entry and there are no existing mining claims. There would be no effects from locatable minerals.		Alternatives C and D open 1,739,000 and 2,361,000 acres to leasable and locatable minerals, respectively. Placer mining can adversely impact soils and water quality through erosion, unintended discharge of settling ponds, and subsequent increased downstream turbidity. Mining could impact the natural flow characteristics of river segments. However no mining is anticipated due to the low mineral potential.		Alternative E opens 547,000 acres to leasable and locatable minerals. If mining occurred, adverse impacts would be similar to Alternatives C and D except on fewer acres.
	Unrestricted use of OHVs could result in detrimental impacts from proliferation of user-created trails, subsequent soil erosion, and increased siltation in streams. The remote location and lack of access would limit impacts.	Effects would be similar to Alternative A but more protective of resources. Seasonal travel restrictions in the Salmon Fork ACEC and OHV weight restrictions on all lands would reduce the amount of potential surface disturbance to soils and water.	Effects would be similar to Alternative B, except there would not be a seasonal restriction on OHVs in the Salmon Fork ACEC; more area would be available for summer motorized travel. As a result, impacts on soil and water resources would increase slightly relative to Alternative B. These alternatives would be more protective of resources than Alternative A.		

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Wilderness Character-istics	Wilderness characteristics would not be directly protected.	Wilderness characteristics would be protected on more than 99 percent of the subunit; all of the lands with wilderness characteristics.	Wilderness characteristics would be protected on 26 percent of the subunit. Lack of activity and other management actions would indirectly protect wilderness characteristics on the remaining 74 percent of the subunit. Naturalness may be impacted over the short-term in localized areas.	Wilderness characteristics would be not be directly protected. Lack of activity and other management actions would indirectly protect wilderness characteristics on most of the subunit. Naturalness may be impacted over the short-term in localized areas.	Wilderness characteristics would be protected on 47 percent of the subunit through management of Salmon Fork ACEC and RCAs. Lack of activity and other management actions would indirectly protect wilderness characteristics most remaining lands. Naturalness may be impacted over the short-term in localized areas.
Wildlife	The Upper Black River Subunit is very remote and infrequently visited. Due to its low mineral potential and limited access (high transportation costs) little resource development or motorized vehicle use is predicted under any alternative. As a result, few broad scale impacts are anticipated in any alternative.				
	The subunit is closed to locatable minerals. There are no existing mining claims. There would be no impacts to wildlife.		Management of the Salmon Fork ACEC and RCAs would reduce impacts of mining on wildlife habitat. In other areas, exploration or production could potentially create local displacement and some fragmentation of habitat. Given the limited activity expected, impacts would be local in extent.	Impacts will be similar to those in Alternative C, but could potentially higher in the Salmon Fork drainage than in Alternative C. Impacts would depend on levels of exploration, development, and claim staking.	Withdrawal of the Salmon Fork ACEC, Black River watershed, and RCAs from mineral entry would protect wildlife habitat from potential impacts due to mining, including the majority of the known bald eagle nesting habitat. Given the limited activity expected, impacts in other areas would be local in extent.
	The subunit is closed to leasable minerals. There would be no impacts to wildlife.		547,000 to 2,360,000 acres would be open to leasable minerals but no leasing is anticipated. Winter seismic exploration could create local displacement of wildlife and some fragmentation of habitat.		
	The unrestricted use of motorized vehicles could cause localized impacts to habitat. Impacts would be minimal. Most travel is	Effects would be similar to Alternative A but more protective. Seasonal OHV restrictions in the Salmon Fork ACEC and OHV weight limitations on all	Effects would be similar to Alternative B, except there would not be a seasonal restriction in the Salmon Fork ACEC; more area would be available for summer motorized travel. As a result, impacts to habitat may increase slightly relative to Alternative B.		

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	by boat, snowmobile, or aircraft, which has little impact on wildlife habitat.	lands would reduce potential habitat disturbance.			
	There are no designated ACECs.	The Salmon Fork ACEC would maintain habitat for Porcupine caribou, bald eagle, and other wildlife. Management of the Salmon Fork as a "wild" river would benefit wildlife, including a far northern population of nesting bald eagles.	Travel and leasable minerals decisions in the Salmon Fork ACEC would be less restrictive providing less protection to wildlife habitat. Wildlife would benefit but to a lesser degree than Alternative B. Impacts to nesting bald eagles are expected to be low.	Management in the ACEC would be less restrictive than Alternative C, providing less protection to wildlife habitat. There may be potential for impacts to nesting bald eagles and other wildlife, if mining claims were established or mineral leasing occurred.	Management and withdrawal of the Salmon Fork ACEC from mineral entry would maintain habitat for Porcupine caribou, bald eagle, and other wildlife.
Locatable Minerals	The entire subunit would be closed to locatable minerals, precluding any opportunity to explore and develop locatable minerals. Their benefits to society would be unavailable for the foreseeable future. However, mineral potential is very low and mining activity would be unlikely, even if lands were opened to mineral entry.		The entire subunit (2,360,000 acres) would be open to locatable mineral entry allowing an opportunity for mineral exploration. However, mineral potential is very low and mining activity is unlikely.		547,000 acres would be open to locatable mineral entry allowing opportunity for mineral exploration. Activity is unlikely given the low mineral potential.
Recreation	There would be no effects from locatable minerals as the entire subunit is closed and there are no existing mining claims.		The entire subunit would be open to locatable minerals, but mining is unlikely. If mining occurred, it could compromise the experiences of recreation users whose expectations include a high degree of solitude and tranquility, within a naturally-appearing landscape.		Same as Alternatives C and D, except only 547,000 acres would be open to mineral entry.
	Lack of OHV designations could result in emergency closures to protect resources and in long-term, detrimental impacts to scenic view shed that enhance recreational experiences. This alternative offers the	OHV use would be limited by season and weight. These management actions, while promoting the effects of special designations (through limiting summer-access to the Salmon Fork ACEC), would negatively impact those users who utilize OHVs for accessing remote	Effects would be similar to Alternative B, except the Salmon Fork ACEC would be available for recreational activities involving the summer-use of OHVs. This would provide beneficial access and experiences for those individuals seeking motorized hunting opportunities. This effect would likely be minimal, due to the low levels of motorized use likely to occur in the ACEC.		

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	most opportunities for motorized recreational activities; fewer opportunities would exist for users seeking a primitive, non-motorized experience. These effects would be minimal due to lack of access.	areas. These effects would likely be minimal due to the lack of access and low levels of motorized use likely to occur.			
	No ACECs are designated. No rivers are recommended suitable for addition to the Wild and Scenic Rivers System.	Designation of the Salmon Fork ACEC would help maintain fish and wildlife habitat, potentially with beneficial impacts on fishing, wildlife viewing and hunting. Negative effects could also result, if additional restrictions are placed on recreational activities to protect the values of the ACEC.			
		Designation of the Salmon Fork as a "wild" river, would provide beneficial experiences for those individuals seeking wild river related recreational opportunities.	The Salmon Fork would not be recommended suitable for designation as a WSR and there would be no effect on recreation.		
Travel Management	There would be no effect from leasable minerals because the entire subunit is closed to mineral leasing.		547,000 to 2,360,000 acres would open to mineral leasing. Cleared seismic trails could be used as the beginning of a network of winter trails, potentially increasing access into the southern part of the subunit. Effects would be minimal due to the limited amount of exploration.		
	There are no OHV designations and motorized use is unrestricted.	OHV use would be limited by weight and season of use. Effects would be minimal as the subunit is inaccessible except by boat, aircraft, or snowmobile. If resource damage occurs, sustainable trail construction or area closures could occur.	OHV use would be limited by weight. Effects would essentially be the same as Alternative B.		
	No ACECs are designated. No rivers are recommended suitable for addition to the Wild and Scenic Rivers System.	The Salmon Fork ACEC would result in restrictions on summer use of OHVs. Impacts would be negligible, as the ACEC is remote and difficult to access.	The Salmon Fork ACEC could effect travel management if additional restrictions were placed on OHV use. However, this would be unlikely as the ACEC is remote and difficult to access.		

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
		If the Salmon Fork were designated as a "wild" river, there could be limitations on motorized travel in the river corridor.			
Wild and Scenic Rivers	No rivers are recommended suitable for designation under the WSR Act. Existing withdrawals from mineral entry would protect wildlife values of the river.	The Salmon Fork would be recommended suitable for designation as "wild," protecting its free-flow and ORVs until Congress made a decision on designation. Surface-disturbing activities may impact water quality and outstandingly remarkable wildlife values.	The Salmon Fork would not be recommended as suitable for designation as a "wild" river.		The Salmon Fork would not be recommended as suitable for designation as a "wild" river. Withdrawal of the Salmon Fork watershed from mineral entry would protect the outstanding wildlife values without designation.
Subsistence	Alternative A would not significantly restrict subsistence use by communities in and adjacent to the planning area, as impacts to subsistence resources would be negligible. Impacts to subsistence species are expected to be localized and temporary and are not expected to impact resources at the population level. No impacts to access by subsistence users are anticipated.	Alternative B would not significantly restrict subsistence use of or access to fish, wildlife and vegetative resources by residents in the subunit. Most impacts to subsistence resources would be beneficial, and any impacts by way of the limited amount of development allowed and expected to occur under this alternative would be minimized by Fluid Mineral Leasing Stipulations and SOPs (Appendix A).	Alternative C would not significantly restrict subsistence use by communities in the planning area. Most impacts to subsistence resources and uses would be negligible, and any impacts from the limited amount of development allowed to occur would be minimized by the Fluid Mineral Leasing stipulations and SOPs. Impacts to subsistence species would be localized and temporary, and are not expected to impact resources at the population level. No impacts to access by subsistence users are expected.	Alternative D would not significantly restrict subsistence use by communities in or near the planning area given anticipated level of development and the implementation of the Fluid Mineral Leasing stipulations and SOPs.	Alternative E would not significantly restrict subsistence use by communities in or near the planning area. Most impacts to subsistence resources and uses would be negligible, and any impacts from the limited amount of development allowed to occur would be minimized by the Fluid Mineral Leasing stipulations and SOPs. Impacts to subsistence species are expected to be localized and temporary and would not impact resources at the population level. No impacts to access by subsistence users are expected.
	The cumulative case, as presented in this analysis, is not expected to result in a reasonably foreseeable or significant restriction of subsistence resources or uses for rural communities within the planning area under any alternative.				

2.11.5. Comparison of Impacts White Mountains Subunit

The following table outlines impacts that would occur in the White Mountains Subunit. These are in addition to the impacts discussed as common to all subunits under Table 2.26, "Comparison of Impacts: Common to All Subunits".

Table 2.30. White Mountains Subunit: Comparison of Impacts

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Fish and Aquatic Species	Effects from recreation would be minor and easily mitigated. The White Mountains NRA and the Beaver Creek WSR are closed to locatable minerals, benefitting high-value fish resources. Although fish and aquatic habitat resources are relatively low within RNAs, the protections provided in these areas would ensure these headwater areas remain intact, reducing potential impacts to fish and aquatic habitat lower in the drainage.				
	No Riparian Conservation Areas (RCAs) are identified.	14 RCAs would provide additional protection to high priority fish habitat.	13 RCAs would provide additional protection to high priority fish habitat.	8 RCAs would provide additional protection to high priority fish habitats.	Same as Alternative B
	There would be no effects to fish and aquatic resources from leasable minerals as the entire subunit would be closed to these uses.			451,000 acres would be open. No exploration or development is anticipated. Impacts would not occur.	4,000 acres would be open, but exploration or development is not anticipated. Impacts would not occur.
	There would be no impacts from leasing of hardrock minerals as it would not be authorized.			Leasing of hardrock minerals could occur on 250 stream miles (160,000 acres). Aquatic habitats may be degraded by suction dredging on 84 acres or 14 stream miles and by placer mining on 507 acres or eight stream miles. Direct impacts from lode exploration are not anticipated.	Same as Alternatives A, B, and C.
	Allowing summer cross-country travel by OHVs weighing 1,000 pounds and less on 43 percent of the subunit may result in increased proliferation of user made trails, with the potential of increased erosion and sediment impacts. Closure of 55 percent of the subunit to summer OHV use would	Limiting summer use of OHVs to designated trails on 36 percent of the subunit would significantly reduce proliferation of user made trails and associated impacts would be reduced. Closure of 62 percent of the subunit to summer OHV use, would protect high-value fish resources in Beaver Creek watershed.	Limiting summer use of OHVs to designated trails on 43 percent of the subunit, with an allowance for off-trail travel to retrieve legally harvested game, would reduce proliferation of user made trails and associated impacts compared to Alternatives A and D. Closure of 55 percent of the subunit to summer OHV use, would	Effects would be similar to Alternative A, except cross-country use of OHVs would be allowed on 45 percent of the subunit, the use of UTVs would be allowed on 112 miles of trail, and OHVs would be restricted to designated trails in the Nome Creek Valley. Proliferation of user made trails would continue resulting in increased erosion and sediment	Effects would be similar to Alternative A, except airboats and hovercraft would be allowed in the White Mountains and snowmobile use may occur in research natural areas. These types of uses are not likely to adversely impact fish and aquatic resources.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	provide protection to high-value fish resources in Beaver Creek watershed. Currently, there are no known impacts to fish and aquatic habitat from OHV, but this could change with the trend of increasing use.	Alternative B would provide the greatest protection. Impacts are expected to be minimal. Fossil Creek would be recommended suitable for designation as a WSR, generally providing additional protection to fish habitat.	protect high-value fish resources in Beaver Creek watershed. Alternative C provides slightly less protection than Alternative B, but more than Alternatives A and D. Impacts to fish and aquatic habitat are expected to be minimal.	impacts. This alternative has more potential to effect fish and aquatic habitat than Alternatives B and C. Fifty percent of the subunit would be closed to summer OHV use, providing protection to high-value fish resources in Beaver Creek watershed.	
Soil and Water Resources	Mine operations on 4,000 acres of existing claims have the potential to adversely impact soil resources and water quality through erosion, unintended discharge of sediment laden water, and subsequent increased downstream turbidity. Mining could impact the natural flow characteristics of river segments.				
	Two transportation corridors would concentrate the building of access roads and other rights-of-way (ROW). Construction of or continued use of existing trails and roads have the potential to adversely impact soil and water resources through surface disturbance.	One transportation corridor would concentrate the building of access roads and other ROW. Designation of the RNAs, White Mountain ACEC, and Beaver Creek WSR Corridor as ROW avoidance areas would protect soil and water resources by not allowing clearance of vegetation and construction of structures associated with ROW.	No transportation corridors would be identified and no ROW avoidance areas would be designated. This would allow for the construction of ROW throughout the subunit, and could result in disturbance to soil and water resources. However, few ROW are anticipated in the White Mountains NRA during the life of the plan.	Same as Alternative C, no transportation corridors or ROW avoidance areas would be identified. The Perhaps Creek portion of PLO 4167 would be revoked, allowing 200 acres to be transferred out of BLM management and open for development and associated surface-disturbing activities.	Same as Alternative C.
	The construction of facilities to support recreation activities would be ground disturbing, and thus could potentially affect soil and water resources. Past impacts have been low and future impacts	Potential disturbance from facility construction would be lower because most of the subunit would be managed for a Primitive or Semi-Primitive recreation setting. Impacts to soil and water resources from recreation	Potential disturbance would be higher because more acres are allocated to Backcountry and Middlecountry settings, and less to Primitive and Semi-Primitive settings. Alternative C allows for increased development of visitor facilities, landscape	Alternative D has the greatest number of acres allocated to Backcountry and Middlecountry settings and allows for the greatest increase in development of visitor facilities, landscape modifications, and group size. Thus, has greater potential to impact soil	Same as Alternative C.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	are expected to be minimal.	management are expected to be minimal.	modifications, and group size. It provides less protection of soil and water resources than Alternatives A and B, but more than Alternative D.	and water resources than Alternatives B and C and would have similar effects to Alternative A.	
	Disturbance of soil and water resources from OHV use is expected to increase because visitation is expected to double within the next 15 years. Construction of new trails and increased user visitation have the potential to adversely impact resources. OHV weight and seasonal restrictions would limit surface disturbance. However, cross-country summer use of OHVs could occur on 61 percent of the subunit.	Construction of new trails and increased visitation have the potential to adversely impact resources. Trail maintenance, seasonal travel restrictions and OHV weight restrictions would reduce the amount of surface disturbance potentially affecting soils and water. Restriction of OHVs to designated trails on 27 percent of the subunit should significantly reduce proliferation of user made trails. This alternative would be the most protective.	Trail maintenance, seasonal travel restrictions and OHV weight and width restrictions would reduce the amount of surface disturbance potentially affecting soils and water. Proliferation of user made trails should be significantly reduced. Off trail use for game retrieval would be minimal and dispersed resulting in few effects. Alternative C provides somewhat less protection than Alternative B but more than Alternatives A and D.	Alternative D greatly increases the amount of area where cross-country summer OHV use is allowed (83 percent of the subunit) and expands the type of vehicles allowed compared to Alternatives B and C. Hence, Alternative D has more potential to adversely impact soil and water resources through soil erosion and stream siltation than Alternatives B and C and would have effects similar to Alternative A.	A travel management plan would be developed for the subunit. During the interim, impacts would be largely the same as Alternative A with a few exceptions. Research natural areas would be open to winter snowmobile use, some trails would be designated for UTV use, and use of airboats and hovercraft would be allowed.
Wilderness Characteristics	Not Addressed	Wilderness characteristics would be protected on 50 percent of the subunit. Low levels of activity and recreation settings would indirectly protect wilderness characteristics on most of the remainder. Recreation facility development may impact naturalness in localized areas.	Wilderness characteristics would be protected on 31 percent of the subunit. Low levels of activity and recreation settings would indirectly protect wilderness characteristics on most of the remainder. Recreation facility development may impact naturalness in localized areas.	Wilderness characteristics would be protected on 20 percent of the subunit. Low levels of activity and recreation settings would indirectly protect wilderness characteristics on most of the remainder. Recreation facility development may impact naturalness in localized areas.	Wilderness characteristics would be protected on 77 percent of the subunit through management of ACECs, RCAs, and recreation settings. Recreation facility development may impact naturalness in localized areas.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Wildlife	Use of motorized boats can result in disturbance of wildlife along Beaver Creek. Limitations on horsepower for boats launching at Nome Creek limits the distance and speed that many boats will travel, reducing potential impacts. Greater impacts could occur if use from private inholdings increased greatly, road access to lower Beaver Creek was developed, or technology advances allow easier travel with small motors. Management of Beaver Creek as a WSR, even though it attracts recreational use, limits impacts to wildlife overall.				
	Not addressed	A provision to monitor snowmobile use of non-forested caribou habitat and adjust management if necessary will minimize potential future impacts should use of these habitats increase.		Not addressed	Same as Alternatives B and C.
	There would be no effects to wildlife from leasable minerals as the entire subunit is closed to leasing.			451,000 acres would be open to leasing. If exploration or leasing occurred, which is unlikely, wildlife and habitat could be impacted. The greatest potential conflicts would be in lower Victoria Creek sheep habitat, and the area north of Nome Creek and upper Beaver Creek. Sheep movement between Victoria Mountain and Mount Schwatka and use of a mineral lick along Victoria Creek could be disrupted.	4,000 acres would be open to mineral leasing in the Livengood area, but no leasing is anticipated.
	The Primitive Management Unit (575,000 acres) is managed to protect remote, Primitive values. Impacts from recreation in this unit are minor. The Beaver Creek WSR is used mostly by summer float boaters, although motorized use is allowed and occurs mostly during hunting season in	Effects of recreation to wildlife would be reduced as the recreation settings manage for smaller changes to the landscape than in other alternatives. Primitive and Semi-Primitive settings would protect Dall sheep habitat in the White Mountains Spine area, and caribou and moose habitat in the upper Victoria Creek drainage.	Effects to wildlife will increase relative to Alternative B, with the increased area of Middlecountry and reduced area of Semi-Primitive settings. If the Backcountry zone is managed to allow more human use than the Alternative A Primitive Management Unit, there may be minor additional impacts in those areas compared to	This alternative has fewer acres of Primitive and Semi-Primitive settings. Relative to other alternatives, it will allow motorized use in a large portion of Victoria Creek. Effects of recreation on wildlife will be higher than all other alternatives. The area of Middlecountry is increased greatly (to 451,000 acres) over other action Alternatives, and over the Semi-Primitive	This alternative designates the same recreation settings as Alternative C and results in a small increase (relative to Alternative A) in areas where widespread summer OHV use would be allowed. This would result in slightly higher negative effects than in Alternative C. Potential effects of summer OHV use include disturbance of Dall sheep and nesting raptors, vegetation and soil disturbance, and

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	the upper portion. The Semi-Primitive Motorized Unit (428,000 acres) is subject to the most recreational use (and variety of types of use).		Alternative A. Potential impacts to wildlife from Middlecountry management will be greatly reduced by limiting OHV use to designated trails.	Motorized Unit of Alternative A. Impacts would potentially occur to Dall sheep, caribou, moose and other wildlife, primarily in the northern portion of the White Mountains NRA.	introduction of invasive plants.
	Cross-country OHV use will continue to increase, resulting in direct loss of habitat. Sheep use in the area surrounding a mineral lick in upper Little Champion Creek may be hampered by increasing levels of motorized and non-motorized recreation. Due to the very scattered nature of small tors for escape terrain in the area between Champion Creek and Quartz Creek, sheep could possibly abandon use of that area under foreseeable levels of OHV activity. Caribou winter habitats in upper Victoria Creek could be affected by snowmobile use facilitated by trails created in summer by OHV users.	Restricting summer OHV use to 139 miles of designated trails on 491,000 acres will greatly reduce the potential impacts of summer OHVs on wildlife. Over time, managed/constructed trails will replace designated trails that are not sustainable. These trails can be routed to minimize impacts to sensitive wildlife and habitats. Pioneering of new routes will be greatly reduced and current non-designated routes will begin to recover. The area of wildlife habitat influenced by OHVs will decrease dramatically. Managed/constructed trails and OHV use will impact wildlife, but this impact will be much smaller and can be better managed.	The area open to summer OHV use on designated trails is somewhat larger than in Alternative B and off-trail use will be allowed for game retrieval. This provision may create some of the impacts associated with allowance of cross-country travel, but those impacts are expected to be relatively minor. Off-trail use for game retrieval will be very limited. relative to Alternatives A or D. Compared to Alternatives A or D, impacts of summer OHV use would be very small. UTVs (larger OHVs) will be allowed on 27 miles of trail. This allowance will have little impact. However, trails constructed to support use by large OHVs begin to approach roads in size and design, with relatively larger potential impacts.	Cross-country summer OHV use is allowed on a somewhat larger area than Alternative A. Effects from summer OHV use would be greatest in this alternative. In addition to effects described for Alternative A, opening of Victoria Creek drainage to OHVs could eventually result in a trail to or near lower Beaver Creek, potentially affecting Dall sheep in the area. Similar to Alternative C, UTVs would be allowed on designated trails but, the miles of designated UTV trail will approximately triple (112 miles). This allowance on select existing trails will have little impact. However, trails constructed to support use by large OHVs begin to approach roads in size and design, with relatively larger potential impacts.	Unlike Alternative C, summer OHVs would not be limited to designated trails, so the overall effects on wildlife and habitats would be considerably increased. Impacts from UTVs would be similar to Alternative C. This is the only alternative that allows use of hovercraft, airboats, and personal watercraft. Use of these types of watercraft could reduce use of the riparian area by moose and other wildlife, reduce use of riverside mineral licks by Dall sheep, and potentially disturb nesting birds. These impacts could be substantial. The ability of airboats to travel outside the channel would also result in impacts to wetlands, including nesting birds. Winter snowmobile use in research natural areas would result in a variety of impacts described in sections 4.3.1.12 and 4.3.3.3.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	No camping is allowed in three designated RNAs, limiting human activity and disturbance of Dall sheep, raptors, and other species.	Effects from the RNAs would be the same as Alternative A. The White Mountains ACEC would be managed to maintain caribou and sheep habitat quality. Designation of Fossil Creek as a "scenic" river would have little effect on wildlife due to other management constraints in the area.	Allowing primitive camping in the RNAs may result in slightly greater disturbance of Dall sheep, raptors, and other species. No ACEC would be designated. A smaller area of Dall sheep and caribou calving/postcalving habitat would be managed as a Wildlife Conservation Area, maintaining these habitats. Some degradation of habitat from motorized use is possible.	Effects from RNAs would be the same as Alternative C. A smaller area would be managed as a Wildlife Conservation Area, protecting most Dall Sheep habitats and the most highly used caribou calving/postcalving habitat. Portions of caribou the habitats could be impacted by motorized vehicle use, including cross-country summer OHV use.	Primitive trail development and camping may result in slightly greater human activity and disturbance of Dall sheep, raptors, and other species. Crucial caribou and Dall sheep habitats would be managed to maintain caribou and sheep habitat quality. Some degradation of wildlife habitat from motorized use is possible, especially in Bear, Quartz, Champion, and Little Champion creek areas.
Locatable Minerals	Impacts from mining would be localized on 4,000 acres of existing mining claims in the Livengood area, where a large lode mine is being developed. Impacts include direct loss of habitat, wildlife disturbance resulting in some level of avoidance, and changes in human use of the area. The White Mountains NRA would remain Congressionally withdrawn from locatable mineral entry, including known high mineral potential areas. Opening the NRA is outside the scope of the RMP.				
Leasing for gold and rare earth metals	Leasing of hardrock minerals would not be authorized. These minerals would be unavailable. There would be no related beneficial economic effects.			160,000 acres would be available for hardrock mineral leasing. This is predicted to result in suction dredging and placer mining leading to some economic benefits.	Same as Alternatives A, B, and C.
Recreation	Restrictions to address wildlife concerns could make recreation projects more costly, more difficult to accomplish, or unable to meet recreation management objectives. Healthy wildlife populations would benefit hunting, wildlife viewing, and trapping which are generally secondary activities in most RMZs. Access restrictions could offset that benefit by limiting participation in those activities. The biggest potential impact would be in limiting potential motorized and non-motorized recreational opportunities and possibly limiting further development of the winter cabin/trails program. The White Mountains NRA and adjacent facilities would be managed to enhance and promote recreational opportunities, ensuring that recreation opportunities continue to exist.				
	There would be no effects to recreation from leasable minerals as the entire subunit is closed to leasing.			The Middlecountry RMZ, 451,000 acres, would be open. If leasing occurred, which is unlikely, desired recreation outcomes could be diminished.	4,000 acres would be open to leasable minerals. Mining is currently occurring on valid existing claims, thus there would be no added effect.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	Leasing of hardrock minerals would not be authorized. There would be no effects on recreation.			Direct impacts include visual, short-term user conflicts, and noise. Recreation users may be displaced. Increased turbidity may negatively affect quality of river floating experiences. Maintained trails may be damaged by heavy mining equipment.	Same as Alternatives A, B, and C.
	Summer cross-country travel by OHVs 1,500 pounds and less is allowed on 43 percent of the subunit. Resource and user conflict issues would not be addressed, potentially resulting in emergency closures. There could be long-term detrimental impacts to scenic view sheds that enhance the quality of recreational experiences. This alternative would offer greater allowances for recreational activities that involve the use of motorized travel; fewer opportunities would exist for recreational users seeking a primitive, non-motorized type of experience.	Summer use of OHVs would be limited to designated trails in the Middlecountry and Frontcountry RMZs (367,000 acres). Opportunities for cross-country summer OHV use, including exploring and hunting, would not be available. These restrictions would enhance scenic view shed and non-motorized recreational opportunities.	Effects from travel management would be similar to Alternative B. Additionally, allowances for off-trail travel by vehicles 1,000 pounds curb weight or less in the Middlecountry and Frontcountry RMZs, to retrieve legally harvested game would increase recreational opportunities for hunters. The ability to use the larger UTV type vehicles on 27 miles of trails would increasing the range of motorized opportunities.	Effects from travel management would be similar to Alternative A. The size of the area where summer cross-country OHV use is allowed would increase by 5 percent. Portions of the northern and northwestern White Mountains would be opened to limited cross-country travel. 112 miles of trail would be open to UTVs. Opportunities for motorized activities would be greatly enhanced. Alternatively, the recreational experience of users seeking a primitive, non-motorized type of outing could be diminished. Depending on use levels and resource damage, additional closures for summer OHV use could be put in place for specific areas.	Effects from travel management would be similar to Alternative A with the following differences. Use of airboats and hovercraft would result in conflicts with float boaters, noise impacts, and possible safety concerns. The ability for these types of watercraft to travel outside the river channel would result in disturbance to marsh and swamp vegetation and to moose during hunting season. The ability to use the larger UTV type vehicles on 27 miles of trails would increasing the range of motorized opportunities.
	The White Mountains NRA and Beaver	A greater portion of the SRMA would be reserved	Management would shift away from a	The Primitive and Semi-Primitive settings	Same as Alternative C.

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	Creek WSR Corridor are managed as a Special Recreation Management Area (SRMA). Facilities (e.g., cabins, trails) may be added or enhanced to accommodate increasing recreational demand.	for Semi-Primitive experiences. Facility development could be limited to maintain Semi-Primitive settings. These decisions would provide high-quality recreation opportunities for users who desire an experience characterized by solitude, tranquility, and self-reliance. Mechanized users could experience some displacement due to motorized closures or increased restrictions.	Semi-Primitive setting towards Backcountry and Middlecountry settings, allowing for a slightly higher level of site and facility development. Some displacement of non-motorized users could be expected. Both motorized and non-motorized recreational use would benefit from improvements. Use would increase with a more moderate level of attainment anticipated for experiencing solitude, tranquility, and personal challenge and risk-taking.	would be greatly reduced compared to Alternative C. Allowing more recreational development in the northern part of the SRMA. The cabin and trail system could be expanded. The reduction in Semi-Primitive RMZ and Primitive settings would not greatly impact non-motorized recreational opportunities.	
	No designated ACECs. Habitat protections afforded by the White Mountain NRA designation protects wildlife resources, benefitting wildlife related recreation.	Designation of the White Mountains ACEC would benefit wildlife related recreation. Negative effects may result, if additional restrictions are placed on recreation.	Although no ACEC would be designated, decisions for management of wildlife and habitat protections afforded by the designation of the White Mountains NRA, would protect wildlife resources, benefitting wildlife related recreation.		
	No rivers are recommended suitable for addition to the Wild and Scenic Rivers System. Management of the White Mountains NRA would protect recreational values.	Designation of Fossil Creek as a “scenic” river would provide long-term beneficial experiences for those seeking scenic and natural landscapes and wanting to experience adventure.	Fossil Creek would not be recommended for designation as a “scenic” river. Management of this area for Backcountry recreational opportunities would provide long-term recreational experiences for those seeking scenic and natural landscapes and wanting to experience adventure.		

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Travel Management	Measures that are implemented to protect natural resources, such as wildlife, water, and soil could result in seasonal or permanent route restrictions or closures. BLM-authorized activities, such as rights-of-way, could slightly expand the route network. The Recreation Opportunity Spectrum (RSC) provides a framework for identifying the types of recreation activities that the public might desire, and is directly related to transportation and travel management opportunities in those areas. Since travel management decisions are applied to the same management units as the RSC, impacts from recreation are expected to be minimal. Management of Beaver Creek WSR, would impact travel in river corridor where the construction of new roads, primitive roads, trails, or other provisions for overland motorized travel would be limited.				
	Areas open to OHV use generally avoid crucial wildlife habitats. There is a seasonal closure to motorized use in peregrine falcon nesting areas.	Since OHV use is more restricted under Alternatives B and C, closures to protect wildlife could have a greater effect on travel opportunities than under Alternative A. Winter use of snowmobiles could be impacted by seasonal closures within winter caribou range. Snowmobile use in the winter habitat is generally very low, so impacts are expected to be low.		Effects would be similar to Alternative A.	Effects would be similar to Alternatives B and C. Winter use of snowmobiles could be impacted by seasonal closures for caribou. Decisions in travel management plans would be somewhat constrained by wildlife management decisions.
	The OHV designation is Limited except for RNAs, (13,000 acres) which are Closed. Some trails are managed as non-motorized recreation trails, benefitting non-motorized trail users by providing a place where only non-motorized use is allowed, but also limiting motorized users opportunities to travel in the same areas. Summer cross-country use of OHVs 1,500 pounds GVWR and less is allowed on 440,000 acres, providing	The OHV designation would be Limited, except for RNAs, (13,000 acres) which are Closed. Same as Alternative A, some trails would be managed as non-motorized. Travel would be restricted to 139 miles of designated trails on 367,000 acres. The amount of area where operating an ATV is allowable would be reduced. The designated trails are generally the same trails that have existed in the White Mountains for the past 15 years. The main difference from Alternative A is that OHVs would be required	The OHV designation would be Limited, except for RNAs, (13,000 acres) which are Closed. Same as Alternative A, some trails would be managed as non-motorized. Travel would be restricted to 139 miles of designated trails on 437,000 acres. Alternative C allows greater use of OHVs compared to Alternative B and allows the use of UTVs on 27 miles of trails. Proliferation of user made trails should be significantly reduced compared to Alternative A, because OHVs are restricted to designated trails except for game	The OHV designation is Limited, except for RNAs, (13,000 acres) which are closed. Same as Alternative A, some trails would be managed as non-motorized. Summer cross-country use of OHVs 1,000 pounds curb weight and less would be allowed on 464,000 acres and 112 miles of trail would be accessible for UTVs. Somewhat fewer acres (514,000 acres) would be closed to summer OHV use, providing some additional opportunity for summer motorized use in the northern and northwestern White Mountains. Travel	Impacts would be the same as Alternative A with the following exceptions. RNAs would be open to winter snowmobile use and 27 miles of trail would be open to UTVs, increasing opportunity for motorized recreation. Alternatively, by allowing snowmobile use in RNAs, the primitive recreation prescription for these areas would not be maintained. Conflicts between motorized and non-motorized users would increase. Allowance for UTVs may also increase user conflict as the trails were not designed for UTVs and it may be

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
	many opportunities for motorized use. 563,000 acres are closed to summer OHV use, somewhat limiting opportunities in these areas.	to stay on the trail. Proliferation of user made trails should be significantly reduced. 636,000 acres would be closed to summer OHV use, making this alternative slightly more restrictive than Alternative A.	retrieval; trail proliferation could be higher than under Alternative B because of the allowance for game retrieval. Off trail use would be minimal and dispersed resulting in few effects. Similar to Alternative A, 566,000 acres would be closed to summer OHV use.	Management decisions would greatly increase the area where OHVs can travel and expand the type of vehicles allowed compared to Alternatives B and C. This would create a greater impact on non-motorized travelers.	difficult to pass. These impacts will decrease over time with trail widening, increased signing, and public education. Use of airboats and hovercraft would result in conflicts with float boaters, noise impacts, and possible safety concerns. Impacts from the use of these types of watercraft could lead to additional restrictions on motorboat use in the future.
	The three RNAs are closed to motorized OHV use. Impacts to motorized travel would be minimal since the RNAs are relatively inaccessible to this use.	Effects from RNAs would be the same as Alternative A. Designation of the White Mountains ACEC could result in limits on seasonal use of trails and construction of new trails. Designation of Fossil Creek as a "scenic" river, would not affect modification of existing trails or development of new trails.	Allowing primitive camping and development of primitive hiking trails in the RNAs would benefit travel management as trails could be established to provide for easier travel through the RNAs and users would not have to travel greater distances outside the RNA to camp.		The RNAs, closed in all other alternatives, would be opened to the use of snowmachines in winter (October 15 to May 1) with adequate snow cover. Trails could be constructed outside of the RNA boundary to improve access. Hiking and hunting would be allowed. Impacts to motorized travel would be minimal since most of the RNAs are relatively inaccessible to this use, except in the winter. Minimal positive effects to motorized recreationists as there would be some additional acreage open to winter use of snowmobile use. Scenic values could be impacted by allowing camping and with the development of hiking

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
					trails, user-created travel routes from camping locations within the RNAs and by allowing cross-country winter OHV use.
Wild and Scenic Rivers	No rivers are recommended suitable for addition to the Wild and Scenic Rivers System. Management of the White Mountains NRA would generally protect river values.	Fossil Creek would be recommended suitable for designation as "scenic," protecting its free-flow and ORVs until Congress made a decision on designation. River values would be protected by management of this area for a Backcountry setting.	Fossil Creek would not be recommended as suitable for addition to the Wild and Scenic Rivers System. Fossil Creek is within the White Mountains NRA and is withdrawn from mineral entry. These factors in addition to the management of this area for a Backcountry recreation setting would generally protect river values in the absence of designation.		
Subsistence	Alternative A would not significantly restrict subsistence use by communities in and adjacent to the planning area, as impacts to subsistence resources would be minimal. Impacts to subsistence species would be localized and are not expected to impact resources at the population level. No impacts to access by subsistence users are anticipated.	Alternative B would not result in significant reductions in subsistence resources or uses by residents in or adjacent to the subunit. Most impacts to subsistence resources would be beneficial, and any impacts by way of the limited amount of development allowed to occur would be minimized by the Fluid Mineral Leasing Stipulations and SOPs (Appendix A).	Alternative C would not significantly restrict subsistence use by communities in or near the planning area. Most impacts to subsistence resources and uses would be minor; any impacts from development would be minimized by the Leasing Stipulations and SOPs. Impacts to subsistence resources would be localized and temporary, and are not expected to impact resources at the population level. No impacts to access by subsistence users are expected to occur. Minimal competition for subsistence resources may	Alternative D would not restrict subsistence use by communities in or near the planning area. Any impact from responses to potential locatable mineral development and cross-county summer use of OHV would not be significant. Management decisions in Chapter 2 of this RMP and the Fluid Mineral Leasing Stipulations and SOPs would mitigate impacts.	Alternative E would not restrict subsistence use by communities in or near the planning area. Most impacts to subsistence resources and uses would be minor; any impacts from development would be minimized by the Leasing Stipulations and SOPs. Impacts to subsistence resources would be localized and temporary, and are not expected to impact resources at the population level. No impacts to access by subsistence users are expected to occur. As the Fortymile caribou herd expands its range into the White Mountains, participation by rural

Program or Resource	Alternative A (No Action)	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
			occur if large numbers of non-local hunters are attracted to areas where off-trail game retrieval is allowed.		residents from across the state would increase. Participation by federally qualified subsistence users and non-rural residents could also increase.
	The cumulative case, as presented in this analysis, is not expected to result in a reasonably foreseeable or significant restriction of subsistence resources or uses for rural communities within the planning area under any alternative.				

Chapter 3. Affected Environment

3.1. How to Read This Chapter

This chapter provides background information on the various resources and resource uses within the planning area, and describes their condition and trend. The chapter is organized into four sections: Resources, Resource Uses, Special Designations, and Social and Economic Conditions. Each of these four sections is split further into resources or program areas. Each section includes a discussion of the presence, condition, and trend of the topic area. For some resources, additional information in the affected environment can be found in Appendix M.3.

3.2. Resources

3.2.1. Air and Atmospheric Values

3.2.1.1. Air Quality and Greenhouse Gas Emissions

This section provides an overview of the existing air quality conditions in the planning area and surrounding region, the regulatory framework, and reported greenhouse gas (GHG) emissions. The air quality section includes an overview of six "criteria" pollutant emissions including carbon monoxide (CO), lead (Pb), nitrogen oxides (NOx), ozone (O3), sulfur dioxide (SO2), particulate matter less than 10 micrometers (PM_{10}) and less than 2.5 micrometers ($PM_{2.5}$), and sulfur dioxide (SO2). The GHG emission section includes an overview of the three most important greenhouse gases, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Throughout this report greenhouse gas emissions are presented using a common metric, carbon dioxide equivalents ($CO_2Eq.$), which incorporates the relative contribution of each gas to the global average radiative forcing on a global warming potential (GWP) weighted basis.

3.2.1.1.1. Air Quality

3.2.1.1.1.1. Regulations, Guidance, and Policy

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for outdoor concentrations of the following "criteria"[1] pollutants: CO, Lead, NOx, O3, PM_{10} – $PM_{2.5}$, and SO2 (Table 3.1). An ambient air quality standard establishes the concentration above which the pollutant is known to cause adverse health effects to sensitive groups within the population such as children and the elderly. Ambient air quality standards are classified as either "primary" or "secondary" standards. Primary standards define levels of air quality, including an adequate margin of safety, necessary to protect the public health. Secondary ambient air quality standards define levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

3.2.1.1.1.2. Existing Environment: Air Quality

Much of the planning area is remote, largely undeveloped, and air quality is generally pristine. Regional and local air quality however, is periodically affected by local, regional, and global natural events and anthropogenic activities (ADEC, 2011a). Interior Alaska has various sources

[1]"Criteria" air pollutants refer to those air pollutants for which the United States Environmental Protection Agency has developed criteria on which to base National Ambient Air Quality Standards (NAAQS) under the Federal Clean Air Act.

of natural pollution including wind-blown dust from open riverbeds, smoke from wildland fires, and rarely ash emissions from remote volcanic eruptions. Although natural in source, these forms of pollution may impair visibility and adversely affect public health. The main contributors to anthropogenic air pollution in Interior Alaska are incomplete burning of fossil fuels from motor vehicles and heating, as well as smoke from wood stoves (ADEC, 2011b). In rural communities, such as Fort Yukon and Chalkyitsik, diesel power plants and seasonal dust from dirt roads also contribute to local air pollution (Delaney and Dulla, 2007). All of these forms of anthropogenic and natural air pollution impair visibility and occasionally impact public health.

The aerial extents for these forms of air quality impairment are a function of the nature and source of the pollution and the prevailing meteorological conditions (Malm, 1999). Seasonal atmospheric mixing conditions affect distribution and dispersal of air pollution. In winter, for example, strong inversions trap and concentrate air pollutants such as carbon monoxide, sulfur compounds, and other chemicals from incomplete burning of petroleum fuels. Communities within the planning area also use wood stoves for home heating and strong winter inversions increase the local concentration of fine particle ($PM_{2.5}$) emissions from the stoves (Bourne et. al. 2010). High altitude arctic haze persists in spring and originates as dust, smoke, and human-made pollution from parts of Asia and Europe (Law and Stohl, 2007). Due to limited amounts of snow, rain, or turbulent air to displace pollutants from the polar air mass in spring, arctic haze can linger for more than a month in the northern atmosphere (ADEC, 2011a).

Summer wildland fires from lightning strikes are common (Todd and Jewkes, 2006). Associated smoke cover can severely limit local and regional visibility, airborne particulate concentrations may reach health hazard levels, and wildland fire odors can attain nuisance levels. Depending on atmospheric conditions, smoke and ash from large wildland fires outside of Alaska may be transported great distances, adversely affecting air quality within the planning area (ADEC, 2011a). Wildland fire smoke periodically impacts air quality during summer months, typically late May through August.

Although infrequent, atmospheric transport of volcanic ash into Interior Alaska may impair air quality at any time of the year. In January and early February of 2006, a series of explosive eruptions occurred at Augustine Island off the southern coast of Alaska. By early February a plume of volcanic ash was transported northward into Interior Alaska (Sassen et al. 2007). During the summer of 1992, ash clouds from explosive eruptions at Mount Spurr Volcano in southern Alaska significantly disrupted air traffic across the United States and Canada. Plumes from the eruption events deposited significant amounts of ash in Interior Alaska (Neal et al. 1995, Schaefer and Nye, 2008).

Wind erosion and transport of dust occasionally impact local air quality along braided glacial rivers and in selected rural communities. There are no large industrial facilities within the planning area and no reports of substantial transport of industrial aerosols or odor from facilities in the greater Fairbanks area. Exhaust from diesel power generators in some rural communities can adversely impact local air quality visibility and odor (Delaney and Dulla, 2007). Rural refuse sites and water treatment plants may also create nuisance odor levels. Noise pollution from motorized vehicles occurs locally from vehicles, boats, and aircraft. Military air combat exercises over the planning area periodically increase noise levels, particularly from low-level jet aircraft over flights, sonic booms, and helicopter activity (FNSB, 2006).

Dust particles (silt) from dried glacial-fed river floodplains may be re-suspended during wind events and transported downwind, periodically (and temporarily) impacting air quality in local

communities. Significant dust storms only occur within the five- to six-month snow-free period during spring, summer, and early fall, although some river bars may be exposed to the wind in winter and dust may accumulate during winter in the snowpack before melting out in the spring (Pewe, 1955). Some glacial river floodplains produce dust clouds regularly, while other may do so only in unusually dry, windy conditions. Substantial dust may also originate from gravel roads, including portions of the Steese and Taylor highways, and in communities without paved roads. Air quality impacts from dust along local community roads in the planning area vary (Delaney and Dulla, 2007).

There are no long-term air-quality monitoring stations in the planning area. Monitoring of carbon monoxide and $PM_{2.5}$ is performed in the greater Fairbanks-North Pole area. Based on regional monitoring and agency reports from Fairbanks, Denali National Park, and Whitehorse, Yukon Territory, existing air quality in the planning area is generally excellent, with the exception of periodic smoke and associated particulate matter from summer wildland fires (NPS, 2013; USFWS, 2008). Much of the anthropogenic pollution emissions emanate from urban areas along the southwest border of the planning area, including Delta Junction, North Pole, and Fairbanks. Residential emissions also occur in several small towns and villages within the planning area. Vehicle emissions occur along the Chena Hot Springs Road and the Alaska, Steese, and Taylor highways. The Richardson, Elliott, and Dalton highways are major transportation corridors along the west-central border of the planning area. According to USFWS (2008a), concentrations of regulated air pollutants in the Yukon Flats National Wildlife Refuge (NWR), adjacent to the planning area, are considerably lower than the maximum concentrations allowed under the National Ambient Air Quality Standards and the Alaska Ambient Air Quality Standards.

Table 3.1. National Ambient Air Quality Standards for six principal criteria pollutants.[a]

Pollutant [final rule cite]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide [76 FR 54294, Aug 31, 2011]		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead [73 FR 66964, Nov 12, 2008]		primary and secondary	Rolling 3 month average	0.15 µg/m^3[b]	Not to be exceeded
Nitrogen Dioxide [75 FR 6474, Feb 9, 2010][61 FR 52852, Oct 8, 1996]		primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	Annual	53 ppb[c]	Annual Mean
Ozone [73 FR 16436, Mar 27, 2008]		primary and secondary	8-hour	0.075 ppm [d]	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution Dec 14, 2012	$PM_{2.5}$	primary	Annual	12 µg/m^3	annual mean, averaged over 3 years
		secondary	Annual	15 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	Annual	35 µg/m^3	annual mean, averaged over 3 years
	PM_{10}	primary and secondary	24-hour	150 µg/m^3	98th percentile, averaged over 3 years

Pollutant [final rule cite]	Primary/ Secondary	Averaging Time	Level	Form
Sulfur Dioxide [75 FR 35520, Jun 22, 2010][38 FR 25678, Sept 14, 1973]	primary	1-hour	75 ppb[e]	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

[a] Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb) by volume, and micrograms per cubic meter of air (µg/m^3).]

[b]Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard. The 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[c]The official level of the annual NO2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

[d]Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard ("anti-backsliding"). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.

[e]Final rule signed June 2, 2010. The 1971 annual and 24-hour SO2 standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

Criteria Air Pollutants

Summary descriptions of each pollutant are included here. "Criteria" air pollutants refer to those air pollutants for which the United States Environmental Protection Agency has developed criterial on which to base National Ambient Air Quality Standards (NAAQS) under the Federal Clean Air Act, including CO, Lead, NOx, O3, $PM_{10} - PM_{2.5}$, and SO2.

Carbon Monoxide (CO)

CO is a non–reactive pollutant that is a product of incomplete combustion of organic material, and is mostly associated with motor vehicle traffic, and in wintertime, with wood–burning stoves and fireplaces. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground–level temperature inversions. These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces its oxygen–carrying capacity, resulting in reduced levels of oxygen reaching the brain, heart, and other body tissues.

Lead

Lead has a range of adverse neurotoxic health effects, and was released into the atmosphere via leaded gasoline products. The phase–out of leaded gasoline has resulted in dramatically decreased levels of atmospheric lead. Metal processing is currently the primary source of lead emissions. The highest concentrations of lead in air are generally found near lead smelters and general aviation airports; where piston aircraft use leaded fuel. Other stationary sources that generate lead emissions include waste incinerators, utilities, and lead-acid battery manufacturers and recyclers.

Nitrogen Oxides (NOx)

When combustion temperatures are extremely high, as in aircraft, truck and automobile engines, atmospheric nitrogen combines with oxygen to form various oxides of nitrogen. Nitric oxide (NO) and NO2 are the most significant air pollutants generally referred to as NOx. Nitric oxide is a colorless and odorless gas that is relatively harmless to humans, quickly converts to NO2, and can be measured. NO2 has been found to be a lung irritant capable of producing pulmonary edema. Inhaling NO2 can lead to respiratory illnesses such as bronchitis and pneumonia.

Ozone (O3)

O3 is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. O3 is not emitted directly into the atmosphere but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions.

Particulate Matter (PM_{10} and $PM_{2.5}$)

PM_{10} and $PM_{2.5}$ consist of airborne particles that measure 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs, causing adverse health effects. Particulate matter in the atmosphere results from many kinds of dust and fume producing industrial and agricultural operations, fuel combustion, wood burning stoves and fireplaces, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition, construction activities, and mining, are more local in nature, while others, such as vehicular traffic and wood burning stoves and fireplaces, have a more regional effect.

Sulfur Dioxide (SO2)

SO2 is a combustion product of sulfur or sulfur–containing fuels such as coal and diesel. SO2 is also a precursor to the formation of atmospheric sulfate and particulate matter, and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain.

3.2.1.1.1.3. Non-Attainment Areas; CO and $PM_{2.5}$

Under the federal Clean Air Act (CAA), the EPA designates air basins where National Ambient Air Quality Standards (NAAQS) are exceeded as "nonattainment" areas. These are areas where air pollution levels persistently exceed the state or national ambient air quality standards. If standards are met, the area is designated as an "attainment" area. If there are inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." Federal nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards.

The Fairbanks-North Pole urban area along the west central border of the planning area is in nonattainment status for the federal $PM_{2.5}$ (ADEC, 2015) and from 1990 – 2004 was in non-attainment for CO. On August 9, 2013 the EPA approved a continued Limited Maintenance Plan (LMP) for CO for the Fairbanks-North Pole urban area (EPA, 2013).

Carbon Monoxide (CO)

The urban portion of the Fairbanks North Star Borough (FNSB) was designated in 1990 as a nonattainment area for CO, primarily for mobile sources, and classified as "moderate" (EPA, 2013). The area was subsequently reclassified as a "serious" nonattainment area for failing to

attain the ambient eight-hour CO health standard by the December 31, 1995 EPA deadline. A number of attainment plans were submitted to EPA (EPA, 2013), notably; 1) the State of Alaska submitted a maintenance plan and redesignation request on June 21, 2004. EPA proposed (69 FR 44632) and approved (69 FR 44601) the plan and redesignation to attainment on July 27, 2004, and 2) on April 22, 2013, the State of Alaska submitted the Second 10-Year Limited Maintenance Plan (LMP) for the Fairbanks, Alaska CO area. The area qualified for an LMP because the second highest 8-hour CO concentration for the Fairbanks area for the most recent 8 quarters (2011–2012) was 3.6 ppm, which is significantly below the LMP Option requirement of 7.65 ppm (ADEC, 2015).

Particulate Matter ($PM_{2.5}$)

A portion of the Fairbanks North Star Borough, including the City of Fairbanks and the City of North Pole, was designated as a $PM_{2.5}$ non-attainment area in December 2009 (ADEC, 2015). These areas exceeded the health based 24 hour exposure limit of 35 micrograms/cubic meter for fine particulate matter ($PM_{2.5}$).

Analysis shows that local emissions from wood stoves, burning distillate oil, industrial sources, and mobile emissions contribute to particulate pollution. For planning purposes, $PM_{2.5}$ is primarily a concern during the winter months (October through March) when extremely strong temperature inversions are frequent and human-caused air pollution impacts increase. For additional details see ADEC website http://dec.alaska.gov/air/anpms/index.htm. Summertime smoke from wildland fires are also a health concern, but are addressed as natural, uncontrollable, exceptional events.

3.2.1.1.1.4. General Conformity Analysis

The General Conformity Rule applies to federal actions occurring in non-attainment or maintenance areas when the net change in total direct and indirect emissions of non-attainment pollutants (or their precursors) exceeds specific thresholds (known as di minimis levels). The intent of the General Conformity requirements is to prevent the air quality impacts of federal actions from causing or contributing to a violation of the National Ambient Air Quality Standards (NAAQS – EPA, 2014) or interfering with the purpose of the State Implementation Plan (SIP). This means that under the Clean Air Act, Section 176 and 40 CFR, Part 93, Subpart W, Conformity Rules (EPA, 1993), federal agencies must make a determination that proposed actions in federal non-attainment areas conform to the applicable EPA approved state implementation plan before an action is taken.

The EPA Conformity Rule (EPA, 2013) establishes a process that is intended to demonstrate that the proposed federal action (1) would not cause or contribute to new violations of federal air quality standards; (2) would not increase the frequency or severity of existing violations for federal air quality standards; and (3) would not delay the timely attainment of federal ambient air quality standards.

A majority of the air emissions projected in the planning area result from wildfires. Proposed BLM activities within the planning area would not likely be a source of wildfires. Only a small amount of air emissions are projected to occur from prescribed burning. In the long-term, the intent of prescribed burning is to mitigate impacts from wildfires.

All prescribed burning within the Fairbanks $PM_{2.5}$ non-attainment area must meet the criteria contained in the Alaska Enhanced Smoke Management Plan (Alaska Department of Environmental Conservation, 2011), which prohibits smoke intrusions into smoke sensitive

receptor areas (SSRAs). As a result, the Conformity Rule is not applicable for BLM prescribed burning actions within non-attainment areas.

The Conformity Rule is not applicable for prescribed burning within non-attainment areas since the burning would (1) not likely cause or contribute to new violations of federal air quality standards; (2) would not increase the severity of existing violations for federal and state air quality standards; or (3) would not delay the timely attainment of federal air quality standards.

In addition, the Conformity Rule is also not applicable for wildfires that may occur within non-attainment areas. There is no reference to wildfires or the Conformity Rule in either the Alaska Enhanced Smoke Management Plan or Alaska State Implementation Plan (SIP). Summertime smoke from wildfires is considered as natural, uncontrollable, exceptional events (Alaska Department of Environmental Conservation, 2015) which will increase the amount of particulates (including $PM_{2.5}$), carbon monoxide (CO), and other gaseous air pollutants (including greenhouse gases) in the atmosphere.

Within the Fairbanks $PM_{2.5}$ non-attainment area and Fairbanks CO maintenance area there would not likely be any BLM activities that would cause a deterioration of air quality. Local emissions from wood stoves, burning distillate oil, industrial sources, and mobile emissions contribute to particulate and CO pollution in the Fairbanks area. During winter months (October through March), extremely strong temperature inversions are frequent and human-caused air pollution impacts increase (Alaska Department of Environmental Conservation, 2015).

3.2.1.1.2. Greenhouse Gas Emissions (GHG)

The burning of fossil fuels such as coal and oil, deforestation, land-use changes, and other sources have caused the concentrations of heat-trapping "greenhouse gases" to increase significantly in our atmosphere (NOAA 2014). These gases in the atmosphere absorb some of the energy being radiated from the surface of the Earth and then re-radiate this energy with some returning to the Earth’s surface, essentially acting like a blanket that makes the Earth's surface warmer than it would be otherwise (IPCC, 2013). Although the Earth’s atmosphere consists mainly of oxygen and nitrogen, neither plays a significant role in enhancing the greenhouse effect because both are essentially transparent to terrestrial radiation. The greenhouse effect is primarily a function of the concentration of water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and other trace gases in the atmosphere that absorb the terrestrial radiation leaving the surface of the Earth (IPCC, 2013). A number of scientists are confident that human activities are changing the composition of the atmosphere, and that increasing the concentration of greenhouse gases will change the planet's climate. For more detailed information see: <http://www.epa.gov/climatechange/science>.

3.2.1.1.2.1. Regulations, Guidance, and Policy GHG

Currently, there are no Federal or State regulations that establish ambient air quality emissions standards for GHGs. However, the U.S. Environmental Protection Agency, on October 30, 2009, published a rule for mandatory reporting of greenhouse gases (GHG) from large GHG emission sources and in 2010 implemented the rule, referred to as the Greenhouse Gas Reporting Rule (GHGRR), requiring facilities emitting more than 25,000 metric tons (MT) of carbon dioxide equivalents (CO_2Eq.) to report their emissions to the EPA annually.

The EPA, the Council on Environmental Quality (CEQ), and Presidential Executive Orders provide GHG reporting guidance for federal agencies.

Executive Order (EO) 13514, issued October 5, 2009, "Federal Leadership In Environmental, Energy, and Economic Performance," introduced new GHG emissions management and reduction requirements for the federal government. On February 19, 2015, President Obama signed Executive Order (EO) 13693 — superseding EO 13514 — as part of the Federal government's commitment to lead by example in curbing the greenhouse gas (GHG) emissions believed to be driving climate change. For additional information see (https://www.whitehouse.gov/administration/eop/ceq/sustainability)

The CEQ issued guidance (December 2014), providing direction for federal agencies on when and how to consider the effects of GHG emissions and climate change in their evaluation of all proposed federal actions in accordance with the National Environmental Policy Act (NEPA) and the CEQ regulations implementing the procedural provisions of NEPA (CEQ Regulations 42 U.S.C. § 4321 et seq.; 40 CFR Parts 1500-1508). The CEQ guidance, incorporated here by reference, "is not a rule or regulation, and the recommendations it contains may not apply to a particular situation based upon the individual facts and circumstances." Guidance is focused on (1) encouraging agencies to draw from their experience and expertise to determine the appropriate level (broad, programmatic or project- or site-specific) and type (quantitative or qualitative) of analysis required to comply with NEPA, and (2) recommending agencies focus their analysis on the projects and actions with the greatest impacts by providing a reference point of 25,000 metric tons of CO2-equivalent ($MTCO_2$ Eq.) emissions on an annual basis below which a quantitative analysis of GHG emissions is not recommended unless it is easily accomplished. This guidance does not change or substitute for any law, regulation, or other legally binding requirement, and is not legally enforceable. Furthermore, the CEQ does not propose the 25,000 $MTCO_2Eq.$ reference point as an indicator of a level of GHG emission that may significantly affect the quality of the human environment, as that term is used by NEPA, but rather serves as a minimum standard for reporting emissions under the Clean Air Act.

3.2.1.1.2.2. Existing Environment – GHG Emission

Much of the Alaska GHG emissions discussion herein is summarized from the Alaska Department of Environmental Conservation Air Quality Division Report by Landsberg et al. (2015). This new report updates the Alaska State Greenhouse Gas Emissions Inventory with results from 1990 through 2010 providing statewide emissions as well as emissions from the stationary sources required to report under the federal Greenhouse Gas Reporting Rule. Stationary sources are typically larger industrial facilities operating in the state and are subject to air quality permit requirements.

The Landsberg et al. (2015) report addresses the six Kyoto greenhouse gases, and includes the global warming potential (GWP) of each of the gases (Table 3.2). The GWP compares the atmospheric warming ability of a compound to carbon dioxide. This comparison means that 1 pound of methane warms the atmosphere as much as 21 pounds of carbon dioxide (Table 3.2).

Table 3.2. Greenhouse Gases Sources and Global Warming Potential (100-Year Time Horizon)

Greenhouse Gas	Common Sources and Uses	Global Warming Potential $CO_2Eq.$
Carbon dioxide (CO_2)	Combustion	1
Methane (CH_4)	Combustion, decomposition	21

Greenhouse Gas	Common Sources and Uses	Global Warming Potential CO_2Eq.
Nitrous oxide (N_2O)	Combustion	310
Sulfur hexafluoride (SF_6)	Electrical insulator	23,900
Hydrofluorocarbons (HFCs)	Refrigerants	12–11,700
Perfluorocarbons (PFCs)	Semiconductors, medical uses	6,500–9,200

The GWP values in Table 3.2, from Landsberg et al. (2015), are based on GWP values published in 40 CFR Part 98 Table A-1 for a 100-year time horizon and vary somewhat from the revised United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines which use GWP values from the *IPCC Fourth Assessment Report (AR4)* (IPCC 2007). As an example, under current UNFCCC guidelines the GWP of methane (CH4) is 25 versus 21 reported in Table 3.2 and for nitrous oxide (N_2O) is 298 versus 310 in Table 3.2. See (http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf) for additional information.

As background Table 3.3 partitions the GHG emission in Alaska by sectors for the years 1990, 2000, and 2005 through 2010, respectively, and includes emission sinks as well. From about 1995 through 2003, GHG emissions were relatively stable at about 50 million metric tons (MMT)of carbon dioxide equivalents (Table 3.3). Emissions peaked in 2005 and by 2009 had declined by about 23 percent. Some of this decline may be due to the relatively recent economic recession as emissions increased in 2010. The industrial sector, including the oil and gas industries, produces the most greenhouse gas emissions in the state, followed by the transportation, the residential and commercial, and the electric generation sectors. The waste, agriculture, and industrial process sectors each produce relatively small quantities of greenhouse gases in Alaska (Table 3.3).

Table 3.3. Alaska Historical and Reference Case GHG Emissions, by Sector[a]

Year	1990	2000	2005	2006	2007	2008	2009	2010
Electricity Production	3.05	3.62	3.69	3.96	3.74	3.73	3.65	3.51
Residential & Commercial	4.36	5.27	4.90	5.35	4.97	5.03	4.68	5.02
Industrial	24.87	26.33	27.02	23.21	23.36	21.33	21.04	20.26
Transportation	11.18	14.31	17.37	17.37	16.35	13.89	11.64	13.36
Industrial Processes	1.10	1.17	1.14	0.48	0.47	0.26	0.27	0.29
Waste	0.32	0.4	0.45	0.47	0.49	0.5	0.52	0.53
Agriculture	0.05	0.05	0.07	0.07	0.08	0.08	0.09	0.08
Gross Emissions	**44.93**	**51.16**	**54.64**	**50.92**	**49.45**	**44.81**	**41.88**	**43.04**
Emission Sinks	-6.5	-25.2	5.2	-29.04	-26.06	-30.31	-8.15	-22.37
Net Emissions	**38.43**	**25.96**	**59.84**	**21.87**	**23.39**	**14.5**	**33.74**	**20.67**
Increase Over 1990	0	6.23	9.71	5.99	4.52	-0.12	-3.05	-1.89
Increase Relative to 1990	**0%**	**14%**	**22%**	**13%**	**10%**	**0%**	**-7%**	**-4%**

[a]Alaska Greenhouse Gas Emissions, 1990, 2000, and 2005 through 2010 (MMTCO_2Eq.), modified from (Landsberg et. al., 2015)

Variability of two key sectors in Table 3.3 should be noted. First, emissions in the residential and commercial sector is roughly flat, indicating that as the population in Alaska has grown, we have become more efficient in our energy use in these areas through various energy efficiency measures (Landsberg et. al., 2015). Second, the way we use land affects the ability of the natural environment to take up and store, or sequester, carbon, serving as "emission sinks" by removing carbon from the atmosphere. The land use, land use change, and forestry sector calculations take

into account a variety of factors that affect the ability of the soil and plants to store carbon. These "Emission Sink" factors are relatively stable over time, with the exception of wildfires, which can vary greatly from year-to-year.

Because the Fairbanks North Star Borough (57,000 mi^2) encompasses much of the west central portion of the planning area, reported GHG emissions for the borough (Table 3.4) are considered more representative of the magnitude of current annual GHG emissions in the planning area than those reported for the State as a whole (Table 3.3). Discussion of the FNSB GHG emissions is largely summarized from the Alaska Center for Energy and Power (ACEP) 2008 report for the Fairbanks North Star Borough Baseline Greenhouse Gas Emissions Inventory, Base Year 2007 unless referenced otherwise.

Total 2007 GHG emissions for the FNSB, including the "air fuel" Sector were 4.32 $MMTCO_2Eq.$, or 44.3 metric tons per resident. Per Capita emissions in the FNSB are significantly higher (88 percent) than the national average, primarily as a result of the cold climate. On the other hand, the per capita emissions in the FNSB (no air fuel) are almost 50 percent lower than the average for the State of Alaska (Table 3.5), primarily because this inventory does not account for the bulk of industrial emissions in the State, such as those associated with the oil and gas industry outside of the FNSB area.

Table 3.4 shows the FNSB emissions by sector with air fuel combustion emissions included. Fairbanks International Airport air fuel emissions are added to the Transportation sector and emissions from air fuel at Eielson Air Force Base and Fort Wainwright are added to the Military sector. If fuel combusted by airplanes is not included, total 2007 FNSB emissions were 3.76 $MMTCO_2Eq.$ or 38.6 $MTCO_2Eq.$ per resident.

Table 3.4. Fairbanks North Star Borough Emissions with Air Fuel

Source	Emissions $MMTCO_2Eq.$
Agricultural	0.01
Commercial	0.71
Industrial	1.03
Industrial Processes	0.05
Military	1.09
Residential	0.83
Transportation	0.55
Waste Management	0.06

To put the FNSB GHG emissions into perspective, it is interesting to compare how much the Borough is emitting compared to both the state of Alaska and the United States as a nation. Table 3.5 shows a comparison of these emissions sources, using recent GHG inventories from Alaska and the United States. In addition to total emissions, Table 3.5 also shows GHG emissions per capita, which is an estimate of the emissions for each individual living in the FNSB, Alaska, and the United States. This table shows that on a per capita basis, emissions in the FNSB are significantly higher (64 percent) than the national average, but lower than the average for the State of Alaska.

The higher per capita emissions in the FNSB, compared to the U.S., are largely a by-product of our cold climate. When considering climate as a factor, GHG emissions from heating are most directly and obviously impacted. However, emissions from transportation sectors are also higher in colder climates. The Alaska Center for Energy and Power has calculated as much as a 25 percent decline in motor fuel efficiency in winter compared to summer months, due to poor lubrication in bearings

and other moving engine components. The higher electricity use in the FNSB in winter months due to lack of natural light is also a factor related to our geographic location.

Table 3.5. Per Capita Greenhouse Gas Emissions[a]

Region	Emissions Estimate (MMT CO_2Eq.)	Year	Estimated Population	Year	Emissions Per Capita ($MTCO_2$Eq.)
United States[b]	7054	2006	299,398,484	2006	23.6
Alaska [c]	52.1	2005	670,053	2006	77.7
FNSB (no air)[d]	3.76	2007	97,484	2007	38.6
FNSB (w/air)[d]	4.32	2007	97,484	2007	44.3

[a] Modified from ACEP 2008

[b]US Total Emissions: United States Environmental Protection Agency, Inventory of U.S. Greenhouse Gas *Emissions Sources and Sinks: Executive Summary, page 6; available from*http://epa.gov/climatechange/emissions/downloads/08_ES.pdf; accessed August 1, 2008.

[c]Alaska Total Emissions: Roe, Stephen et al. Alaska Greenhouse Gas Inventory and Reference Case Projections, *1990 to 2020* (Center for Climate Strategies, July 2007), page 3; available from Appendix C in: Alaska Department of Environmental Conservation. Summary Report of Improvements to the Alaska Greenhouse Gas Emissions *Inventory.* January 2008; available from http://climatechange.alaska.gov/docs/ghg_ei_rpt.pdf; accessed July 31, 2008, page 65.

[d](no air & w/air): ACEP, Alaska Center for Energy and Power, University of Alaska, 2008. Fairbanks North Star Borough Baseline Greenhouse Gas Emissions Inventory, Base Year 2007. Prepared for the Fairbanks North Star Borough by: Alaska Center for Energy and Power, University of Alaska, Gwen Holdmann, Organizational Director, John Murphy, Research Technician, September 23, 2008.

Estimates for annual GHG emissions for communities within the planning area (Table 3.6) were calculated using 2010 community census data and the most recent 2007 per capita GHG emissions (44.3 $MTCO_2$Eq.) for the Fairbanks North Star Borough (ACEP, 2008). Calculated emissions in Table 3.6 illustrate the general magnitude of annual greenhouse gas emissions expected from each of the communities in the planning area with the understanding that emissions may vary considerably from community to community. In 2010 the Fairbanks and Delta areas contributed the most GHG emissions 1,893,205 and 196,382 $MTCO_2$Eq. respectively. The Eagle area, at 12,803 $MTCO_2$Eq., and Fort Yukon area at 42,129 $MTCO_2$Eq., contributed the least emissions.

Table 3.6. Estimated Annual Greenhouse Gas Emissions for Communities within the Planning Area, 2010[a]

Community	Population[b]	Greenhouse Gas Emissions
	Year 2010	population x per capita[c] ($MTCO_2$Eq.)[d]
Fairbanks North Star Borough	97,581	4,322,838
Southeast Fairbanks Census Area	7,029	311,385
Yukon-Koyukuk Census Area	5,588	247,548
Big Delta	591	26,181
Delta Junction	958	42,439
Deltana	2,251	99,719
Dry Creek	94	4,164
Fort Greely	539	23,878
Delta Area	**4,433**	**196,382**
Eielson AFB	2,647	117,262
Ester	2,422	107,295
Fairbanks	31,535	1,397,001
Fox	417	18,473
Harding/Birch Lakes	299	13,246
Livengood	13	576
Moose Creek	747	33,092

Community	Population[b] Year 2010	Greenhouse Gas Emissions population x per capita[c] ($MTCO_2Eq.$)[d]
North Pole	2,117	93,783
Pleasant Valley	725	32,118
Salcha	1,095	48,509
Two Rivers	719	31,852
Fairbanks Area	**42,736**	**1,893,205**
Tanacross	136	6,025
Tetlin	127	5,626
Tok	1,258	55,729
Northway	71	3,145
Northway Junction	54	2,392
Northway Village	98	4,341
Healy Lake	13	576
Dot Lake	13	576
Dot Lake Village	62	2,747
Tok Area	**1,832**	**81,158**
Alcan Border (Boundary)	33	1,462
Central	96	4,253
Chicken	7	310
Eagle	86	3,810
Eagle Village	67	2,968
Eagle Area	**289**	**12,803**
Beaver	84	3,721
Birch Creek	33	1,462
Chalkyitsik	69	3,057
Circle	104	4,607
Fort Yukon	583	25,827
Stevens Village	78	3,455
Yukon River Area	**951**	**42,129**

[a]Estimates are based on Census Population data for 2010 and 2007 per capita GHG emissions of 44.3 $MTCO_2Eq.$

[b]Source ADLWD 2103a

[c]Source ACEP 2008

[d]To convert from metric tons to tons, multiply by 1.1023

Seasonal placer mining is the single largest BLM-authorized industrial activity in the planning area, particularly in the Fortymile and Steese subunits. Estimates of GHG contributions from travel and transportation activities, including emissions from OHV use, will be addressed in the forthcoming travel management plans. However for context, based on anecdotal reports from recreation staff, GHG emissions from recreation OHVs would likely be less than half of the annual emissions associated with the placer-mine industry.

Estimated GHG emissions for placer mine operations by subunit (Table 3.7) were calculated utilizing the BLM Solid Mineral Production Sand and Gravel Mining and Processing Emissions Calculator found in the BLM Greenhouse Gas & Climate Change NEPA (GHGCC-NEPA) toolkit an internal, web-based tool (http://ghgtoolkit.blm.gov/) that contains a suite of greenhouse gas calculators for specific resource development activities. Emission calculations are based on the type, quantity, load, and period of equipment use annually for placer mine activities including mining exploration, suction dredge operations, small and large placer operations, as well as equipment mobilization-demobilization.

Table 3.7. Estimated Annual Greenhouse Gas Emissions for BLM Placer-mine Activities by Planning Area Subunit, 2014

Subunit	Existing Environment[a] 2014, GHG Emissions[b] ($MTCO_2Eq.$)[c]	Planning Area Subunit Percent Contribution from Placer-mine GHG Emissions
Fortymile Subunit	2,708	61%
Upper Black River Subunit	0	0%
Steese Subunit	1,154	26%
White Mountains Subunit	548	13%
Subtotals	**4,410**	**100%**

[a]Source Table 4.1 Mining Claims and Mining Plans of Operations or Notices in the Planning Area. Same as Alternative A.
[b]Source BLM Greenhouse Gas & Climate Change NEPA toolkit web-based tool (http://ghgtoolkit.blm.gov/), Solid Mineral Production Sand and Gravel Mining and Processing Emissions Calculator.
[c]To convert from metric tons (MT) to tons, multiply by 1.1023

Quantities of GHG emissions reported in Table 3.7 are *best estimates*, that illustrate the general magnitude of annual greenhouse gas emissions expected from current placer-mine activities in the planning area with the understanding that the number of operations, and hence emissions, may vary considerably from year-to-year.

In 2014 the Fortymile and Steese Subunits placer-mine operations contributed the most GHG emissions, 2,708 and 1,154 $MTCO_2Eq.$ respectively. About 87 percent of the estimated annual total emissions of 4,410 $MTCO_2Eq.$ attributed to the placer-mine industry in 2014 on BLM-managed lands within the planning area.

As discussed earlier in this section, the CEQ issued guidance (December 2014), providing direction for federal agencies on when and how to consider the effects of GHG emissions in NEPA actions and recommending agencies focus their analysis on the projects and actions with the greatest impacts by providing a reference level of 25,000 metric tons of CO2-equivalent emissions on an annual basis below which a quantitative analysis of GHG emissions is not recommended unless it is easily accomplished.

Comparatively the total annual placer-mine related GHG emissions of 4,410 $MTCO_2Eq.$ for the planning area is about 18 percent of the 25,000 metric tons of CO2-equivalent emissions reference value recommended by CEQ as a metric for federal agency quantitative reporting of GHG emissions.

There are no large-scale lode mines on BLM-managed lands. However for reference there are two large-scale lode gold mines within the planning area boundary; Fort Knox Mine near Fairbanks reported 2014 GHG emissions of 417,000 tonnes $CO_2Eq.$ (www.kinross.com) and Pogo Mine near Delta reported 2007 GHG emissions of 75,000 tonnes $CO_2Eq.$ (www.teck.com).

3.2.1.2. Climate and Meteorology

The climate of eastern Interior Alaska is continental–subarctic; characterized by long, exceptionally cold winters, short, relatively warm summers, low annual precipitation, low humidity, and variable winds (Baily, 1980, Shulski and Wendler, 2007). Microclimate conditions within the planning area are influenced by variations in elevation, topography, and cloud cover. Annual mean temperature (about 28 degrees F.) is just below freezing (Wendler and Shulski, 2009), and annual precipitation usually varies from about 10 to 30 inches, with upland areas receiving more precipitation than lower areas. The seasonal precipitation pattern is normally

at a minimum in spring and at a maximum in late summer—July and August (Shulski and Wendler, 2007). Summer thunderstorms are common over the hills and upland areas. Climate strongly influences fire severity and frequency, with the greatest aerial extent of burning directly related to precipitation, temperature, and lightning strikes (Kasischke, et. al., 2006). Summer maximum temperatures range from the upper 70s to extreme readings in the 90s degrees F. Winter temperatures may be minus 50 degrees F. or lower for two or three weeks at a time (Western Regional Climate Center, accessed September 2015 at http://www.wrcc.dri.edu/narratives/alaska).

Snow cover and freezing temperatures typically persist from October through April. Local rivers normally begin freezing by the first week of October; melting of the river ice generally occurs in May. Wind conditions often reflect channeling and mountain valley flows due to complex terrain.

The high latitude environment causes the planning area to experience extreme seasonal variability in solar radiation. Seasonal climate variations influence local and regional air quality. The northeast portion of the planning area is north of the Arctic Circle – the invisible circle of latitude on the Earth's surface at 66°33' north, marking the southern limit of the area where the sun does not rise on the winter solstice, December 21, or set on the summer solstice, June 21. Daylight hours in the southeast portion of the planning area vary from a minimum of about four hours in winter, to more than 20 hours in summer. Lowlands, such as the Yukon Flats, experience frequent temperature inversions in winter (Western Regional Climate Center, 2011). Fairbanks, along the western border of the planning area, has some of the world's strongest inversions, sometimes 30 to 40 degrees F. colder at ground level than at several hundred feet above ground (Davis, 1976, Bourne et al. 2010). Ice fog forms from water vapor at temperatures colder than minus 30 degrees F. At these extreme temperatures, water vapor from motor vehicle exhaust is frozen as tiny ice particles as it exits the tailpipe, resulting in heavy buildup of ice fog along roadways and in urban areas.

Recent meteorological observations are available from the National Weather Service and the Alaska Climate Research Center for several small communities within the planning area including Eagle, Fort Yukon, and Circle City along the Yukon River, as well as Central, Tok, and Chicken. Historical data from these stations, however, have frequent breaks and are often discontinuous for extended periods. The most reliable continuous datasets for Interior Alaska are from Fairbanks and Big Delta along the southwest boundary of the planning area and from Bettles north and McGrath west of the planning area. Good climatological data are available for Big Delta, Bettles, and McGrath for the years 1949 onward. However, Fairbanks is the only climatological station in Interior Alaska with an unbroken 100-year record beginning in 1906. Wendler and Shulski (2009) compared the mean annual temperatures for Fairbanks to four other Interior Alaska stations, including Bettles and McGrath, and found that, although the absolute values differed, the overall pattern were quite similar (correlation coefficients greater than 0.99). Hence, Fairbanks climate data are used in this section as a broad representation of historical climate conditions for the planning area.

Fairbanks climate normals (1981–2010) for air temperature, precipitation, snowfall extremes, and degree days are summarized in Table 3.7. Daily and monthly extremes (1930–2014) for air temperature, precipitation, and snowfall are included in tables 3.8, 3.9, 3.10, and 3.11 respectively. These climate data are considered broadly representative of climate conditions found over much of the planning area. Additional climate data are available for selected sites from the University of Alaska Climate Research Center (ACRC) (http://climate.gi.alaska.edu/station-map) as well as from previously noted agency sources.

Table 3.8. Summary of Normals for Air Temperature, Precipitation, Snowfall, and Degree Days, Fairbanks Alaska, 1981–2010 [a]

Normal	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Temperatures Mean Maximum (F)	1.1	10	25.4	44.5	61	71.6	72.7	65.9	54.6	31.9	10.9	4.8	38.0
Mean (F)	-7.9	-1.3	11.4	32.5	49.4	60.4	62.5	56.1	44.9	24.2	2.6	-4.1	27.7
Mean Minimum (F)	-16.9	-12.7	-2.5	20.6	37.8	49.3	52.3	46.4	35.1	16.5	-5.7	-12.9	17.4
Mean Precipitation (in)	0.58	0.42	0.25	0.31	0.6	1.37	2.16	1.88	1.1	0.83	0.67	0.64	10.81
Snowfall (in)	10.3	8.1	4.9	2.9	0.9	0	0	0	1.8	10.8	13.2	12.1	65.0
Cooling Degree Day (Base 65 F)	0	0	0	0	1	23	31	6	0	0	0	0	
Heating Degree Day (Base 65 F)	2260	1858	1660	974	485	160	108	281	605	1265	1872	2141	

[a]Alaska Climate Research Center website; http://climate.gi.alaska.edu/, accessed June 08, 2014

Table 3.9. Air Temperature Extremes, Daily and Monthly for Fairbanks Alaska, 1930–2014.[a]

Temperature Extremes	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Highest Daily Maximum (°F)	52	50	56	76	90	96	94	93	84	72	54	58
Year	2009	1943	1994	2009	1947	1969	1975	1994	1957	2003	1936	1934
Lowest Daily Minimum (°F)	-66	-58	-49	-32	-1	29	34	23	3	-28	-46	-62
Year	1934	1947	1956	1944	1964	2006	1934	1947	1992	1935	1990	1961
Highest Mean (°F)	18.1	15.9	27.1	43.7	55.6	66.9	68.4	62.6	52.8	37.8	20.1	7.7
Year	1981	1980	1981	1940	2005	2004	1975	1977	1995	1938	1979	1985
Lowest Mean (°F)	-31.7	-25.3	-6.7	17.95	38.61	51.63	55.5	49.77	31.65	13.19	-10.5	-28.2
Year	1971	1979	1959	2013	1964	1949	1959	1969	1992	1996	1963	1956

[a]Alaska Climate Research Center website; http://climate.gi.alaska.edu/, accessed June 08, 2014

Table 3.10. Precipitation Extremes, Daily and Monthly for Fairbanks Alaska, 1930–2014[a]

Precipitation Extremes	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Highest 1-Day Maximum Precipitation (in)	1.33	0.86	0.87	0.92	0.78	1.38	2.27	3.42	1.21	1.17	0.91	0.94
Year	1937	1966	1963	2002	1992	1955	2003	1967	1954	1946	1935	1990
Highest Total Precipitation (in)	6.71	2.1	2.1	3.06	1.96	3.55	5.96	6.88	3.05	3.4	3.32	3.23
Year	1937	1944	1963	2002	2004	1949	2003	1930	1960	1935	1970	1984
Lowest Total Precipitation (in)	0.01	0.01	0.02	0.01	0.04	0.19	0.06	0.24	0.12	0.08	0.05	0.04
Year	1966	1976	2003	1944	2011	1966	2009	2005	1949	1954	2002	1952

[a]Alaska Climate Research Center website; http://climate.gi.alaska.edu/, accessed June 08, 2014

Table 3.11. Snow Extremes Daily and Monthly for Fairbanks Alaska, 1930–2014 [a]

Snow Extremes	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Highest 1-Day Maximum Snow (in)	15.5	16	12.6	10.8	9.4	1.2	0	0.1	7.8	12.5	14.6	12.9
Year	1937	1966	1963	1948	1992	1931	1930	1995	1992	1946	1970	1965
Highest Total Snow (in)	65.6	43.1	30.4	25.1	14.1	1.2	0	0.1	24.4	26.2	54	50.7
Year	1937	1966	1991	1948	1992	1931	1930	1995	1992	1935	1970	1984
Lowest Total Snow (in)	0.7	0.2	0.1	0.1	0	0	0	0	0	0.7	0.2	0.4
Year	1966	2000	1968	1954	1936	1930	1930	1930	1934	2013	1953	1952

[a]Alaska Climate Research Center website; http://climate.gi.alaska.edu/, accessed June 08, 2014

3.2.1.3. Climate Change

Climate change refers to long-term fluctuations in temperature, precipitation, wind, and other elements of the Earth's climate system (EPA, 2013). Both natural and anthropogenic processes contribute to climate change. Examples of the natural influences that affect the climate system include changes in Earth's orbital cycle, sunspot activity, and volcanic eruptions. The climate system can also be influenced by changes in the concentration of various gases in the atmosphere, which affect the Earth's absorption of radiation (USGCRP, 2009). Scientists are confident that human activities are changing the composition of the atmosphere, and that increasing the concentration of greenhouse gases will change the planet's climate, however; they are not sure by how much it will change, at what rate it will change, or what the exact effects will be. For more detailed information see <http://www.epa.gov/climatechange/science>.

3.2.1.3.1. Regulations, Guidance, and Policy

Secretarial Order No. 3285, issued on March 11, 2009 "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources," made production and transmission of renewable energy on public lands a priority for the Department of the Interior. This Order establishes a Department-wide approach for applying scientific tools to increase understanding of climate change and to coordinate an effective response to its impacts on tribes and on the land, water, ocean, fish and wildlife, and cultural heritage resources that the Department manages.

On September 14, 2009, DOI Secretary Ken Salazar signed Secretarial Order 3289 (amended February 22, 2010) entitled, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources." The Order establishes the foundation for two partner-based conservation science entities to address these unprecedented challenges: Climate Science Centers (CSCs and Landscape Conservation Cooperatives (LCCs). CSCs and LCCs are the Department-wide approach for applying scientific tools to increase understanding of climate change and to coordinate an effective response to its impacts on tribes and the land, water, ocean, fish and wildlife, and cultural-heritage resources that DOI manages.

The Department of the Interior Climate Change Adaptation Policy (523 DM 1) was issued in December 2012 in response to the need to prepare for the impacts of climate change (DOI, 2012). The Policy articulates and formalizes the Departmental approach to climate change adaptation and provides guidance to bureaus and offices for addressing climate change impacts on the Department's mission, programs, operations, and personnel. The new policy also establishes clear Departmental leadership responsibilities for climate change adaptation implementation.

In November 2013, President Obama signed Executive Order 13653, which directs federal agencies to prepare for the impacts of climate change. Climate preparedness is one of three core elements of the President's Climate Action Plan.

Released in 2014, the Department of the Interior's Climate Change Adaptation Plan (DOI, 2014) focuses on the Department's work to address climate change through implementation of Executive Order 13653 and the Department's Climate Change Adaptation Policy (523 DM 1). Available at: https://www.fedcenter.gov/programs/climate/#regs

The Goal of Executive Order EO 13693 (March 19, 2015), "Planning for Federal Sustainability in the Next Decade" is to maintain Federal leadership in sustainability and greenhouse gas emission

reductions. Implementing Instructions for Executive Order (EO) 13693 were issued June 10, 2015, and provide Federal Executive departments and agencies with clarifying instructions for implementing EO 13693.

3.2.1.3.2. Existing Environment – Observed Climate Trends – Temperature

In this section Fairbanks climate data are used as a proxy for climate trends over much of the planning area because of the data quality, length of record, and strong correlation of the Fairbanks climatological dataset with data from other Interior Alaska climate stations. Selected climatological data from other representative Interior Alaska stations, Big Delta, Bettles, and McGrath are also presented.

Wendler and Shulski (2009) partitioned the 1906 to 2006 mean annual Fairbanks temperature data by decade and found the 1980s (-1.94 C, 28.5 F) followed by the 1920s (-2.39 C, 27.7 F) were the warmest decades in Fairbanks (Table 3.12). Reportedly, 1926 was the warmest year on record, with a mean annual temperature just above the freezing point; 1981 was the second warmest year on record, with a mean annual temperature at 32 degrees F. (0 C.).

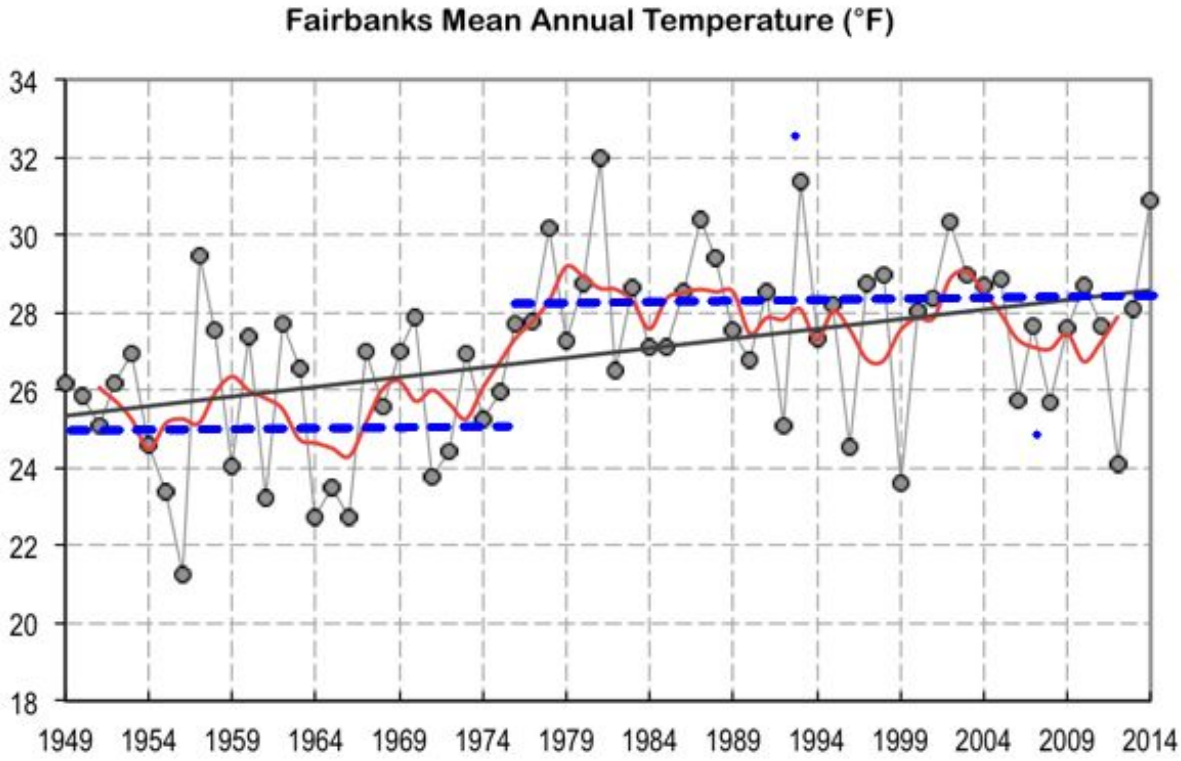
Table 3.12. Mean decadal temperatures, 1910s – 1990s, Fairbanks Alaska, degrees C [a]

1910s	1920s	1930s	1940s	1950s	1960s	1970s	1980s	1990s
-3.33	-2.39	-3.89	-3.00	-3.67	-3.78	-2.89	-1.94	-2.56

[a]From Wendler and Shulski (2009)

The coldest decades were the 1930s (-3.89 C, 25.0 F) and the 1960s (-3.78 C, 25.2 F). Generally, with the exception of the 1920s the decades from 1910 through 1960 were relatively cold and the decades from 1970 through 1990 were relatively warm. The largest and most sudden temperature change occurred in the mid 1970s.

The Alaska Climate Research Center (ACRC 2014) time-series chart of the mean annual temperature in Fairbanks from 1949 to 2014 clearly shows the mid-1970s step-change in warming as well as substantial variation not only from year-to-year but also in the five-year running mean of the temperature shown in red (Figure 3.1).



Red line = five-year running mean; Gray line = linear trend 1949–2014; Blue dashed lines = linear trend lines for period 1949–1975 and 1977–2014. Modified from the Alaska Climate Research Center, 2014, accessed online at http://climate.gi.alaska.edu/Climate

Figure 3.1. Fairbanks mean annual temperature degrees F. (1949–2014)

According to ACRC (2014), if a linear trend is taken through mean annual temperatures, the average change over the last 6 decades (1950–2010) is 3.0 degrees F. However, considering just a linear trend can mask some important variability characteristics in the time series. The period 1949 to 1975 was substantially colder than the period from 1977 to 2014; however, since 1977 little additional warming has occurred.

The stepwise shift appearing in the temperature data in the mid-70s corresponds to a phase shift of the Pacific Decadal Oscillation (PDO) from a negative phase to a positive phase (NOAA, 2013). The PDO, which is related to the sea surface temperature in the northern Pacific Ocean, was developed by Mantua et al. (1997) in an examination of the relationship between Pacific climate variability and salmon production in Alaska and the Pacific Northwest of the United States. Positive values are associated with a stronger Aleutian Low, which advects more relatively warmer air into Alaska, particularly in winter, resulting in positive temperature anomalies (NOAA, 2013; Wendler and Shulski, 2009).

When analyzing seasonal trends (Table 3.13), it can be seen that most of the warming in Interior Alaska since 1976 has occurred in winter, approximately 8 degrees F., and spring, about 5 degree F., with the least amount of change in autumn (0.2 degree F). These seasonal trends are consistent with synoptic conditions associated with the PDO positive phase which tends to increase southerly flow and warm air advection into Alaska during the winter, resulting in positive temperature anomalies.

Table 3.13. Total change in average seasonal and annual temperature for Interior Alaska climate stations, Bettles, Big Delta, Fairbanks, and McGrath in degrees F.[a] (1949–2005)[b]

Location	Annual	Spring	Summer	Autumn	Winter
Big Delta [c]	3.9	4.3	1.4	- 0.1	9.1
Fairbanks	3.9	4.7	2.5	- 0.1	8.3
McGrath[d]	4.1	5.2	2.9	0.3	7.6
Bettles	4.1	5.3	2.1	0.6	8.4
Average Change	**4.0**	**4.9**	**2.2**	**0.2**	**8.4**

[a]To convert degree Fahrenheit to degree Celsius = (Degree F. - 32) x 5/9. To convert degree Celsius to degree Fahrenheit = (Degree C.) x 9/5 + 32.

[b]Modified from Shuluski and Wendler, 2007

[c]Published annual temperature for Big Delta = 3.9 F, calculated annual average from seasonal averages = 3.7 F.

[d]Published annual temperature for McGrath = 4.1 F, calculated annual average from seasonal averages = 4.0 F.

Additionally, in their analysis of the Fairbanks temperature data Wendler and Shulski (2009) found:

- The frequency of very low temperatures (below -40 degrees C, or -40 degrees F.) has decreased substantially, while the frequency of very high temperatures (above 26.7 degrees C, or 80 degrees F.) increased only slightly. "The number of days with very low temperatures (less than -40 degrees C, or -40 degrees F.) has decreased, on average, from 14 to 8 days annually. However, the decrease is not linear, and a relatively large number of such events occurred in the 1960s. Warm days with temperatures above 26.7 degrees C or 80 degrees F. increased slightly, but this increase was smaller than the decrease in cold days. At the beginning of the time series, an average of 11 warm days a year occurred, while more recently 12 days are being observed annually."

- The length of the growing season increased substantially (by 45 percent) as a result of an earlier spring and a later first frost in autumn. The length of the growing season, defined as the time period when the temperature in summer never dips below the freezing point, increased from 85 to 123 days over the century (45 percent).

- The date of the establishment of the permanent snow cover in autumn showed little change; however, the melting of the snow cover now occurs earlier in the spring, a finding in agreement with the seasonal temperature trends. An earlier snowmelt lowers the albedo of the surface, causing additional warming: this is the well-known snow-albedo feedback mechanism.

  As discussed in Shulski and Wendler (2007), global climate change is observed to be magnified in the polar regions, including Interior Alaska, because these areas are more sensitive to change, mainly due to the snow albedo feedback, which is an example of a positive feedback mechanism. Warming in this area leads to a reduction of snow and ice cover, which is highly reflective to solar energy and the exposure of more of the darker underlying surface with lower albedo (reflectivity). This causes more absorption of solar energy and a further warming of the surface and a snow and ice retreat. A similar feedback loop exists for a cooling trend (also termed positive feedback) in which cooling leads to more snow and ice, a more reflective surface, and further cooling.

- The variation in the mean annual temperature of Fairbanks correlates poorly with the increasing CO_2 values and somewhat better with the PDO index. Even combined, CO_2 and the PDO index can explain only slightly less than half of the observed variation

3.2.1.3.3. Existing Environment – Observed Climate Trends – Precipitation

Fairbanks is sheltered by the Alaska Range to the south and the Brooks Range to the north, so advection of moist air is hindered and the annual precipitation is low. Seasonally, total precipitation decreases from summer to fall and from fall to winter, and spring is the driest season. Winter and spring also produce very low snowfall, as the atmosphere is cold and can hold only a small amount of water vapor. Shulski and Wendler (2007) reported somewhat marginal changes in seasonal and annual precipitation for Interior Alaska stations at Bettles, Big Delta, Fairbanks, and McGrath, for the period of record 1949 through 2005. (Table 3.14)

For the 1916–2006 Fairbanks precipitation record, Wendler and Shulski (2009) found precipitation decreased by about 11 percent, which they noted is not statistically significant; however, it was a somewhat counter-intuitive result, as warmer air can hold more water vapor. Potentially, the 11 percent decrease in precipitation, together with increasing temperatures, makes the occurrence of droughts and wildfires more likely.

Table 3.14. Total change in average seasonal and annual precipitation, inches (1949–2005)[a]

Location	Annual	Spring	Summer	Autumn	Winter
Bettles	2.9	0.6	0.8	0.7	0.6
Big Delta	-0.9	-0.6	-0.3	0.3	-0.2
Fairbanks	0.1	0	-0.2	0.6	-0.4
McGrath	2.7	0.8	-0.8	1.5	1.3
Average Change	**1.2**	**0.2**	**-0.1**	**0.8**	**0.3**

[a]Modified from Shulski and Wendler, 2007

3.2.1.3.4. Climate Change Impacts

In this section climate change impacts that may affect BLM management actions are summarized for Interior Alaska and are largely related to a warming climate. Warming temperatures pose serious threats to Interior Alaska, where average annual temperatures are just below freezing; a small increase in temperature can result in large impacts.

Key Points for Interior Alaska (1949–2005):

- Mean annual temperatures increased approximately 4 degree F (Table 3.13). Most of the warming has occurred since the mid-1970s, with the greatest seasonal change in winter, approximately 8 degrees F., and spring about 5 degree F., and the least amount of change in autumn, 0.2 degree F.
- There was no substantial change in annual or seasonal precipitation (Table 3.14) and projected future climate scenarios predict variable but not extreme changes in precipitation for Interior Alaska (NOAA, 2013).

Thawing Permafrost

Much of Interior Alaska is underlain by discontinuous permafrost—frozen ground with highly variable ice content that restricts water drainage and strongly influences landscape water balance as well as the design and maintenance of infrastructure. Permafrost thaw results in the settling and/or slumping of soil and is one of the serious impacts of a warming climate in Alaska.

- Uneven sinking of the ground in response to permafrost thaw causes major issues for various types of infrastructure. Roads, runways, and buildings may shift, break, or collapse as the ground beneath them becomes soft and sinks. (Karl et al. 2009).
- Landscapes in Interior Alaska are getting drier. On average, lakes have decreased in area in the last 50 years (Roach et. al., 2011) due to a combination of permafrost thaw, greater evaporation in a warmer climate, and increased soil organic accumulation during a longer season for plant growth. Future permafrost thaw will likely increase lake area where permafrost is continuous and decrease lake area in places where the permafrost zone is more fragmented (Avis et. al., 2011).
- A continuation of the current drying of Alaskan lakes and wetlands may affect waterfowl management. Interior Alaska provides breeding habitat for millions of migratory birds that winter in more southerly regions of North America and on other continents.
- Numerous observations suggest increased surface erosion associated with thawing permafrost and melting ground ice resulting in *thermokarst* development in low gradient areas and increased thermal erosion on hill slopes—detachments of seasonally thawed layers-especially after wildfire (Gooseff et. al., 2009).
- Thawing permafrost increases permeability of previously frozen soils and changes the distribution of surface waters across the landscape through increasing or decreasing wetland surface area depending upon site-specific conditions (Hinzman et al. 2005).

Length of Growing Season

The length of the growing season in Interior Alaska has increased on average from 83 to 123 days (45 percent) over the last century (Wendler and Shulski, 2009). Changes in dates of snowmelt and freeze-up associated with the longer growing season benefit agriculture and forestry and decrease annual use of heating fuels with warmer temperatures. Negative impacts may include reduced water storage, altered timing of the spring break-up, and increased risk of more extensive wildfire and insect outbreaks, as well as disrupted seasonal migration of birds and other animals (Chapin, et. al., 2014).

Floods

Rapid springtime temperature increases can cause unseasonable and excessive snow melt at higher elevations, resulting in flooding. Regions of Interior Alaska are susceptible to floods caused by ice jams on rivers. In addition to upstream flooding caused by the damming effect of an ice jam, the dislodging of an ice jam can release large quantities of backed-up water and ice downstream into local communities, having catastrophic results (Shulski and Wendler 2007).

Fires

During the decade of the 2000s, an average of 1,890,000 acres per year were burned in the interior sections of Alaska (17 percent of the landscape), which is 50 percent higher than in any previous decade since the 1940s (Kasischke et al. 2010). The increase in fire severity has occurred during a period of warmer spring seasons associated with earlier snowmelt, drying of wetlands, and lengthening growing seasons. Increasing temperatures (more specifically, a decrease in occurrence of extreme cold temperatures) have resulted in increased over-winter survival of bark

beetles, and a consequent increase in the number of acres of forest destroyed by these insects. Dead trees combined with warmer, drier conditions leave the forests more vulnerable to wildfires (Karl et al. 2008). It is also thought that deeper active layers in permafrost areas allow fires to persist in the organic horizons of black spruce forests (Kasischke et al. 2010). The increase in fire occurrence has coincided with, and likely has been at least partially driven by, increases in lightning frequency since the 1990s (Faruch et al. 2011).

Thick smoke produced in years of extensive wildfire represents a human health risk.

More extensive and severe wildfires could shift the forests of Interior Alaska during this century from dominance by spruce to broadleaf trees (Barrett, et. al., 2011).

3.2.1.3.5. Climate Projections

Eastern Interior Alaska is projected to become warmer and drier over the next century. Warmer temperatures and a longer growing season are expected to increase evapotranspiration enough to outweigh a regional increase in precipitation. Seasonal changes in climate will likely have profound impacts on the condition and health of wildlife habitat, lead to increased fire risk, and contribute to the likelihood of wetlands, streams, and lakes drying. (Rupp and Springsteen, 2009b).

NOAA (2013) completed projected future climate trends and scenarios for Alaska for the periods of 2021–2050, 2041–2070, and 2070–2099, with changes calculated with respect to the historical climate reference period of 1971–1999. In discussions NOAA (2013) refers to these future periods by their mid-points of 2035, 2055, and 2085, respectively and report for Interior Alaska similar results to projections completed by Rupp and Springsteen (2009).

“For all seasons, warming is simulated to increase with time. Winter is simulated to see the greatest temperature increases, ranging from around 4 degrees F. in 2035 to more than 12 degrees F. in 2085. The spread of individual model values is large for all seasons, and also increases with time.” There is large uncertainty associated with projected changes in precipitation — simulated change in winter precipitation varied from +10% to +48%. However, it is important to note that an increase in overall precipitation amount does not necessarily imply an increase in water availability. As temperatures rise, growing season for various types of vegetation will increase, thereby increasing the overall water uptake by plants. Similarly, warming temperatures will increase evaporation as well as the atmosphere’s holding capacity for water vapor. Thus, while model predictions may indicate a general increase in precipitation amount, this may not result in increased water availability (NOAA, 2013).

The Intergovernmental Panel on Climate Change (2013), reported global average temperatures increased by around 0.12 C between 1951 and 2012, and more recently at a somewhat lower rate of 0.05 C per decade in the period between 1998 and 2012. Observations and predictive models indicate that anthropogenic warming over the Arctic in winter will be greater than the global mean warming over the same period and that precipitation variability on regional scales will likely intensify (IPCC, 2013).

It is important to note that projected changes are likely to occur over several decades to a century and many of the projected changes associated with climate change described above may not be measurably discernible within the reasonably foreseeable future.

Existing and anticipated effects of climate change on resources and resource uses in the planning area are incorporated into the relevant sections. Vulnerabilities to climate change depend considerably on specific geographic and social contexts. BLM recognizes the importance of climate change and the potential effects it may have on the natural environment. The following resources have been or are anticipated to be affected by climate change: vegetation, water, soil, fish, and wildlife.

3.2.2. Cave and Karst Resources

3.2.2.1. Laws, Regulations, and Policies

The Federal Cave Resources Protection Act (FCRPA) of 1988 was the first federal legislation to recognize caves and their contents as whole, integrated ecosystems. FCRPA declares significant caves on federal lands as an invaluable and irreplaceable part of the Nation's heritage. In many areas, improper use, increased recreational demand, urban spread, and a lack of specific statutory protection threaten caves. The purpose of FCRPA is to secure, protect, and preserve significant caves on federal lands for the perpetual use, enjoyment, and benefit of all people; and to foster increased cooperation and exchange of information between governmental authorities and those utilizing caves located on federal lands for scientific, educational, or recreation purposes.

DOI implementation regulations for FCRPA require federal lands be managed in a manner that, to the extent practical, protects and maintains significant caves and cave resources (43 CFR 37.2). BLM's policy and guidance for managing cave resources is to protect sensitive, fragile, biological ecological, hydrological, geological, scientific, recreational, cultural, and other cave values from damage and to ensure they are maintained for use by the public, both now and in the future (BLM 2008c).

In the planning area, the majority of caves are limestone dissolution joint-type caves (Juday 1989), formed when rainwater becomes acidic and acts as a solvent on limestone, dissolving calcium carbonate and eroding the rock into caves, chambers, and caverns. Cave resources are fragile due to their association with other resources such as groundwater hydrologic systems and biological communities (Moore and Sullivan 1997). They may also be considered non-renewable due to paleontological and archaeological deposits, speleothems (formations inside caves), and biological resources.

3.2.2.2. Significant Caves

An inventory of caves was conducted from 2001 through 2004 that identified hundreds of small caves in the White Mountains NRA. There are only six known significant caves in the planning area — three in the White Mountains, two in the Upper Black River, and one in the Steese. The three caves in the White Mountains are all within the Limestone Jags RNA. Because of their remoteness and lack of access, these caves are pristine and lack evidence of contemporary human use.

Significant Caves in the White Mountains NRA

1. Bison Bone Cave (AK-029-001): This is a small dissolution joint cave found on a very steep slope at the upper portion of Limestone Gulch. Bones are scattered throughout talus rocks on the floor of the cave. The carpel bones of a bison were found in the cave. The bone was aged by Carbon-14 dating method and was dated at 13,300 +/-160 years old.

2. Cave AK-029-002: This is a very small crack cave found just above Fossil Creek at the upper end of Limestone Gulch. The cave contains paleontological remains that were identified as long bone splinters. Aging and species identification processes were not conducted.
3. Cave AK-029-003: The BLM conducted a cultural survey of this cave. A large amount of rockfall covers the cave floor and no paleontological or cultural evidence was found. The cave was identified by David Klein in the 1950s while conducting biological surveys, and revisited by him in 1964. David Klein and BLM staff revisited the cave during the 2008 field season. The cave was almost unrecognizable to David Klein because of the large amount of rockfall that filled the cave over the past 40 years.

Significant Caves in the Upper Black River Subunit

1. Fort Creek/Smoky's Cave (AK-028-00): This is a shallow cave that was rumored to have been a trapper's cache. The BLM found no evidence of human use at the cave.
2. Mesa Cave (AK-028-002): This cave is relatively small and contains formations of the popcorn type. The popcorn formations originally were formed in the ceiling of the cave, although through the expansion and contraction of water, the ceiling rocks from the cave had fractured and fallen to the floor along with the popcorn formations. The formations were poorly developed and not very extensive.

Significant Caves in the Steese National Conservation Area

1. Sheep Cave (AK-028-003): This cave is located near a rocky bluff used as escape habitat by Dall sheep. There is no evidence of human activity.

3.2.3. Cultural and Paleontological Resources

3.2.3.1. Regional Prehistory

Archaeological research in the Yukon and Tanana River basins indicates that humans have inhabited the region for more than 14,000 years, making Interior Alaska the focus of some of the earliest dated sites in the Americas. Multi-component and/or sites with well-developed stratification are relatively uncommon across Alaska, and many sites are found on the surface as environmental factors have limited the accumulation of sediment over extended periods of time.

Over the years, various Interior Alaskan cultural chronologies have been proposed and critiqued, and as yet no general consensus has been widely recognized (e.g., Bacon 1987; Cook 1969; Dixon 1985, 2001; Holmes 2001; Maschner 1997; Mason et al. 2001; and West 1967, 1975, 1996; see discussion in Potter 2005:70–80). For this section, the regional prehistory for the Upper Yukon, and Upper and Middle Tanana River basins is divided into three broad archaeological traditions: the American Paleoarctic Tradition, Northern Archaic Tradition, and Athabascan Tradition. These traditions, although not universally accepted by all Alaskan prehistorians, are general designations for what are commonly considered to be Alaskan prehistoric cultures represented by differences in artifactual typology and technology, as well as economy.

American Paleoarctic Tradition (14,000 to 6,000 years ago)

Several sites in the region have American Paleoarctic Tradition components that date 14,000 to 6,000 years ago (Holmes 1996, 2001; Bowers 1998). Early interior populations were terrestrial foragers, exploiting both upland and lowland areas, focusing on bison and wapiti (elk), but exploiting a broad range of animals including other large mammals, small mammals, fish,

and birds, especially waterfowl (Potter 2008a, 2008b). This economic pattern was continued even after the expansion of the boreal forest throughout Interior Alaska following the terminal Pleistocene, after roughly 10,500 years ago (Ager and Brubaker 1985; Potter 2008a).

In the middle Tanana River basin, "Chindadn" triangular points have been found at Healy Lake (Cook 1969; Holmes and Cook 1999), Broken Mammoth (Holmes 1996, 2001; Yesner 1994), Swan Point (Holmes 2001; Holmes et al. 1996), and Chugwater (Lively 1988; Maitland 1986). These bifacially worked points are dated to 12,000 to 10,000 years ago at the Broken Mammoth and Swan Point sites, and somewhat earlier in the nearby Nenana River basin (approximately 13,300 years ago).

Organic tools from this early period are rare, but are found at the lowest artifact levels at the Broken Mammoth and Swan Point sites, which are located west of Delta Junction near Shaw Creek. At Broken Mammoth, these tools included worked mammoth ivory pieces and an eyed bone needle, the latter of which was recovered near a hearth dated at 12,000 years ago (Holmes 1996:313). The Broken Mammoth site also has well-preserved fauna, including ungulates (wapiti, bison, caribou, sheep, and moose), fox, wolf, hare, ground squirrel, other small rodents, waterfowl (duck, geese, and swan), and salmonid fish (Holmes 1996; Yesner 1996). The Gerstle River site, located east of Delta Junction, with five components dating from approximately 12,000 to 8,800 years ago, functioned as a temporary field camp (Potter 2005). At this site, large mammals including wapiti (elk) and bison, killed nearby, were processed using expedient tools. Curated stone tools were also maintained at this site.

Northern Archaic Tradition (6,000 to 1,000 years ago)

After approximately 6,000 years ago, new technologies, including side-notched projectile point/biface forms, begin to appear in Interior Alaska archaeological assemblages. Several archaeologists have designated these side-notched biface assemblages as part of the Northern Archaic Tradition (e.g., Anderson 1968; Workman 1978).

In the Tanana River basin, localities where notched bifaces are found include the mid-Holocene level at the Swan Point site (Holmes et al. 1996), the Tok Terrace site (Sheppard et al. 1991), the Healy Lake Village site (Cook 1969), Dixthada (Shinkwin 1979), the Chugwater site (Lively 1988; Maitland 1986), and several other localities. Several sites containing notched bifaces were found near Livengood (Derry 1976). Recent surveys have revealed other important Holocene sites (TNX-00047, TNX-00079, and TNX-00089) near Tok that contain both microblades and notched points (Potter et al. 2007, Sheppard 1999). Overall, the middle Holocene saw a shift in foraging economies throughout the region, from broad-based exploitation of both lowland and upland fauna to more pronounced hunting of caribou in upland areas. Lowland broad-spectrum resources such bison, small game, birds, and fish were still exploited, albeit less frequently (Potter 2008a, 2008b).

Athabascan Tradition (1,000 years ago to A.D. 1880)

The Athabascan Tradition is a prehistoric culture attributed to ancestors of northern Athabascan Indians of Alaska. These sites in the Yukon River basin date from at least 1,000 years ago to about A.D. 1880. Aspects of this tradition continue into the historic period in the late 19th century up to the present time. Early prehistoric Athabascan tradition sites are characterized by housepit and subsurface cache features, and are associated with a variety of flaked and ground stone, bone, and antler artifacts. Subsistence economies were transformed around 1,000 years ago to pronounced exploitation of seasonally abundant resources (primarily caribou and salmon). Cache pits have been documented at several Athabascan Tradition sites in the planning area including the U.S.

Creek site (CIR-00029; Mills 2004, 2006; Mills and Greene 2003), and several sites along the Tetlin River (TNX-00042 through TNX-00045; Higgs and Williams 1997).

Recent testing in an early historic house depression near Tok indicates that another significant change with the Athabascan Tradition is an increased use of expedient tools, a factor that may contribute to the potential archaeological visibility problem of Athabascan assemblages (Sheppard 2001). Historic Athabascan sites generally have a mixture of log cabin and house pit dwellings affiliated with a larger percentage of Euroamerican artifacts, as well as possible changes in site location in order to obtain trade goods.

Much of our understanding of Athabascan Tradition sites in Alaska comes from excavations at the following sites, both inside and outside of the planning area: sites around Lake Minchumina (Holmes 1986), sites near Eagle (Andrews 1987), the Tok Terrace site, Dixthada, and Swan Point. The upper, or more recent, components at Swan Point contain pecked and ground stone artifacts, as well as flaked stone tools including straight-based lanceolate bifaces and microblades (Holmes et al. 1996). Faunal materials found at Athabascan tradition sites include a broad spectrum of interior wildlife. Rainey (1939) identified moose, caribou, beaver, hare, small rodents, fish, and bird faunal materials from Dixthada. Plaskett (1977) adds black bear, Dall sheep, and marmot from the Nenana Gorge encampment to the list (see also Reuther et al. 2008).

3.2.3.2. Regional History

Prehistory relies primarily on the archaeological and paleoenvironmental records. In contrast, the historic record combines accounts obtained through written and oral histories, in addition to archaeological studies. This section recognizes that recent history in the Yukon-Tanana area, which encompasses the planning area, is largely attributed to the coming together of two distinct cultural groups: Athabascans and Euroamericans. It is during the recent historic period that we see major changes in Interior Alaska, primarily due to a relatively rapid influx of Euroamerican peoples with a capitalistic, resource extraction-based economy settling into regions historically occupied or utilized by Athabascans who practiced a mobile subsistence-based economy. From historical times to present, both cultures have borrowed from each other to persevere in the interior, but two distinct cultures and ideologies still exist.

Historic Athabascans

At the time of direct Euroamerican contact, the region now comprising the planning area was utilized primarily by bands of Gwich'in, Han, Tanana, Upper Tanana, and Tanacross Athabascans (Andrews 1977; Crow and Obley 1981; McKennan 1981; Osgood 1981; Simeone 1982; Slobodin 1981). The basic historic Athabascan social group included a "band" of families whose subsistence activities centered on procurement of fish resources (both anadromous and freshwater) and terrestrial animals. Athabascan settlement locations are tied to a yearly subsistence cycle. Traditional Athabascan land uses in the planning area include fall hunting of moose, caribou, sheep, and other, smaller terrestrial animals, as well as trapping (Andrews 1975; McKennan 1981). Hunting was associated with seasonal movements along trails and frozen rivers, particularly as bands moved between rivers and uplands.

Athabascan subsistence cycles demonstrate the mobility and use of various landscapes and fauna during historic times. In general, summer was and remains a season for catching salmon and other freshwater fish species along clear creeks as opposed to glacially fed streams. Before the introduction of fishwheels in early historic times, fish were caught in willow sapling traps

constructed at the end of fish weirs (Mishler 1986). Fishing was accomplished near the village sites, and fish were stored and fermented in large subsurface caches. In the early fall, the bands dispersed into small family units who then went on hunting ventures (Mishler 1986). Seasonal procurement of caribou occurred at various times, focusing on interception during migrations in the fall and late-winter, and early-spring. Fences and surrounds were used during communal hunts to capture large numbers of caribou. Sheep hunts occurred in some upland areas. Hare, ptarmigan, spruce grouse, and over-wintering waterfowl were also hunted.

Simeone (1995) identifies several stages of change that have historically occurred for the Upper Tanana and Tanacross Athabascans, and that are generally applicable to the other regions. The vehicle of change has been contact with Euroamericans, first brought about by an expanding need for access to trade goods through other Alaska Native bands. More change occurred through direct contact and regular trade at trading posts established by Euroamericans, and was continued thereafter by miners and missionaries coming into the country. Athabascans became more involved in a cash economy (i.e., wage-labor, or goods for services), through direct contact that altered their former subsistence-based lifestyle (Simeone 1995). In 1915 a meeting was held in Fairbanks, Alaska, with chiefs from the lower portions of the Tanana River and U.S. government officials. The purpose of the meeting was to discuss the possibility of establishing reservations for Alaska Natives. After hearing about the conditions of reservation life in other parts of the country, the chiefs largely decided against establishing reservations for their people. At this time there were very few Euroamericans living outside the major settlements and gold fields in the interior and the chiefs still felt that "there would be plenty of room for everyone" (Olson 1981:706).

Following World War II, increased Athabascan contact with Euroamericans has sometimes resulted in conflicting ideologies and economies. In general, rural Athabascans today live in villages consisting predominately of Alaska Native inhabitants and where a subsistence lifestyle is maintained, but with considerable influence by Euroamerican technology and culture (Simeone 1995).

Euroamericans

The Upper Yukon and Tanana watersheds have a documented Euroamerican history of about 130 years, and like Interior Alaskan Athabascan history, it has experienced significant changes since the about the late 1870s. Euroamerican history in the region initially started with the fur trade and gold prospectors, followed by government-sponsored mineral exploration, and construction of trading posts, roadhouses, and missions. The more successful posts eventually developed into permanent settlements (e.g., Delta, Eagle, Fairbanks, Fort Yukon) with a populace sustained by several eras of economic stimuli including resources extraction, trade and commerce, and military buildup related to World War II and the Cold War.

In 1885, Lieutenant Henry Allen (U.S. Army) explored the Tanana River during a remarkable expedition that began in the Copper River valley and ended on the Koyukuk River (Allen 1887). Allen's party visited seasonal Alaska Native camps at or near the communities of Last Tetlin, Tetlin and Mansfield (Allen 1887). Small gold finds in the 1880s along the upper Yukon River and its tributaries initiated further prospecting efforts in the area and the adjacent Upper Tanana drainage. One of these upper Yukon tributaries, the Fortymile River, witnessed the first large mining stampede in Alaska following discovery of gold at Franklin Bar in 1886, which ushered in the region's gold rushes by attracting hundreds of additional prospectors (Gates 1994; Grauman 1977). Larger gold finds that resulted in settlements within the planning area followed, including those at Circle city in 1893, the Seventymile in 1888, and at Mission Creek near Eagle in 1895.

The 1896–1898 Klondike gold strike in Canada brought thousands of Euroamericans into and through the planning area.

The town of Eagle on the Yukon River emerged as Alaska's commercial hub during this era and was the historic judicial and military seat; the army constructed Ft. Egbert at Eagle in 1899, and the first Interior federal-level court was established there in 1900. Prospectors late to arrive at the Eagle and Fortymile River region explored south to the Upper Nabesna River during the late 1880s. Their numbers increased dramatically with the discovery of gold on the Upper Nabesna in 1899 and copper in 1902. In 1898, Mendenhall's (1900) geological expedition reached the Tanana Valley via the Copper and Delta rivers. His party ventured as far as Jarvis Creek (near present-day Delta Junction), but failed to reach the Tanana before having to return to the Copper River. Another military reconnaissance lead by Lieutenant Castner in 1898, passed through the Delta area documenting Athabascan encampments, and attempted to reach Circle by traveling up the Goodpaster River (Robe 1943:65). The U.S. Army sent Captain W. Abercrombie to find an overland route to the American gold fields in Interior Alaska (Abercrombie 1900).

In 1902, a prospector named Felix Pedro struck gold on a small stream northeast of Fairbanks. With this strike, the rush began as prospectors and other settlers began to enter the Tanana River basin in force. The process of gold mining here, and elsewhere in Interior Alaska, can be divided into three broad overlapping phases, or "waves," of activity (see historic contacts in Burr Neely 2001; also Bowers and Gannon 1998). These waves are characterized as follows: in Wave I, individual miners entered and explored new mining regions, primarily with pans and sluice boxes; in Wave II, miners developed limited partnerships in order to pool resources, purchase equipment and support larger mechanized operations which transformed the landscape; and, in Wave III large-scale operations consolidated claims, using advanced and systematic methods of ore extraction, operating on a much larger scale than in the prior two phases, due to newly developed railroad access to the area (Burr Neely 2001). During this period, dredging to extract ore became commonplace. Although the initiation and timing of each Wave differed throughout the broad extent of the planning area, the same general pattern played out in different locales. Of course, some areas did not proceed past the first Wave (e.g., Upper Black River Subunit), as minerals were not found in sufficient quantities to prove economically viable.

The Washington Alaska Military Communication and Transportation System (WAMCATS) telegraph system was built during the first years of the 20th Century and ultimately spanned much of Interior Alaska. Large sections of the overland WAMCATS line snake through the planning area, and portions of it remain on the landscape today (Burr Neely 2007; Quirk 1974). The landline was quickly supplanted by wireless telegraph stations, including those at Fairbanks and Eagle.

Agriculture provided an additional viable occupation for people living in the Fairbanks and Delta Junction regions (Monahan 1959). In 1898, the Homestead Act of 1862 was extended to include Alaska. Soon, the middle Tanana River basin became the center of farming in Alaska, as farmers sold their produce to miners and other businesses in the region. After the arrival of the railroad to Fairbanks in 1923, farmers were forced to compete with outside producers. By the 1930s, the Matanuska Valley in Southcentral Alaska became the new center of commercial agriculture in Alaska (Price 2002) instead of the Interior. After World War II, homesteading and agriculture began to develop in earnest in the Delta Junction area, and State support in the 1970s and 1980s led to further agricultural growth in the Delta region.

During World War II, airfields were constructed in Northway and Tanacross and the Alaska-Canada Highway (ALCAN) was built through the Upper Tanana region to provide a

ground link between airfields along the Northwest Staging Route. In addition to the road, a communications line was concurrently constructed through the Tanana basin that provided critical open wire connections from Alaska to the contiguous United States. Tok was established in 1942 as an Alaska Road Commission camp. Other World War II and Cold War-related developments included construction camps and other associated features along the Alaska Highway, the CANOL ("Canadian Oil") pipeline, the Haines-Fairbanks (ALCANGO) pipeline (Hollinger 2003), and military communications stations. Though unrelated to military history, the Taylor and Steese highways were also constructed during the early 1950s and further developed the interior's transportation network and access to mining areas.

In the 1970s, development of the Trans-Alaska Pipeline System (TAPS), to ship oil from the oil fields near Prudhoe Bay to the ice-free port of Valdez, ushered in a statewide and local economic boom reminiscent of the Gold Rush. TAPS traverses the western portion of the planning area, generally following highway corridors. Several pump stations were established along the TAPS including those at Livengood and Delta.

In sum, extensive Euroamerican activity in the planning area over the past 130 years has resulted in a wide range of site types related to historic transportation (rivers, roads and trails), settlement, mining, communications, agriculture, military, and oil and gas related development.

3.2.3.3. Known Sites

There are currently 2,543 known historic and prehistoric cultural resource sites in the planning area (Table 3.15, "Known Cultural Resources Regardless of Land Status in the Eastern Interior Planning Area"), with 365 are found on currently BLM-managed lands. Most of the sites on BLM lands occur within the confines of the three Wild and Scenic Rivers, the Steese National Conservation Area, the White Mountains NRA, or on federal mining claims. As a result, these sites will remain under BLM's management after completion of the land conveyance process.

Table 3.15. Known Cultural Resources Regardless of Land Status in the Eastern Interior Planning Area

Subunit	Historic Sites[a]	Prehistoric Sites[a]	Historic/ Prehist sites[a]	Total Sites[a]	Acres (million)	Historic Site Density[b]	Prehistoric Site Density[b]	Total Site Density[b]
Fortymile	1,574	429	20	2,023	15.85	100.6	28.3	127.6
Steese	122	34	0	156	4.20	29.0	8.1	37.1
White Mountains	71	57	2	130	3.15	23.2	18.8	41.3
Black River	172	56	6	234	7.76	22.9	8.0	30.1
Total	**1,939**	**576**	**28**	**2,543**	**30.96**	**63.6**	**19.5**	**82.1**

[a]Number of sites as of May 2009, regardless of land status

[b]Number of known sites per million acres

Table 3.15, "Known Cultural Resources Regardless of Land Status in the Eastern Interior Planning Area" lists the numbers of sites relative to the four subunits, without regard to present land ownership (i.e., State, Native corporation, federal, private). The types of sites are divided into those that are Historic, Prehistoric, and those that have both Historic and Prehistoric components. The table also lists the density of sites (number of sites per million acres) in each subunit.

In all subunits, the number of historic sites outnumber the number of known prehistoric sites. The historic sites are those dating younger than about A.D. 1880, or, in the case of Athabascan sites, those containing some evidence of European contact or trade. Site density is fairly consistent in all subunits except the Fortymile Subunit. This can be a bit deceiving, as about 500 of the historic "sites" in this subunit are standing buildings on Eielson Air Force Base. Even dismissing this large total, the total site density for the subunit still reaches 95 sites per million acres, which is still two to three times the total found in other subunits. Reasons for this discrepancy in site numbers across the planning area are explained below.

The data tabulated in Table 3.15, "Known Cultural Resources Regardless of Land Status in the Eastern Interior Planning Area" include site types for all of the potential prehistoric and historic sites that were expected in the planning area, based upon the regional prehistoric and historic histories presented above. That is, the planning area contains representative site types of all three prehistoric traditions spanning back almost 14,000 years, as well as all manner of historic Athabascan and Euroamerican sites outlined above.

Table 3.16, "Known Cultural Resources on BLM Lands in the Eastern Interior Planning Area" lists the known sites and their densities for the four subunits, but this time only for those sites that are currently found on BLM-managed lands. The majority of these site will likely remain under BLM's management, as most of them are on lands that are not open to conveyance.

Table 3.16. Known Cultural Resources on BLM Lands in the Eastern Interior Planning Area

Subunit	Historic Sites[a]	Prehistoric Sites[a]	Historic/Prehistoric sites[a]	Total Sites[a]	Acres (million)	Historic Site Density[b]	Prehistoric Site Density[b]	Total Site Density[b]
Fortymile	225	21	2	248	2.07	109.7	11.1	119.8
Steese	49	18	0	67	1.28	38.3	14.1	52.3
White Mountains	26	3	1	30	1.02	26.6	3.9	29.5
Black River	3	17	0	20	2.36	1.3	7.2	8.5
Totals	**303**	**59**	**3**	**365**	**6.73**	**45.5**	**9.2**	**54.2**

[a]Number of sites as of May 2009, on BLM-managed land

[b]Number of known sites per million acres

The range of the types of sites found on BLM lands in the planning area is not as comprehensive as that found on non-BLM lands, relative to what was expected based upon historical overviews. For instance, at present there are no known sites that can definitively be assigned to the American Paleoarctic Tradition, and there are only a few that can certainly or probably be attributed to the Northern Archaic Tradition. Instead, the vast majority of the known *prehistoric* sites on BLM lands are surface or shallowly buried sites (less than eight centimeters in depth), and likely date to the late prehistoric Athabascan Tradition. This is not to say that there are no American Paleoarctic and Northern Archaic sites present. On the contrary, late Pleistocene and early-mid Holocene sites certainly exist on BLM lands in the planning area. Owing to a lack of systematic and/or sustained survey for prehistoric sites, those sites have yet to be found.

The nature of *historic* sites on BLM lands in the planning area, both Athabascan and Euroamerican, is a bit more representative of what was expected based upon the historic overview. The only types of sites not found on BLM lands that were identified in the overview are commercial agricultural sites and energy, transportation, and communications sites related

to the World War II and post-WWII booms (e.g., ALCAN, CANOL, ALCANGO, TAPS) that passed through the southern and western portions of the planning area from the 1940s through 1970s. All other manner of sites have been identified on BLM lands, including prospecting and mining sites ranging from ephemeral prospect camps to gold dredges and dredge camps, Ft. Egbert (an early 20th century Army post), small abandoned Euroamerican and Alaska Native settlements, WAMCATS sites and features, cemeteries and isolated graves, roadhouses, a federal Custom Station, trapping-related sites, trail shelter cabins, historic airstrips, and Alaska Native hunting sites and features.

It is apparent from Table 3.16, "Known Cultural Resources on BLM Lands in the Eastern Interior Planning Area" that numbers of known sites on BLM-managed lands are unevenly distributed across space, relative to the four subunits, a situation that is mirrored on a larger scale on all of the lands in the planning area (Table 3.15, "Known Cultural Resources Regardless of Land Status in the Eastern Interior Planning Area"). For instance, the Fortymile Subunit, with 248 sites, has four to 12 times as many known sites as the other subunits. Even after taking subunit acreage into account, known site density on the landscape is still much greater in the Fortymile than in the other subunits: It is twice that found in the Steese, three to four times that of the White Mountains, and 12 times that found in the Upper Black River Subunit.

Another key difference apparent in the Table 3.16, "Known Cultural Resources on BLM Lands in the Eastern Interior Planning Area" is that historic era sites greatly outnumber prehistoric sites, accounting for 76 percent of all sites, and 83 percent of the sites found on BLM lands. This is true for three of the subunits, where sites with historic components outnumber sites with prehistoric components 10:1 in the Fortymile, 3:1 in the Steese, and 7:1 in the White Mountains. The Upper Black River Subunit bucks this trend, with a 6:1 ratio in favor of prehistoric sites over historic ones.

Three reasons likely account for these differences. First, the vast majority of sites are historic as well as surficial resources; that is, collapsing and ruined buildings, structures, equipment and other artifacts and features that are visible on or above the present ground surface. Of the 303 known historic sites on BLM lands, more than 80 percent have standing or collapsing buildings, structures, or large pieces of metal equipment present, making them highly visible resources. This is particularly true in the Fortymile, Steese, and White Mountains subunits, where historic resources greatly outnumber prehistoric resources. The vast majority of these historic sites are less than 100 years old, which means most of these sites are not completely eroded or degraded down to the ground and are clearly visible today. Thus, they will be found more readily than buried and more ephemeral sites, and are more likely to be recorded.

Second, two of the main occupations that drew people into Interior Alaska during the early-mid 20th century were placer gold mining and trapping, and both focused much of their activities immediately alongside creeks and rivers. In particular, mining activities were quite extensive throughout the Fortymile drainage, with relatively intense occupation throughout the area dating at least back to the original A.D. 1886 gold discovery and stampede to the area, and continuing to the present day. This extensive and yet quite narrow geographic focus of activities, typically within a few dozens of feet of a stream edge, makes finding sites related to these two economic activities relatively easy.

Third, logistical constraints of field work in Interior Alaska, coupled with relatively limited BLM funding, has prompted the work in areas that are relatively cheaper and easier to get to, such as areas immediately adjacent to roads, trails, and floatable rivers and creeks. Helicopter-based

cultural surveys for the purpose of finding new sites are expensive and, as a result, are not frequently undertaken.

Logistical constraints have affected cultural work in the Upper Black River Subunit. No economically feasible placer gold, other ore bodies, or oil/gas deposits have ever been located in this subunit. The area continues to be used today much as it was used throughout the 20th century: For subsistence hunting and fishing by resident and adjacent Alaska Native groups, as well as for fur trapping. No roads have ever been built into this area. The relatively few airstrips are associated with villages, located further downstream and off of BLM lands, or are from past oil and gas exploration.

With limited access to the Upper Black River Subunit and no modern development driving cultural surveys, few cultural surveys have taken place. These few surveys include a two week float trip in 1991 (Kunz 1991), and two, one-day visits with a helicopter in 2006 and 2007 (Corbet 2006; Jeff Rasic, personal communication 2007). These limited efforts resulted in the discovery of three trapping cabin ruins and 17 surface prehistoric sites, the only known cultural sites within this vast area (Table 3.16, "Known Cultural Resources on BLM Lands in the Eastern Interior Planning Area"). One additional reconnaissance survey was conducted in 2009 and 19 archaeological sites were identified (Rasic 2009).

3.2.3.4. Paleontological Resources

Little work has been done to inventory paleontological materials on BLM-managed lands in the planning area. In 1986, the BLM contracted for a collection of data on paleontological resources on BLM-managed lands (Lindsey 1986). Since that time, Drs. Ning Zhang and Robert Blodgett have compiled the Alaska Paleontology Database (www.alaskafossil.org), an ongoing database of paleontological localities which is searchable by quadrangle for the entire State of Alaska, regardless of land ownership status. As of late 2008, more than 14,000 entries had been made into the database. Owing to funding sources, Zhang and Blodgett's database has focused, although not exclusively, on pre-Pleistocene era invertebrates. Lindsey (1986), however, covers the Pleistocene vertebrate faunal, so combining these two sources provides an adequate assessment of the nature of this resource in the planning area. There is some overlap between the two sources, making an exact count of known localities difficult. The following discussion is based primarily on information from these two sources.

Lindsey (1986) reports about 113 occurrences of paleontological resources on BLM-managed lands in the planning area. All of these reported finds are located between the Yukon and Tanana rivers; no localities are known on BLM lands in the Upper Black River Subunit, north and east of the Yukon River. The reported finds are relatively evenly distributed from the U.S.-Canadian border and up to the Yukon River, between the mouths of the Tanana and Porcupine rivers.

As of late 2008, Zhang and Blodgett report about 615 occurrences of paleontological resources in the planning area, regardless of land status. The nature of the paleontological resources in the planning area spans the breadth of the Paleozoic Era (approximately 540-250 million years ago), the Mesozoic Era (approximately 250-65 million years ago), and the Cenozoic (approximately 65 million years ago to present). All manner of vertebrate and invertebrate faunal, as well as floral specimens, are reported, with the large-mammal vertebrate remains concentrating in the Pleistocene epoch (approximately 1.8 million years ago to approximately 10 thousand years ago). As yet, however, no dinosaur fossils are known from the planning area. In 2010, Harley Armstrong, regional paleontologist for the BLM, assessed all geological formations in Alaska

for their potential to yield significant paleontological resources (Armstrong 2010). Of the 307 different geological units listed for Alaska on this Alaska Potential Fossil Yield Classification (PFYC) List, 57 occur within the boundaries of the Eastern Interior FO, and of these, none is ranked higher than a "3", where PFYC 1 is lowest in yielding significant paleontological resources and Class 5 is the highest."

The distribution of fossil occurrences in the planning area are undoubtedly a function of the limited amount of inventory that has been conducted, and the nature of those activities that are producing the field samples and finds (i.e., placer mining; USGS sampling), and should not be taken as representative of the area.

3.2.4. Fish and Wildlife

3.2.4.1. Fish

3.2.4.1.1. Fish Species Present

The planning area is known to support 17 native fish species and three stocked species in a variety of habitats, such as rivers, streams, lakes, and wetlands. None of these fish species are federally designated as either threatened or endangered under the Endangered Species Act (ESA). With few exceptions, the current condition of fish species in the planning area is good, and most fish populations are self-sustaining. Populations of Arctic grayling are able to support active sport fisheries, and populations of salmon, whitefish, northern pike, and sheefish are generally healthy enough to support subsistence fisheries.

Fish species present in the planning area may be categorized in four general categories: subsistence, commercial, sport, and non-sport. Subsistence fish species are an extremely important part of both the diet and the culture in rural Alaska. Fish that are caught for subsistence include salmon species such as Chinook salmon (*Oncorhynchus tshawytscha*), chum salmon (*O. keta*), and coho salmon (*O. kisutch*), and non-salmon species such as whitefish (*Coregoninae*), sheefish (*Stenodus leucichthys*), burbot (*Lota lota*), northern pike (*Esox lucius*), Alaska blackfish (*Dallia pectoralis*), and Arctic lamprey (*Lampetra japonica*). There is a commercial fishery for Chinook salmon, chum salmon, and coho salmon within the planning area, but there is no commercial fishery in waters managed by the BLM. Sport fish species include Arctic grayling (*Thymallus arcticus*), northern pike, burbot, and salmon. In addition, the Alaska Department of Fish and Game (ADF&G) Sport Fish Division has stocked area lakes with Arctic char (*Salvelinus alpinus*), rainbow trout (*Oncorhynchus mykiss*), and lake trout (*Salvelinus namaycush*). Non-sport fish are important prey for other species and include longnose suckers (*Catostomus catostomus*), slimy sculpin (*Cottus cognatus*), lake chub (*Couesius plumbeus*), and ninespine stickleback (*Pungitius pungitius*).

The current distribution of priority anadromous habitats are depicted on Map 82 and include areas determined to be Essential Fish Habitat.[2]

[2]Essential Fish Habitat (EFH) is those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity. Waters include aquatic areas and their associated physical, chemical and biological properties. Substrate includes sediment underlying the waters. EFH is identified for only those species managed under a Federal Fishery Management Plan, which at this time only includes Pacific salmon. This distribution of priority resident fish typically includes all drainages except for extreme headwater areas and shallow lakes.

3.2.4.1.2. Fish Habitat Description

Approximately 11,000 miles of streams and rivers are present on BLM-managed lands in the planning area. The planning area contains numerous anadromous fish streams, of which 400 miles are on BLM-managed lands. These streams are listed in the Anadromous Waters Catalog, maintained by the ADF&G (Johnson and Daigneault 2008) as shown in Map 82. In addition to streams and rivers, there are many lakes, sloughs, and other off-channel habitats in the planning area that support native fish species.

Indicators of fishery resource condition in the planning area are related to fishery habitat rather than population size. The condition of fish populations depends in large part on the quantity and quality of available habitat. One of the indicators frequently used to describe the condition of fish habitat is riparian proper functioning condition (PFC), which describes the quality of habitat near stream banks and lake shores. Riparian vegetation directly influences the condition, quality, and maintenance of aquatic habitats. Riparian plants filter sediments and nutrients, provide shade and regulate water temperatures, stabilize streambanks, provide cover in the form of large and small woody debris, produce leaf litter energy inputs, promote infiltration and recharge of groundwater (FEMAT 1993 and Takashi et al. 2002), and are responsible for the major proportion of the annual energy budget to stream food webs through leaf litter (Oswood et al. in Chapin et al. 2006). As a result of these functions, spawning beds for fish and microhabitats for macroinvertebrates remain relatively free of damaging fine sediment deposits and specific water temperature requirements (number of degree days) needed for egg development, reproduction and emergence of fish and macroinvertebrates are maintained.

The bank stabilizing function of riparian vegetation not only helps reduce erosion and influence channel morphology, but also acts to supplement instream cover by the development of undercut streambanks and by providing overhanging vegetation. Well-vegetated stream channels and stable streambanks help reduce turbidity and channel scouring resulting from high flows and can enhance primary production (Lloyd et al. 1987, Beschta et al. 1995). Riparian trees provide streams with critical instream habitat components such as woody material that creates pools, decreases flow velocity, provides refuge during the summer and winter for aquatic species, and provides shade, cover and a prey base for many species. Woody material also protects streambanks from erosion and provides microsites for riparian vegetation to be established.

The majority of the aquatic habitats managed by the BLM within the planning area are in natural or near natural condition. However, major stream altering activities in some areas have had an impact on aquatic resources. It's estimated that 150 to 200 miles of stream have been mined or reclaimed within the planning area since the 43 CFR 3809 Surface Management regulations were implemented {1981} (BLM 1988a,b,c). To date, few if any, of those stream miles are known to have achieved the desired stream and riparian habitat conditions outlined in Chapter 2. This is because the time scale for recovery of extensively altered stream channels in Interior Alaska is measured in decades (Tidwell et al. 2000, Arnette 2005) and because these altered stream channels may never reproduce the instream habitat conditions that existed prior to mining (Arnette 2005). Placer mining is or was occurring on some BLM lands in three of the four planning subunits: the Fortymile, Steese, and White Mountains. Streams impacted by placer mining are known to be in poorer condition, and are often considered either functional-at risk or nonfunctional. In some cases, such as portions of the Birch Creek watershed, fish populations that were historically present in streams affected by placer mining have been reduced in size or entirely displaced (ADF&G 1985). Due to the decadal (decades) time scale of recovery and

assuming that stream altering activities will continue, it's reasonable to conclude that fish and aquatic resources within the planning area may be of a downward trend.

The four major river drainages managed by the BLM in the planning area are Beaver and Birch creeks, and the Fortymile and Black Rivers, all tributaries to the Yukon River. Beaver and Birch creeks and the Fortymile River are all designated as Wild and Scenic Rivers (WSR). Beaver and Birch creeks are classified as "wild rivers"; the Fortymile WSR is classified as "wild, scenic, and recreational". Beaver and Birch creeks and the Black River are listed as anadromous rivers. The Fortymile River was removed from the list in 1999, due to a lack of supporting data (ADF&G 1999).

The upper 127 miles of Beaver Creek are designated as a Wild and Scenic River. It is located in the White Mountains NRA and supports small but viable Chinook, summer chum, and coho salmon populations. The BLM monitored Beaver Creek Chinook salmon escapement from 1996 to 2000 and the data revealed a declining trend similar to the overall decline of Yukon River Chinook salmon (Volk et al. 2009). Beaver Creek Chinook salmon were designated as a BLM Alaska sensitive species in 2004 due to the downward trend of this small population, but have recently been removed from that list and placed on a watch list. Placer mining disturbed approximately eight miles of stream bed and associated floodplain in Nome Creek, a tributary to Beaver Creek, from the early 1900s to the late 1980s. The BLM initiated a riparian reclamation and stream channel reconstruction project in Nome Creek in 1990. Since then, 5.5 miles of stream channel and approximately 210 acres of riparian habitat and floodplain have been reclaimed by annual maintenance of the stream channel, fertilizing, and willow planting. Beaver Creek also supports a healthy grayling and pike population which provides sport fishing opportunity for recreational anglers.

Birch Creek is located in the Steese National Conservation Area and the upper 110 miles are designated as a Wild and Scenic River. Placer mining operations have been active in the Birch Creek watershed for over one hundred years, resulting in elevated turbidity, poor water quality, and a reduction in fish habitat in the headwaters and tributaries to Birch Creek. As a result, Birch Creek was placed on the Alaska Department of Environmental Conservations impaired waterbody list in 1992. Combined efforts by placer-miner operators and regulatory and land management agencies to meet regulatory requirements have resulted in significant improvement of water quality in mined streams. At moderate to low flow, mined streams now typically meet Alaska Department of Environmental Conservation (ADEC) water quality standards. Many of the management activities in this area have focused on restoring water quality and improving fish habitat. The BLM undertook a substantial reclamation project in Harrison Creek, in the upper Birch Creek watershed, beginning in 2005. Harrison Creek reclamation is focused on restoring the connectivity of the stream channel to its floodplain, with the intent of reducing the amount of sediment eroding from the stream channel while allowing anadromous and resident fish populations to expand and colonize previously mined areas.

The upper Birch Creek Arctic grayling population increased in size between 1984 and 1990 (Townsend 1991). This was attributed to improved water quality and decreased turbidity resulting from improved mining practices, such as recycling mining water and reducing non-point source runoff from mines. Townsend (1996) found that the population of Arctic grayling in Birch Creek increased again between 1990 and 1995 and suggested that future increases would depend on the implementation of reclamation plans, such as improving stream bank and overburden stability and capturing sediments in settling ponds. Preacher Creek, a major tributary to Birch Creek, is generally a pristine system that provides spawning, overwintering, and rearing habitat for Arctic

grayling. Degradation of other portions of the Birch Creek watershed from mining activity may increase the importance of Preacher Creek for the production of Arctic grayling within the Birch Creek system. Preacher Creek also supports anadromous species such as summer chum and Chinook salmon. Birch Creek also supports small populations of Chinook, chum, and coho salmon, northern pike, sheefish, and other non-game fish species.

The Fortymile River, a designated Wild and Scenic River, is a northeasterly flowing tributary of the Yukon River of which the lower 20 miles flow through the Yukon Territory, Canada. Placer mining began over one hundred years ago in the Fortymile River drainage and continues today. Mining activities have led to stream channelization and a reduction in available fisheries habitat in Chicken, Lost Chicken, and Wade creeks. Since pre-mining fisheries data are unavailable, the full extent to which mining activities have impacted fish populations in the Fortymile River basin is unknown (ADF&G 1987b).

Suction dredging for gold is still a common practice in the Fortymile River, nevertheless, water quality indicators in the basin are relatively good. The ADF&G states that, dating back to the 1960s, only 16 juvenile and two adult Chinook salmon, 16 adult chum salmon and one unidentified salmon have been observed by State, federal and private entities in the Alaskan portion of the Fortymile River (ADF&G 1999). Their conclusion is that anadromous fish runs in the Fortymile River are at the upper limit of their natural distribution and may not successfully reproduce on an annual basis partly due to marginal habitat. Arctic grayling are the dominant fish species in the basin but are not particularly abundant.

The Black River watershed encompasses just over five million acres in the upper Yukon River drainage, of which the BLM manages 2.07 million acres. Most BLM-managed lands are located in the upper part of the basin, the Black River and its' tributaries are the most productive sources of fish in the area. This area is very remote and as a result, few fisheries studies have been performed in the drainage. In 2009, the BLM conducted fishery inventories on the Salmon Fork Black River (SFBR). Juvenile Chinook salmon were found during the inventories. Data collected during these surveys will likely result in extending the anadromous catalogue in the mainstem Salmon Fork and two of its tributaries. The SFBR is likely the most productive fish stream in the drainage, containing at least eight species of fish including Chinook salmon and a significant run of fall chum salmon. Sheefish use the SFBR for summer feeding and Alternative (1987) found evidence that suggests sheefish spawn in the SFBR. This would be significant as there are only five known sheefish spawning locations in the entire Yukon River drainage. Arctic grayling are found in good numbers throughout the SFBR and were the most abundant of all fish species sampled during a BLM fisheries inventory conducted in 1991.

3.2.4.1.3. Factors Affecting Fish Habitat and Production

Although the majority of fisheries habitat within the planning area remains in a natural and undisturbed state, there are some areas that have been impacted by various disturbances, such as placer mining and road construction. In addition to human caused disturbances, a variety of factors, ranging from quantity and quality of habitat to harvest, climate conditions and disease, also affect both resident and anadromous fish production in the planning area.

Placer mining has resulted in the most significant and extensive impacts on fish habitat and production in the planning area. The adverse affects from placer mining in the Birch Creek drainage, specifically elevated turbidity levels, were high enough that in 1992 the Alaska Department of Environmental Conservation included Birch Creek on the list of impaired waters

where it remains today. Increased substrate embeddedness and turbidity resulting from active and abandoned mining claims directly and indirectly impact fish populations. Reynolds et al. (1989) reported that the loss of interstitial space in the stream bed due to siltation led to decreased survival of Arctic grayling fry and juveniles in Birch Creek. Indirect effects of mining, such as loss of summer feeding and reproduction habitat, may have more severe effects on Arctic grayling populations than direct effects (Reynolds et al. 1989).

Placer mining studies in the Birch Creek watershed found that fish habitat was decreased or eliminated by: (1) Channelization that resulted in fewer meanders and decreased stream length; (2) lack of pools, undercut banks, overhanging vegetation, and other features that provide cover for fish; (3) unstable stream banks resulting from bank and channel disturbance and lack of riparian vegetation; (4) decreased suitability of the stream-bottom substrates for fish and invertebrate habitation; and, (5) decreased food sources for the fish resulting from decreased invertebrate populations (Weber et al. 1985). These same deleterious effects to fish habitat from placer mining in active stream channels would apply to other mined streams within the planning area.

The BLM can minimize the negative effects of placer mining on fish habitat by developing and enforcing improved mining and reclamation techniques and by the use of stream buffers. For example, requiring the use of erosion control structures, such as silt fencing, can reduce sedimentation of instream habitats resulting from runoff. In addition, ensuring that stream reclamation plans consider watershed characteristics, are based on site-specific data, and use active revegetation techniques would be expected to accelerate stream and riparian habitat recovery. The BLM is actively working to develop guidance on stream reclamation and best management practices to ensure the rehabilitation of fish habitat post-mining. Riparian functioning condition is improving as a result of stream reclamation efforts in Nome Creek and is expected to improve in Harrison Creek once reclamation is complete. Water quality conditions have improved in Birch Creek and other tributaries in the Steese National Conservation Area, largely as a result of more stringent regulations.

It is widely accepted that road construction, especially within the floodplain, can adversely affect fish and fish habitat by introducing sediment into streams. Although the extent of impacts from road construction in the planning area is not known, it is reasonable to believe that some roads associated with mining operations have negatively affected fish habitat. Large amounts of sediment are introduced into the stream both during road washouts and flood events. Road culverts, if not properly designed and maintained, may act as fish barriers limiting upstream access to fish habitat.

Ichthyophonus hoferi is a parasitic organism infecting adult Chinook salmon in the Yukon River. The low returns of Yukon River Chinook salmon observed in recent years raises the question of the potential contribution of *Ichthyophonus* to these declines due to pathogen-induced mortality, reduced fecundity, and the inability of fish to successfully migrate to and spawn in tributaries (JTC 2009). This disease has the potential to reduce Chinook salmon production within the planning area.

3.2.4.2. Wildlife

3.2.4.2.1. Management Framework

The responsibility for managing wildlife populations traditionally rests with the State of Alaska, except in special cases. These cases include the management of marine mammals,

migratory birds, and federally listed threatened or endangered species which are, at least in part, the responsibility of the federal government. Additionally, in Alaska, subsistence harvest management on federal lands is also a federal responsibility and several federal agencies share in this responsibility, including the BLM. The BLM conducts wildlife habitat management and population monitoring, which supports the State of Alaska's wildlife population management objectives, and the Federal Subsistence Management Program necessitated by ANILCA.

ANILCA requires management of BLM lands in Alaska not only to provide healthy populations, but also minimize impacts on subsistence resources and use of those resources. ANILCA (Sec. 802) states, "...consistent with sound management principles, and the conservation of healthy populations of fish and wildlife, the utilization of public lands in Alaska is to cause the least adverse impact possible on rural residents who depend upon subsistence uses of the resources of such lands."

In the planning area, habitat management has focused on conservation efforts rather than rehabilitation, because most habitats are intact. Efforts have been made since 1982 to inventory and monitor population, distribution and habitat of some key wildlife species. Establishment of baseline data will allow future monitoring to indicate declines in populations or habitats and aid in identifying and minimizing impacts. Most monitoring is conducted in conjunction and cooperation with the ADF&G.

3.2.4.2.2. Current Condition and Trends

Moose

Moose occur throughout the planning area in elevations below about 3,000 feet. During fall and early winter, mid- to high-elevation shrub and open spruce habitats support higher densities of moose, along with recently burned (10 to 30 years) habitats. As snow accumulates through winter, moose tend to concentrate at lower elevations and especially along riparian areas of creeks and rivers. In summer, moose are widely dispersed and pregnant cows often travel long distances to low-elevation areas with abundant wetlands for calving and summer. Radio-collared cow moose from the White Mountains NRA and Steese National Conservation Area have traveled up to 100 miles to Tanana flats, Minto Flats, and Yukon Flats.

Moose densities in the planning area are generally moderate to low, presumably because of predation from wolves and bears (Gasaway et al. 1992) combined with habitat limitations. Wolf and bear populations are lightly harvested and bull moose harvest is generally low (due to limited access) and a minor factor in affecting population dynamics. Locally abundant moose occur seasonally in prime habitats. In Unit 20(E) (Fortymile), moose populations were high in the 1950s and early 1960s, reaching a minimum of 12,000 moose following federal predator control. Current (2006) moose numbers in Unit 20(E) are estimated at 3,600–5,200 moose or 0.45–0.64 moose/mi^2. Harvest is limited by little access and bull:cow ratios are generally high (above 40 bulls:100 cows; Gross 2006). Unit 20(E) has been designated by the Alaska Board of Game as an Intensive Management Area, meaning it is designated as important for providing high harvest for human consumptive uses. Population and harvest objectives have been set accordingly and predator control has been implemented in a portion of the area.

Density of moose in Unit 25(C) (including the White Mountains NRA and Steese National Conservation Area) averaged 0.65 moose/mi^2 in 2007 (Herriges, Unpublished Data). Systematic population surveys in Unit 25(B) (Upper Black River subunit) have not been conducted, but

populations are considered to be low and probably declining. Moose densities in unit 25(D) are very low (0.2–0.3/mi^2 in 2001, ADF&G 2002b). The Yukon Flats and surrounding areas (which includes Units 25(A), 25(B), and 25(D)) are the subject of a cooperative moose management plan designed to promote an increase in the Yukon Flats moose population through better harvest reporting, reducing predation by increasing harvest of predators, minimizing illegal cow harvest, informing hunters and other, and using scientific information and traditional knowledge in management decisions.

Moose browse surveys have not been conducted in Unit 25(C) or 25(B); but observations in the field indicate that browsing is typically light with only local areas of moderate or heavy use. The proportion of current annual browse growth (CAG) removed by moose was low (approximately 9 percent) in Unit 25(D) (Yukon Flats) and nutritional status was apparently high as indicated by high (approximately 62 percent) twinning rates. Unit 25(B) is likely similar to 25(D). In 20(E), CAG removal was moderate (twenty-two percent) and twinning rates correspondingly lower (approximately 35 percent) (Paragi et al. 2008).

Trend

Moose in the planning area are generally thought to be limited by wolf and bear predation. However, large wildland fires are generally considered to result in population increases due to the resulting increase in palatable browse. Maier et al. (2005) found that higher moose densities across several areas in Interior Alaska were associated with 11 to 30 year old burns. Similarly, a Resource Selection Function developed for the Steese/White Mountains (Nielsen 2007) indicated that 10 to 20 year old burns were one of the habitat variables most associated with an increased probability of selection by moose.

Following development of the Alaska Interagency Fire Management Plan, fire suppression efforts in the planning area have been reduced from complete suppression to predominantly Limited wildland fire suppression. In addition, weather conditions have resulted in record acreages burned in recent years. This may result in increased moose populations in the planning area. Large wildland fires in a two-year period (2004 and 2005) resulted in burn perimeters that covered 25.2 percent of the White Mountains/Steese 25C moose survey area. A moose survey in 1997 estimated 2,270 (+/- 15%) moose and a repeat survey in 2007 estimated 3,019 (+/-24%) for the area. Although the 2004–2005 wildland fires may or may not have influenced the population by 2007, survey units which were surveyed in both years showed an increase of five or more moose per survey unit since 1994, indicating that moose distribution shifted towards recently burned areas.

Forecast

Increases in moose populations over the next 10 to 30 years are likely to occur throughout the planning area in response to recent wildland fires. Climate change is predicted to result in long-term increase in fire frequency (Rupp et al. 2006). Young seral stages and deciduous forests will occur as a higher proportion of the landscape, resulting in habitat more favorable for moose.

If migration pathways to Tanana Flats calving ranges are blocked by increased development and fencing, calf recruitment may be reduced. Currently, much of the route used by radio-collared moose is blocked with chain link fencing along the Richardson Highway.

Caribou

Five caribou herds occupy the planning area at least seasonally. The White Mountains and Fortymile caribou herds occupy the planning area year-round, while the Porcupine and Nelchina caribou herds occupy the planning area primarily in winter. The MacComb, Mentasta, and Chisana herds also range into the planning area, but do not use BLM-managed lands as a significant portion of their range (Map 84).

Climate change may be the factor most affecting long-term caribou populations in the planning area. The alpine habitats which caribou utilize much of the year may decrease in overall area as tree-line rises, and they may experience drying which could decrease forage quality. Also, the availability of winter forage may decrease as old-age stands of spruce with abundant lichen decline with an increase in fire frequency. The impact of increased burn rates depend on the extent of winter range available. In addition, mid-winter warming could cause icing conditions which could reduce forage availability and/or increase susceptibility to predation. However, shorter seasons of snow cover could benefit caribou by improving energy balance.

White Mountains Caribou

The White Mountains caribou herd was first recognized in the late 1970s and was thought to number 100 to 200 caribou (P. Valkenburg, pers. comm., in Seaton 2007). At that time it was believed to be a remnant of the Fortymile caribou herd, because the White Mountains caribou herd occurs within the historic range of the Fortymile herd. It is now considered likely that it has long been a separate herd. The range of the White Mountains herd is centered on the White Mountains NRA and north unit of the Steese National Conservation Area (Map 84). Small groups of caribou are observed year-round in the area of the Pinnell Mountain Trail (between Twelvemile and Eagle Summits of the Steese Highway) and they could be considered part of the White Mountains herd. Peak minimum count of the herd was 961 in 1998; a population estimate calculated from the proportion of radio-collared caribou in large groups was 1842 and likely an overestimate (Herriges, unpublished data). A census in June 2008 resulted in a count of 677 animals and an estimated population of 762. Reported harvest of this herd totaled 381 caribou 1987–2006, or an average of 21 caribou/year. Weights of female calves have been consistently high in this herd, indicating that nutritional status is high and that range quality is good.

Fortymile Caribou

The Fortymile caribou herd range is centered in the planning area and is the most important herd to residents of Interior Alaska. It is also a herd of statewide and international importance. The historic range of the herd is thought to have once included almost the entire planning area, with the exception of the northern portion of the Upper Black River Subunit, and extended to Whitehorse, Yukon Territory.

During the 1920s the Fortymile caribou herd (then known as the Steese-Fortymile caribou herd) was the largest herd in Alaska and was one of the largest in the world, estimated at over 500,000 caribou (Murie 1935). The herd declined during the 1930s to an estimated 10,000–20,000 caribou. By the 1950s the herd had increased to an estimated 50,000 caribou, with population estimates fluctuating around this number through the early 1960s. Between the mid 1960s and mid 1970s, the population experienced a significant decline attributed to high harvests, severe winters, and predation by wolves, reaching a low in 1973–1976 of an estimated 5,740-8,610 caribou (Gross 2007). During this decline, the Fortymile herd reduced range size and changed seasonal migration patterns. By the early 1960s, the herd stopped crossing the Steese Highway in significant numbers, and by the early 1970s, few Fortymile caribou continued to move annually into Yukon Territory, Canada. Since the early 1970s, the herd's range has remained about 19,300

mi² (50,000 km²), less than 25 percent of the range thought to have been used by the herd during the 1920s (Gross 2007). (Map 84).

Between 1990 and 1995, the herd remained relatively stable at about 22,000 caribou. During 1996–2002, following implementation of the Fortymile Caribou Herd Management Plan and during a period of favorable weather conditions, the herd doubled in size, peaking at 44,100 animals in 2003. This herd management plan included restrictions in harvest and implementation of non-lethal wolf control (November 1997 to May 2001), as well as private wolf trapping. Over the next few years, the herd growth stopped and the population declined slightly. The estimated pre-calving population in May 2007 was 41,400 caribou (Gross 2007) and 39,000 in 2008 (J. Gross pers. comm.). The Alaska Board of Game expanded the Upper Yukon-Tanana Predation Control Area to include most of the Fortymile herd's range to initiate an increase in the herd and aid in achieving the population objective of 50,000–100,000 caribou, with a harvest objective of 1,000-15,000 caribou established under intensive management regulations (Gross 2007). In the last five to 10 years, the herd has expanded its range into more of the traditional range, likely as a result of an increasing population. The mid-summer 2010 estimated population was 51,565.

Generally high calf weights and high pregnancy and birth rates indicate that nutritional status is moderate to high and range is in good condition (Boertje and Gardner 2000). Fluctuations in these parameters are largely attributed to weather conditions—dry summers and winters with heavy snow are thought to result in reduced calf weights and birth rates (Gross 2007). During 1991–2000, lichen fragments made up seventy-two to 81 percent of fecal samples and mosses only 8 percent, indicating excellent range conditions (Gross 2007). Markedly decreased birth rates among three-year-old cows occurred in 2009 and 2010 and were not obviously weather-related (Rod Boertje, pers. comm.). Persistence of low rates for several more years might indicate declined range conditions.

Although weather conditions cause fluctuations in population growth, predation has reduced growth rate of the Fortymile herd (Boertje and Gardner 2000). Predator control (including aerial shooting of wolves under permit from ADF&G) is currently being utilized by ADF&G wildlife managers to improve growth rates of the Fortymile herd. The predator control area includes BLM-managed lands in the south unit of the Steese National Conservation Area, the Fortymile WSR Corridor, and other scattered BLM-managed lands in the Fortymile area.

Habitat conditions and availability will determine the limits to growth of the herd. The habitat across most of the herd's range is largely intact, with a very small proportion (likely less than 1 percent) of the range impacted by surface-disturbing activities. Potential actions or activities that may limit habitat quantity and quality include: large mining operations with associated access; road and trail density; human disturbance from OHVs (including snowmobiles) or aircraft (most of the herd range lies under Military Operations Areas used for aerial exercises); and increasing fire frequency.

Porcupine Caribou

The Porcupine caribou herd utilizes the Upper Black River Subunit during winter. The most recent population estimate of 123,052 caribou was obtained in 2001 and indicated a steady decline since 1989, when 178,000 caribou were estimated (Lenart 2007). It is likely that the Porcupine herd has continued to decline and possibly numbered between 110,000–115,000 caribou in 2006 (Lenart 2007). The Upper Black River Subunit constitutes only a small proportion of the herd's current winter range. This habitat may be more important at some population levels or in years

when weather conditions may be more favorable here than in other areas. Habitat in this remote subunit is essentially undisturbed by human activity.

Warming climate is expected to increase the area burned each year, which will likely reduce the area of available winter range in the Upper Black River Subunit. Lightning-caused wildland fires have been more frequent in recent years, and impact caribou winter range by reducing forage lichens for at least 50 years. Whether this impacts the herd depends on extent of other winter range available. As area of old-age spruce-lichen stands decreases, the importance of the remaining unburned stands will increase.

Other Caribou Herds

The Nelchina caribou herd has utilized the southern portion of the Fortymile caribou herd winter range (Map 84) in recent years. Harvest regulations are modified (within season when necessary) to limit harvest of the Nelchina herd in this area.

The Mentasta caribou herd occupies land within the northern half of Wrangell-St. Elias National Park and Preserve. Their historical range extends into the planning area in Unit (11) and overlaps with the Fortymile herd range in southern Unit 20(E), but the herd does not utilize BLM-managed lands. The Mentasta herd once numbered 3,500 during mid to late 1980s, but only 273 were counted in 2003. In season modifications to harvest regulations are sometimes needed to prevent harvest of caribou of the much smaller Mentasta herd when it is in the Fortymile hunt area.

Dall Sheep

Dall sheep are some of the highest-profile wildlife species of interest in the planning area and across Alaska. Dall sheep occur in the planning area primarily in the Yukon-Tanana uplands (Map 84). These populations are somewhat unique in that they occupy uncharacteristically low-elevation habitats in areas of often rounded topography. In this area, it is not uncommon to see Dall sheep in low shrub or open forest habitat, especially in areas near river bluffs and low-elevation mineral licks. Sheep populations occur in relatively low-density and in scattered areas of suitable habitat in the Yukon-Tanana Uplands.

The White Mountains are the western edge of the Yukon-Tanana Uplands and support a population of sheep which has likely been isolated from other populations for many years. At least occasional interchange likely occurs between all other populations of sheep (Burch and Lawler 2001) in the Yukon Tanana Uplands and between Alaska herds and those in Canada. Sheep in the Yukon-Tanana Uplands often have black hairs in their tail and elsewhere in their coat. Some sheep with distinctive dark saddles have been observed in the eastern portion of the planning area, near Eagle; these sheep are known as Fannin sheep and are considered a gradation between Dall sheep *(Ovis dalli dalli)* and Stone Sheep (*O. dalli stonei*). The presence of Fannin sheep characteristics make Yukon-Tanana Uplands Dall sheep somewhat unique within Alaska.

Sheep likely utilize portions of the higher sections of the Kandik River, and upper Grayling Fork drainages in the Upper Black River Planning Subunit. These areas are not mapped by ADF&G as sheep habitat, but occasional use by sheep from nearby population centers is likely. The Keele Range north of the Salmon Fork of the Upper Black River in Alaska has been reported to have supported Dall sheep and sheep hunting in the past (Vuntut Gwitchin Government and Yukon Territory Government 2009), but there are no recent records of Dall sheep in this area. Sheep or sheep sign were not observed during BLM field trips in the area in 1991 and 1997.

In the Fortymile subunit, Dall sheep populations inhabit BLM-managed lands in the Glacier Mountain and Mount Harper areas and in upper Granite Creek, on the east border of Yukon-Charley Rivers National Preserve. In the Glacier Mountain area, which is designated as a controlled use area under state hunting regulations, that prohibit the use of motorized vehicles, an average of 87 sheep have been counted in surveys between 1998 and 2002. The Mount Harper area is managed as a drawing permit hunt area and an average of 74 sheep have been counted there in aerial surveys in 1997–2002 (Parker McNeill 2005).

The West Point sheep population utilizes the Puzzle Gulch and Big Windy Creek drainages in the south Steese National Conservation Area. An average of 142 sheep have been counted there in 1999–2002 (Lawler et al. 2005). A small number of sheep also occur around Mount 5580 in the south Steese National Conservation Area.

An average of 309 sheep were counted in aerial surveys from 1997–2002 in the Yukon-Charley Rivers National Preserve, including small numbers that utilize BLM lands near Mount 5580 in south Steese National Conservation Area and headwaters of Granite Creek (Lawler et al. 2005). Thus, the average Yukon-Tanana Uplands sheep population observed in aerial surveys (1997–2002) was about 1,200. Seventy-four percent (893) of this population was dependent on BLM lands. This will decrease somewhat if lands around Mount Harper and Glacier Mountain are conveyed.

Sheep in most areas of the White Mountains make frequent use of mineral licks even though the licks may be located far from preferred escape habitat. The mineral lick at Lime Peak was visited almost daily during June through September by some GPS equipped radio-collared sheep. Most sheep at Mount Prindle travel 14–21 miles along open ridgetops, tussock meadows, and open black spruce forests (exposing themselves to significant predation risk) to visit mineral licks on Preacher Creek. Although their exact role in individual and population health is not known, mineral licks are typically considered crucial habitats for mountain sheep. There are also mineral licks identified in the Fortymile area for sheep (as well as caribou and moose).

Trend

Aerial surveys of the White Mountains Dall sheep populations have occurred since 1970. These have been conducted cooperatively by ADF&G, BLM, and USFWS. The population count decreased from 285 sheep in 1970 to 124 sheep in 1977, and then counts gradually increased to a peak of 717 sheep in 1999. Some of this increase may have been due to increased survey effort and a more complete knowledge of utilized sheep habitats (including mineral licks that are far from typical sheep habitat), but it is clear that sheep were much less numerous in the 1970s. Counts of sheep declined by about 32 percent from 1999 to 2002. The White Mountains caribou herd suffered an apparent decline in this same time period, indicating a possible common factor, such as weather. Although a number of animals prey on Dall sheep adults and/or lambs, it is generally considered that weather conditions are a larger factor than predation in determining sheep populations and trends.

Forecast

Most of the sheep habitat in the Yukon-Tanana Uplands occurs in the "Primitive" management areas of the White Mountains NRA and Steese National Conservation Area and in Yukon-Charley National Park and Preserve. As such, these areas have been protected from surface-disturbing activities such as large mines and disturbance associated with summer motorized vehicle use. As

with caribou, habitat conditions and availability will ultimately determine the limits to growth of sheep populations.

The habitat across most of the herd's range is largely intact and undisturbed. Most sheep habitat in the planning area is remote from roads and access, except by small plane or boat, is limited. Winter motorized vehicle usage is currently limited in Dall Sheep habitat by remoteness and rough and rocky terrain. There may be areas of low-elevation habitat that in the future could receive snowmobile use at levels sufficient to affect sheep use of those habitats. The sheep in the Mount Prindle area are closest to roads and summer and winter motorized vehicle access routes. The currently remote Mount Harper and Glacier Mountain areas in the Fortymile Subunit could see increased access if roads are developed to access lands being conveyed to the State of Alaska and Native corporations, possibly for mineral development. Habitat management decisions will determine future extent of habitat maintenance. Roads and OHVs in sheep ranges could potentially impact sheep populations.

Grizzly (Brown) Bear

Grizzly bears are widely distributed within the planning area, though densities are lower in lowland flats. When not hibernating, grizzlies utilize a variety of habitats within their home range to take advantage of seasonably available food sources. Grizzly bears consume a wide variety of foods including berries, grasses, sedges, roots, fish, small mammals, and moose and caribou (primarily calves). Population and local densities vary depending on the productivity of the habitat and seasonal availability of forage and prey. The current condition of grizzly bear habitat in the planning area has not been quantified. For the most part, the habitat is in a natural condition.

Grizzly bears occur at low densities throughout the planning area. In Unit 20(E), grizzly bear density was recently estimated by sampling hair with barbed wire at baited sites. Fifty six bears were sampled, resulting in an estimated density of 11–13 bears/1,000 square kilometers. Bears were least abundant at stations within recently burned areas (Gardner et al. 2007). Harvest of bears in the planning area is generally low.

Black Bear

Black bears occur throughout the planning area and typically prefer forested habitats. Within the White Mountains NRA and Steese National Conservation Area, black bears occur in higher densities in areas adjacent to Yukon Flats NWR (where black bears are abundant), including the Victoria Creek, Lower Beaver Creek, and the Crazy Mountains, and low densities elsewhere. Black bears may be relatively abundant in portions of the Upper Black River Subunit. Hobgood (1991) reported abundant black bear sign along the Salmon Fork of the Black River. Black bears utilize any available habitats within their home range, taking advantage of seasonally available food sources. They are opportunistic foragers and will readily consume whatever is available including green vegetation, berries, ungulates neonates, fish, insects, and carrion; however, freshly sprouted green vegetation composes the majority of their diet (ADF&G 1994). The current condition of black bear habitat in the planning area has not been quantified. For the most part, the habitat is in a natural condition.

Gray Wolf

In general, wolves are found throughout the planning area, but are more abundant in areas where numbers of prey species are greater. They are carnivorous, and in most of Alaska, moose and caribou are their primary food. During summer, small mammals including voles, lemmings,

ground squirrels, snowshoe hares, beaver and occasionally birds and fish supplement their diet (ADF&G 1994 wildlife notebook). Wolf populations are limited by prey species abundance, and in some areas by human harvest (such as the Fairbanks area) or direct control activities. ADF&G estimated the population of wolves in Unit 25(C) to be 75 to 125 individuals in 10 to 20 packs and 252 to 313 wolves in 26 to 42 packs in Unit 20(E) during the 2004–2005 regulatory year.

Wolf populations in Unit 20(E) have been the subject of several population control actions. In 1997–2001, non-lethal sterilization of adult males and females with capture and movement of subadults out of the area was conducted in the calving range of the Fortymile caribou herd. A program of lethal control was later begun with the creation of the Fortymile Predator Control Area. It allows private pilot/gunner teams to shoot wolves from the air under permit from the ADF&G. Beginning in 2005, the Fortymile Predator Control Area was expanded to include the South Fork of Birch Creek in the Steese National Conservation Area and expanded again later to include all of the south unit of the Steese National Conservation Area. Due to limited harvest by private pilot/gunner teams, ADF&G utilized helicopters to reduce wolf numbers in the Fortymile Predator Control area, beginning in March 2008. The remainder of the planning area supports lightly harvested wolf populations, which presumably fluctuate largely with populations of prey.

Wolf numbers will fluctuate with numbers of prey (primarily caribou and moose), except in predator control areas. Dog lice was diagnosed in Unit 20(A) south of Fairbanks in 2004. If dog lice infestation becomes prevalent in wolves in the planning area, wolf populations may be affected to an unknown degree. In predator control areas, wolf populations will likely recover quickly (following the cessation of control efforts) through high reproduction rates and immigration from surrounding areas. Wolf and other predator abundance is related in complex fashion to human harvest, prey abundance and vulnerability, and (ultimately) prey habitat quality.

Furbearers

Furbearers include those species of mammals that are routinely sought by licensed trappers who place commercial value on the animals' pelts. Furbearers found in the planning area include beaver, red fox, lynx, marten, mink, muskrat, river otter, coyote, wolverine, and wolf. Most furbearer harvest (by both hunting and trapping) in the planning area is by subsistence and recreational users, or is done opportunistically while engaged in other activities. Definitive species population and distribution information is not available, and consequently population managers rely upon annual trapper harvest reports and opinions, and field observations by agency personnel to gauge furbearer status and trend information. Reporting of harvest is required for only a few species, including lynx, river otter, wolf, and wolverine. Furbearer harvest monitoring is generally at a level of intensity sufficient to monitor and ensure harvest is not severely depressing populations.

Wolverines are generally distributed throughout Interior Alaska, except in the vicinity of Fairbanks (Gardner 2007). Wolverines have extensive home ranges (50–240 mi^2) and occupy a variety of habitats (ADF&G 1994). A survey for presence/absence of wolverine across most of the planning area was conducted in 2006 (Gardner 2007). Wolverine were detected in most units across the survey area, with the exception of a large block of units around Fairbanks, Nenana, and south to the Alaska Range. Reported wolverine harvest in units 25(B), 25(C), and 20(E) has averaged 10, 1.4, and 5.9 per year for the nine years from 1997–1998 through 2005–2006 regulatory years.

Once found throughout northern North America, Canada lynx were federally listed in 2003 as a threatened species in the northern Rocky Mountains of the Lower 48. In Alaska and Canada, lynx are widespread and considered a legal furbearer, and are actively sought by trappers. Lynx are

found throughout the planning area where suitable habitat and snowshoe hare populations exist. The primary prey of lynx in most areas is the snowshoe hare, which undergoes an 8–11 year cycle of abundance. Lynx populations follow snowshoe hare cycles. Other small prey, such as grouse, ptarmigan, squirrels, and microtine rodents are regularly taken. Harvest is believed to have limited effect on lynx population trends. When hares are scarce, lynx use other food sources more extensively (ADF&G 1994). Total reported harvest in the nine-year period (1997–98 through 2005–06 regulatory years) averaged 170 lynx annually in Unit 25(B), 13 in 25(C), and 63 in 20(E).

The river otter is widely distributed across Interior Alaska. River otter tracks are commonly observed on sections of Beaver Creek in the White Mountains NRA in winter. No population estimates or trend analysis for river otters in the planning area are available. Harvest of otters is rare throughout the planning area (ADF&G 2007).

The beaver is widely distributed throughout forested areas of Alaska. Water environments greater than two to three feet of depth are necessary to sustain a beaver during the entire year (ADF&G 1994). Boyce (1974) compared a lightly harvested beaver population on lower Birch Creek and a heavily harvested population on the Chena river. Both rivers had population densities of nearly 0.5 colonies/km.

Marten are found throughout forested habitats of Interior Alaska. Marten are the focus of most trapping effort in units 25(C) and 20(E) due to their relative abundance and fur value. Trapper questionnaire returns (which are voluntary and so report only a fraction of actual harvest) report harvest of seven, 139, and 162 marten in Units 25(B), 25(C), and 20(E) in the 2004–2005 regulatory year.

Coyotes remain generally uncommon in the planning area, but have increased in number in Interior Alaska in recent years. They have been noted with increasing frequency since the early 1990s in the southern portions of the White Mountains NRA by BLM recreation staff (Tim DuPont, pers. comm.)

Red fox range widely throughout Alaska except for some southeast islands, the western Aleutians, and Prince William Sound. The red fox has an omnivorous diet composed of small mammals, birds, eggs, insects, vegetation, and carrion, but prefer voles (ADF&G 1994).

Muskrat are found throughout Alaska's mainland, except the Arctic Slope north of the Brooks Range. Preferred muskrat habitat is not common on BLM lands in the planning area. No specific information is available on population sizes or trends for muskrat.

Mink are found throughout Alaska, except on Kodiak Island, the Aleutian Islands, the offshore islands of the Bering Sea, and most of the Arctic Slope. Little is known of the status of mink in the planning area. Within ADF&G region III, 127 mink were reported harvested in 2004–2005 regulatory year in trapper questionnaires, but none in units 25(B), 25(C), or 20(E).

Since furbearer species occupy a wide variety of habitats, it is difficult to generalize on habitat condition. However, almost all of the planning area is in a natural state and human harvest is regulated. In general, important furbearer populations such as marten and lynx are benefited by periodic wildland fire due to positive effects on small prey populations.

Alpine Small Mammals

Hoary marmot and pika occur in alpine habitats in the Yukon-Tanana Uplands, but apparently not in the Black River Subunit. Arctic ground squirrels are notably absent from the Yukon-Tanana

Uplands alpine habitats; this absence may have a major influence on ecology and abundance of predators relative to other alpine areas of Alaska.

Birds

All birds which occur in the planning area are classified as migratory birds under the Migratory Bird Treaty Act, with the exception of ptarmigan and grouse (which are classified as game birds). In the planning area, game birds include rock and white-tailed ptarmigan, and ruffed, spruce, and sharp-tailed grouse.

Raptors-Birds of Prey

Numerous species of raptors inhabit the planning area including: golden and bald eagle, peregrine falcon, osprey, gyrfalcon, northern harrier, American kestrel, merlin, sharp-shinned hawk, northern goshawk, rough-legged hawk, great horned owl, great gray owl, northern hawk owl, short-eared owl and boreal owl. All are classified as migratory birds, but some remain resident through the year, including gyrfalcon and several owls (great horned, great gray, hawk and boreal). Since these species occupy a wide variety of habitats, it is difficult to generalize on habitat condition. However, most of the planning area is in a natural state, and permitted activities are concentrated in localized areas.

Golden eagle are present throughout the planning area, but in low numbers, perhaps because of the lack of Arctic ground squirrels, an important prey species. Nesting golden eagles in the White Mountains NRA and Steese National Conservation Area are rare (Herriges unpublished data). Bald eagles nest along the major rivers in the planning area, including Beaver Creek, Birch Creek, Fortymile River, and Salmon and Grayling forks of the Black River. Bald and golden eagles are protected by the Bald and Golden Eagle Protection Act. Osprey are uncommon in the planning area, but apparently increasing.

The Peregrine falcon was removed from the endangered species list in 1999, following recovery from a continent-wide decline. Peregrines occur scattered throughout the planning area, but are most abundant along river bluffs in the Fortymile WSR and Birch Creek WSR Corridors. Nesting habitat generally consists of bluffs or cliffs adjacent to water, however nests at higher elevation sites away from water have been observed in the White Mountains NRA. In the middle Birch Creek drainage (Clum's Fork and below to the Steese Highway) there have been approximately 25 nest sites documented, with roughly 75 percent occupied in a year (Ritchie and Shook 2003). Along 117 miles of the Fortymile River, Shook and Ritchie (2007) counted 30 pairs and six single peregrine falcons in 2006. These are the areas of highest peregrine nest site density on BLM-managed lands in the planning area, but populations also inhabit Beaver Creek, Preacher Creek, and scattered bluffs in the Upper Black River subunit. Population levels may have reached the point where most suitable nesting territories are occupied.

Peregrine falcons have been generally increasing in range and abundance over the past 20 years within the planning area. Monitoring of American peregrine falcon occupancy and productivity has been conducted in the Fortymile Wild and Scenic River six years within the period 2000–2008. Number of nesting pairs has increased from 14 pairs in 2004 to 29 pairs in 2008. An increase in occupancy of irregular territories (those used 20 to 80 percent of years monitored) since 2000 indicates that the population in the Fortymile is increasing. An increase in the presence of floaters (single adults) in the Fortymile River is also an indicator of an increasing population (R. Gronquist, pers. comm.).

Waterfowl and Other Wetland Birds

Within the planning area, there is scattered wetland habitat that is used by a variety of ducks, geese, swans, loons, grebes, and shorebirds. Open water wetlands are uncommon on BLM lands. Smaller concentrations of wetlands occur in lower elevations of the Black River Subunit, Mosquito Flats (Fortymile subunit) and around lower Birch Creek near Circle (Steese subunit). Since these species occupy a wide variety of habitats, it is difficult to generalize on habitat condition. However, most of the planning area is in a natural state and permitted activities are concentrated in localized areas.

Passerine (perching) Birds

The University of Alaska Museum lists 487 passerine species positively identified in Alaska (Gibson et al. 2009). Many of these species occur in the planning area. Because of the variety of habitats preferred by the many species of birds that migrate to Alaska each year, migratory birds are known to occupy every habitat type within the planning area, including riparian, wetland, forest, shrub, and alpine tundra. Given Alaska's short summers, the success of breeding birds depends greatly on their ability to locate suitable nesting habitat in a timely fashion, endure infrequent adverse weather conditions, evade predators, and avoid disruption of their normal routine. Suitable nesting habitat is especially critical to the success of breeding birds, as it enables them to meet the specific needs of rearing young while expending as little energy as possible in the process. Migratory birds that are considered Special Status Species are considered in further detail under section 3.2.7 Special Status Species. Since bird species occupy a wide variety of habitats, it is difficult to generalize on habitat condition. However, most of the planning area is in a natural state, with only localized areas of disturbance.

Bird Species of Conservation Concern

Bird Species of Conservation Concern include BLM-sensitive birds (discussed in section 3.2.7.2 Special Status Species sections), species listed by the U.S. Fish and Wildlife Service (USFWS 2008c) as Bird Species of Conservation Concern in Bird Conservation Region 4 (BCR4), Alaska Shorebird Conservation Plan "priority" species, Waterbird Conservation Plan for the Americas "high risk" species, Boreal Partners in Flight (BPIF) "priority" species, or North American Waterfowl Management Plan "high" or "moderately high" continental priority species. BLM interim guidance (IM 2008–2050) has directed BLM planners to consider these bird species of concern during the planning process. These species are listed in Table 3.17, "Bird Species of Conservation Concern in the Eastern Interior Planning Area". These species are designated for a variety of reasons, including small population or range size, declining populations, or susceptible or disturbed habitat.

Table 3.17. Bird Species of Conservation Concern in the Eastern Interior Planning Area

Bird Species	BLM AK[a]	USFWS BCR4[b]	AK SWCS[c]	BPIF[d]	Conservation Plans[e]
Gray-cheeked Thrush				Priority	
Olive-sided Flycatcher	Sensitive		featured	Priority	
Trumpeter Swan	Sensitive				
Blackpoll Warbler	Sensitive		featured	Priority	
Townsend's Warbler			featured	Priority	
American Peregrine Falcon		BCR4	featured		

Bird Species	BLM AK[a]	USFWS BCR4[b]	AK SWCS[c]	BPIF[d]	Conservation Plans[e]
Golden Eagle	Sensitive				
Buff-breasted Sandpiper			featured		Priority
Smith's Longspur			featured	Priority	
Rusty Blackbird	Sensitive		featured	Priority	
Solitary Sandpiper		BCR4	featured		Priority
Short-billed Dowitcher[f]		BCR4			Priority
Hudsonian Godwit[f]		BCR4			Priority
Short-eared Owl	Sensitive		featured		
Arctic Tern			featured		High Risk
Whimbrel[f]		BCR4			Priority
Horned Grebe		BCR4			
Lesser Yellowlegs		BCR4			Priority
Upland Sandpiper		BCR4			Priority
American Golden Plover					Priority
Surfbird					Priority
Mallard					High Priority
Lesser Scaup					High Priority
Northern Pintail					High Priority
American Wigeon					Mod.High Priority
Canvasback					Mod.High Priority
Redhead					Mod.High Priority
Common Goldeneye					Mod.High Priority
Long-tailed Duck			featured		Mod.High Priority
Black Scoter					Mod.High Priority
White-winged Scoter					Mod.High Priority
Surf Scoter					Mod.High Priority
Gyrfalcon				Priority	
Sharp-tailed Grouse				Priority	
American Dipper				Priority	
Northern Shrike				Priority	
White-winged Crossbill				Priority	
Bohemian Waxwing				Priority	
Black-backed Woodpecker				Priority	
Boreal Owl				Priority	
Varied Thrush				Priority	
Hammond's Flycatcher				Priority	
Great Gray Owl				Priority	
Golden-crowned Sparrow[f]				Priority	

[a]Species listed by BLM in AK as sensitive.

[b]Species listed as a Bird of Conservation Concern in Bird Conservation Region 4 (interior AK) (BCR4).
[c]Species listed in the Alaska State Wildlife Conservation Strategy (SWCS) as a featured species.
[d]Species listed by the Alaska Boreal Partners in Flight as Priority Species in AK.
[e]Alaska Shorebird Conservation Plan Priority Species, Waterbird Conservation Plan for the Americas High Risk Species, or North American Waterfowl Management Plan High or Moderately High Continental Priority Species
[f]Not likely found in planning area in significant numbers

3.2.5. Non-Native Invasive Species

Non-native invasive species include pathogens, plants and animals. Many non-native invasive plant (invasive plant) species occur within the planning area. Extensive inventory has been completed within and adjacent to some of the planning subunits, especially along the Steese, Elliott and Taylor highways and areas disturbed by mining and recreation. Most of the invasive species occur in disturbed areas such as along roadsides and within communities. Invasive species also occur in association with disturbances from placer mining, recreation, road repair and gravel extraction. Recently the aquatic invasive plant *Elodea nuttalii* has been documented in the planning area in the Chena River drainage and the human-made Chena Lake, which is a popular recreation site. Most of these species come from South America, Europe, Asia, or Russia. These plants were usually imported, either intentionally for their perceived value to humans, or inadvertently as contaminants in other products.

The term non-native invasive plant(s) or the invasive plants will used in this document to describe plants that are not native plants of Alaska. The term “weed” is commonly used, but is often applied to both native and non-native vegetation, and is considered any plant that is growing where it is undesirable.

Of the invasive plants in the planning area, some may be classified as noxious plants. In BLM's national plan, *Partners Against Weeds, An Action Plan for the Bureau of Land Management*: a “noxious weed” is defined as “a plant that interferes with management objectives for a given area of land at a given point in time” (BLM 1996). The Alaska Land Health Standards and Guidelines (BLM 2004c) define noxious weed as “an undesirable plant because it is of no forage value (or toxic), or is capable of invading a community and replacing native species.” federal laws require that certain actions be taken to manage listed “noxious weed” species.

Some of the potential consequences of invasive plants include effects on: Productivity of native rangelands; diversity of native plant and animal species; range and population of special status plants; habitat structural diversity; soil biological crusts; scenic values; tourism; recreation; and in some cases, human health and safety. Invasive plants degrade these uses and values by displacing native plant species, decreasing soil stability, and disrupting natural processes such as soil/water interactions, fire frequency and intensity, nutrient cycling, and energy flow.

The magnitude of the invasive plant problem in Alaska is minor compared to other western states, however, active monitoring and control, especially early detection and rapid response, are important to keep invasive plant distribution and introduction from expanding. All western states except Alaska provide annual funding and statutory support for a state agency to conduct invasive plant management. Alaska does provide statutory support for management activities through AS 03.05.010 and AS 44.37, which authorize the ADNR, Division of Agriculture, to prevent the importation and spread of invasive plants that are injurious to public interest and for the protection of the agricultural industry. Statutory support is expanded in AAC Title 11 Chapter

34 with regulations for noxious weed control and rules for the establishment of quarantines, inspections, noxious weed lists, and control measures.

Most states have developed lists of prohibited or regulated noxious and invasive plant species. Alaska Administrative Code Title 11 34.020 lists prohibited and restricted noxious weeds, but refers to prohibitions against the presence of the seeds of these species in seed for commercial sale and was developed for agriculture. The list was not developed to provide for management of invasive plants on public lands. There is also a federal noxious weed list (7 CFR 360). Currently BLM Alaska does not have a list of noxious plant species.

Inventory of non-native invasive plants was conducted on disturbed areas within the Steese National Conservation Area and White Mountains in 2002 and 2003 respectively. Additional surveys in and adjacent to burned areas were conducted within these two planning subunits in 2005. The Alaska Natural Heritage Program (AKNHP) conducted inventories in 2005 along parts of the Steese and Elliott highways. In 2006 and 2007, AKNHP was contracted to inventory and monitor for invasive plants along the Steese Highway in and adjacent to areas burned by wildland fire in 2004 and 2005. Limited surveys were conducted by the BLM in and adjacent to wildland fires in remote areas and along the Taylor Highway in 2005 and 2006. The AKNHP conducted surveys along the Taylor Highway during 2006 and 2007. Table 3.18, "Non-native Invasive Plants in the Steese and White Mountains Subunits 2002–2007, and Fortymile Subunit 2005–2007" lists all invasive plant species detected within the planning area during these surveys.

Non-native invasive insect species have been detected in Alaska, most notably forest pests. Currently, no serious non-native invasive plant pathogens occur in Alaska. No known invasive terrestrial or aquatic animals have been detected in or adjacent to the planning area.

Table 3.18. Non-native Invasive Plants in the Steese and White Mountains Subunits 2002–2007, and Fortymile Subunit 2005–2007[a]

Scientific Name	Common Name	Steese and White Mountains Subunits	Fortymile Subunit
Achillea millefolium L. sens. str	common yarrow	X	X
Bromus inermis Leyss.	smooth brome	X	X
Capsella bursa-pastoris (L.) Medik.	shepherd's purse	X	X
Chenopodium album L.	lamb's quarter	X	X
Collomia linearis	tiny trumpet	X	X
Crepis tectorum L.	annual hawksbeard	X	X
Elymus repens	quackgrass	X	X
Elymus sibiricus L.	Siberian wild rye	X	X
Erysimum cheiranthoides L. subsp. *Chei*	wormseed mustard	X	X
Hieracium umbellatum	Narrow-leaf Hawkweed	X	X
Hordeum jubatum L.	foxtail barley	X	X
Lepidium densiflorum Schrad	common peppergrass	X	X
Lolium perenne L.	perennial rye grass	X	X
Matricaria discoidea DC	pineappleweed	X	X
Melilotus alba Medikus	white sweetclover	X	X
Melilotus officinalis (L.) Lam.	yellow sweetclover	X	X
Phalaris arundinacea	Reed Canary Grass	X	X
Plantago major L. var. *major*	common plaintain	X	X
Poa angustifolia L.	Kentucky bluegrass	X	X
Poa annua L.	annual bluegrass	X	X

Scientific Name	Common Name	Steese and White Mountains Subunits	Fortymile Subunit
Poa compressa L.	Canada bluegrass	X	X
Poa pratensis L.	bluegrass	X	X
Poa subcoerulea Sm.	spreading bluegrass	X	X
Polygonum aviculare L.	knotweed	X	X
Polygonum convolvulus L.	black bindweed	X	X
Prunus padus L.	European birdcherry	X	X
Rumex longifolius DC.	garden dock	X	X
*Sonchus arvensis*L. ssp. *uliginosus* (Bieb.) Nyman	perennial sowthistle	X	X
Spergularia rubra (L.) J.& K. Presl	purple sand spurry	X	X
Tanacetum vulgare L.	common tansy	X	X
Taraxacum officinale Weber	common dandelion	X	X
Trifolium hybridum L.	alsike clover	X	X
Trifolium pratense L.	red clover	X	X
Vicia cracca L.	bird vetch	X	X
Viola tricolor L.	johnny jumpup	X	X
Lappula squarrosa	European stickweed		X
Medicago falcata L.	yellow alfalfa		X
Potentilla norvegica L.	Norwegian cinquefoil		X
Tripleurospermum perforata (Merat) M. Lainz	scentless false mayweed		X

[a]Species listed are those that occur in the survey area and are listed by AKNHP as non-native plants of Alaska, last updated 2006.

3.2.6. Soil Resources

Most soil resources in the planning area are largely in natural condition with minimal human-made disturbance. The planning area is sparsely populated with few commercial facilities or roads, and no large-scale commercial crop, livestock, or grazing activity. Extensive wildland fires during the summers of 2004 and 2005 burned substantial acreage in Interior Alaska. The 2004 fire season was the worst on record in Alaska, approximately 6.5 million acres burned, with the majority of the large wildland fire activity occurring in central and eastern Interior Alaska (National Climatic Data Center, 2004). Minor debris flows and land slides were observed on steep slopes in burn areas. New growth vegetation appears to have increased soil stability in selected areas. Although there are limitations on OHV use, increased hunting and recreational activities have adversely impacted soils in areas near the Steese and Taylor highway corridors. The major soil resource management concerns are soil subsidence, thermokarst, compaction, puddling, and erosion; especially in permafrost areas where the insulating organic material has been severely damaged or removed.

Soils in the planning area have been surveyed on a very broad scale in the *Exploratory Survey of Alaska* (USDA 1979). Most detailed soil surveys for Interior Alaska have been conducted near Fairbanks and Delta along the southwest border of the planning area (USDA 2004, USDA 1973). Soils surveys including ecological site descriptions in the Steese National Conservation Area and White Mountains NRA were begun in 2010 by the Natural resources Conservation Service (NRCS) at a scale of 1:63,360 (Order 3-4) and the field work is scheduled for completion in 2015. At least three soil orders are found in the planning area: Entisols, Gelisols, and Inceptisols. Brabets et al. (2000) described these soils and their respective suborders in their environmental and hydrologic review of the Yukon River watershed, which encompasses the planning area.

Common parent materials, from which Interior Alaska soils form, include weathered bedrock, lake sediments, glacial deposits, eolian (wind deposits), and alluvium (stream sediments). Extensive deposits of loess from the glacial-fed Yukon and Tanana rivers occur in the planning area. Loess consists mainly of silt and very fine sand transported by wind from exposed sediment deposits of braided rivers. Thickness of loess deposits can exceed nine feet adjacent to rivers and decreases gradually over 10 to 20 miles from the rivers (Mulligan 2005). Isolated masses of ground ice occur in deep loess deposits on terraces and lower sideslopes of hills. In some areas, the formation of deep, steep-walled pits (thermokarst) may be caused by the melting of underground masses of ice. Extensive areas of sand dune deposits occur between the Yukon and Tanana rivers. Widespread alluvial, lacustrine, and eolian deposits occur in the Yukon Flats area.

According to Ping et al. (2006) most Interior Alaska soils are poorly developed because the cold climate impedes most soil-forming processes, except organic matter accumulation, and leads to the formation and preservation of permafrost. Decomposition is extremely slow in cold wet soils; chemical weathering to form clay minerals occurs at a negligible rate; and cryoturbation of soils counteracts typical soil profile development. Soil characteristics tend to vary with topography and slope-aspect. In the uplands, permafrost underlies most of the north slopes and most toe slopes of south-facing slopes. The well-drained and relatively warm soils of upland south-aspect slopes are generally permafrost-free with deeper and more mineral-dominated soils than those on north aspect slopes. In the lowlands, permafrost underlies much of the landscape except major river terraces, alluvial fans, and active floodplains.

Regardless of parent material, the wet and cold conditions found on north-facing slopes and lowlands slow the decomposition rate of organics, resulting in accumulation of organic matter, which insulates and preserves underlying permafrost. Permafrost thickness exceeds 200 feet in selected Fairbanks locations (Williams, 1970). Perennially frozen soil creates many engineering problems. Removal of the insulating surface organic layer for these soils causes thawing in the upper part of the permafrost. This is commonly accompanied by subsidence of the overlying soil. Roads and structures on these soils may settle unevenly. Soils are nearly always saturated in summer in the zone above permafrost; hydrophilic vegetation is prevalent.

3.2.7. Special Status Species

3.2.7.1. Introduction

BLM Special Status Species include species listed or proposed for listing under the Endangered Species Act (ESA) and species which are designated as BLM Alaska sensitive species by the State Director. Currently, there are no Threatened, Endangered, or proposed species which occur in the planning area (Memo from USFWS Fairbanks Field Office to BLM, June 2008). Should any species within the planning area be listed in the future, the requirements of BLM policy (BLM 2008a) will be followed, including the need for consultation under Section 7 of the ESA. Therefore, no further discussion or analysis of this category of Special Status Species is provided.

The emphasis of Special Status Species management by the BLM will be an ecosystem management approach that will attempt to reduce the likelihood that any native species be elevated to BLM sensitive species status. Additionally, this approach will initiate proactive conservation measures that reduce or eliminate threats to existing BLM Alaska sensitive species, to minimize the likelihood of a species being listed under the ESA.

BLM Alaska has utilized the ranking system developed by the Alaska Natural Heritage Program (AKNHP) and The Nature Conservancy, plus an international network of natural Heritage Programs and Conservation Database Centers which assess state and global rarity, for assistance in developing Special Status and sensitive species lists for Alaskan plants and animals. A brief overview of the global and state ranking criteria is given in Table 3.21, "Alaska Natural Heritage Program, Global and State Ranking Criteria " at the end of this section.

The discussion in these sections is based on the 2010 BLM Alaska Sensitive Species List (IM AK-2010-018) and is focused on those species known or likely to occur in the planning area. The complete list of BLM Alaska sensitive species is found in Appendix K, *BLM Alaska Sensitive Species*.

BLM Alaska Watch List species are species for which data is insufficient to satisfy sensitive species eligibility criteria. They should be emphasized for inventory, monitoring, and research as funding and time allow and should be re-evaluated during subsequent sensitive species list revisions. A few watch species of note are discussed in the following sections.

3.2.7.2. Animals

BLM Alaska sensitive and watch animal species that are known or likely to occur in the planning area are listed in Table 3.19 below.

Table 3.19. BLM Sensitive Species and Watch List Species (2010) Known or Likely to Occur in the Eastern Interior Planning Area

Type	Scientific Name	Common Name	G Rank [a]	S Rank[a]	List
Fish	*Lampetra alaskensis*	Alaskan Brook Lamprey	G3Q	S3	Sensitive
Insect, Aquatic	*Rhithrogena ingalik*	Alaska Endemic mayfly	G1G3	S1S3	Sensitive
Insect, Aquatic	*Acentrella feropagus* [b]	A mayfly	G3	SNR	Sensitive
Insect, Aquatic	*Alaskaperla ovibovis*	Alaska Sallfly	G3	SNR	Sensitive
Mammal	*Spermophilus parryii osgoodi*	Osgood's Arctic ground squirrel	G5T3	S3	Sensitive
Mammal	*Sorex yukonicus*	Tiny shrew	GU	S3	Sensitive
Bird	*Cygnus buccinator*	Trumpeter Swan	G4	S3S4B, S3N	Sensitive
Bird	*Contopus cooperi*	Olive-sided Flycatcher	G4	S3S5B	Sensitive
Bird	*Euphagus carolinus*	Rusty Blackbird	G4	S3S4B	Sensitive
Bird	*Aquila chrysaetos*	Golden Eagle	G5	S4B, S3N	Sensitive
Bird	*Asio flammeus*	Short-eared Owl	G5	S4B	Sensitive
Bird	*Dendroica striata*	Blackpoll Warbler	G5	S4B	Sensitive
Bird	*Limosa haemastica*	Hudsonian Godwit	G4	S3B	Watch
Bird	*Tryngites subruficollis*	Buff-breasted Sandpiper	G4	S2B	Watch
Bird	*Gavia stellata*	Red-throated Loon	G5	S4BS4N	Watch
Fish	*Oncorhynchus tshawytscha*	Chinook Salmon (Beaver Creek)	G5	S4	Watch

[a]These rankings are explained in detail in Table 3.21, Alaska Natural Heritage Program, Global and State Ranking Criteria

[b]These species have not been documented in the planning area, but their known distribution suggests they are likely found there.

3.2.7.2.1. Sensitive Animals in the Planning Area

Alaskan brook lamprey *Lampetra alaskensis* G3Q S3

This species is found in the Chatanika and Chena rivers within the planning area, but are not yet known to occur on BLM-managed lands. The collection location in the Chatanika is near the Elliott Highway bridge, which is very close to the Beaver Creek drainage in the White Mountains NRA. The lamprey is a non-parasitic, freshwater species that is gray-brown on the back and white underneath, with a dark blotch on the second dorsal fin and a dark tail (ADF&G 2004). Alaskan Book Lamprey have blunt teeth and measure five to seven inches as adults. They spawn in spring and summer in shallow areas of streams and sometimes lakes. After spending four years as ammocoetes, these lampreys metamorphose to adults in the fall.

Alaska endemic mayfly *Rithrogena ingalik* G1G3 S1S3

This insect is known from only from a single specimen collected on Birch Creek about 10 miles upstream of the Steese Highway bridge at mile 147. However, because it is only identified using characteristics of adults (which are not often collected), it likely occurs more widely. Additional inventory is needed. Mayflies are highly sensitive to changes in water quality (e.g., contamination by heavy metals and organic pollutants; changes in pH; and, sedimentation and turbidity) (Gaufin 1973, Milner and Oswood 1989, McCafferty 1998). In the Birch Creek area, mined streams have higher levels of turbidity, settleable solids, percent substrate embeddedness, and nonfilterable residue than unmined streams (Wagener 1984) — all of which can alter water quality.

A mayfly *Acentrella feropagus* G3G4 SNR

Waltz and McCafferty (1987) list the two locations of this species in Alaska as “Atigua River” (presumably meaning Atigun River) and “Alaska, South Slope, Yukon River System,” which Randolph and McCafferty (2005) place in the Yukon-Koyukuk county. This latter region includes much of Interior Alaska, including the northern portion of the planning area. “South Slope” likely refers to the south slope of the Brooks Range, which is outside the planning area. The ambiguity of these accounts and the lack of inventory leave questions as to whether this mayfly occurs in the planning area. Inventory efforts will be needed to define the distribution and rarity of this species in Alaska and the planning area.

Alaska sallfly *Alaskaperla ovibovis* G3 SNR.

This rare species of stonefly (an aquatic insect) occurs in northwestern North America in Alaska, British Columbia, Northwest Territories, and the Yukon Territory (Stewart and Oswood, 2006), but is known from few occurrences. In Alaska, it is known from Deering (Seward Peninsula), Logging Cabin Creek (Fortymile River), Moose Creek (near Glennallen), and West Fork Dennison Fork of Fortymile River (Stewart and Oswood 2006).

Osgood's Arctic ground squirrel *Spermophilus parryii osgoodi* G5T3 S3

This subspecies of the Arctic ground squirrel is known only from the Circle and Fort Yukon areas. It is limited to low elevation open meadows/south facing slopes, and recently burned areas in predominately forested landscape (NatureServe 2009). The subspecies may occur on BLM lands near Circle.

Alaska tiny shrew *Sorex yukonicus* GU S3

This is a newly described species of shrew endemic to Alaska. It appears widespread but scarce across Alaska. Tiny shrews are found in a wide range of forested and non-forested habitats, with riparian scrub the most common habitat (MacDonald and Cook 2009). Occurrences of this species have been documented in the Twelvemile Summit area of the Steese National Conservation Area and in several locations in Yukon Charley Rivers National Preserve, not far from BLM lands to the north in the Upper Black River subunit.

Trumpeter swan *Cygnus buccinator*

Because of the remote nature of their preferred habitat in Alaska, trumpeter swans have been relatively unaffected by human development in Alaska. During a 2005 census, the swans were found to number over 23,000 statewide (Conant et al. 2007). Trumpeter swans breed widely throughout central and southern Alaska south of the Brooks Range and east of the Yukon-Kuskokwim delta (Mitchell 1994). Trumpeter swan pairs have been observed nesting on sloughs of Beaver Creek in the White Mountains NRA and Birch Creek in the Steese National Conservation Area, as well as on wetlands between Central and the Yukon River. During the 2005 survey of high-potential swan habitat in Alaska (only portions of the planning area), a total of 7787 groups of swans were observed. Approximately 29 groups were observed on BLM lands in the following areas: 18 groups in the Mosquito Flats area in the Fortymile Subunit, three groups near Circle in the Steese subunit, two groups near Circle in the Upper Black River subunit, and six groups in the Black River drainage. Very little of the White Mountains subunit was surveyed.

Olive-sided flycatcher *Contopus cooperi*

This bird breeds at low densities throughout the coniferous boreal and coastal forests of Alaska, including central, southcentral, southeast, and occasionally western Alaska (Armstrong 1995 in ADF&G 2005). They are frequently associated with relatively open boreal forest (Kessel and Gibson 1978) and are often associated with openings such as meadows, muskegs, burns, logged areas and water (such as streams, beaver ponds, bogs, and lakes; Altman 1997 in ADF&G 2005). In Alaska, a population decline of 2.1 percent per year occurred from 1980–2003, based on data from 53 survey routes (AKNHP 2006). The Alaska population is approximately 273,600 birds or about 25 percent of the estimated global population of 1,200,000 (ADF&G 2005). Factors in the decline may include habitat loss or alteration in both wintering and breeding grounds, changes in availability of prey species, exposure to pesticides, and exclusion of fire (Altman and Sallabanks 2000). Habitat concerns include logging, salvage logging associated with beetle infestations, and fire suppression (ADF&G 2005). Two to eight olive-sided flycatchers have been detected annually on two Breeding Bird Surveys conducted along the Steese Highway adjacent to the Steese National Conservation Area and White Mountains NRA (R. Gronquist, pers. comm. 2009) and the bird is found in all subunits.

Rusty blackbird *Euphagus carolinus*

The Rusty Blackbird was found throughout most of mainland Alaska south of the Brooks Range where it is highly dependent upon boreal wetlands for breeding. In Alaska, the bird favors open habitat near water, with a preference for nesting in tall shrubs. The Rusty Blackbird also prefers moist woodland (primarily coniferous), bushy bogs, and wooded edges of water courses AKNHP (2006).

The Rusty Blackbird has undergone a major rangewide decline in numbers. A North American Breeding bird survey-wide decline of 10.3 percent per year from 1966 through 2004, is mirrored by a 5.2 percent per year decline in Alaska. The loss of wooded wetlands on breeding grounds is

thought to be a major factor in the decline. Habitats in Alaska are generally largely intact and not directly disturbed by development. However, climate change and associated degradation of permafrost and drying of ponds and lakes could result in loss of key breeding habitats. Habitat could also potentially be affected by activities that alter wetland habitats such as placer mining or fire management practices (AKNHP 2006).

Golden eagle *Aquila chrysaetos*

The golden eagle breeds throughout most of Alaska, with the exception of a few places in the far north, and in the southcoastal and southeastern regions of the state. Range-wide, it is found most frequently in open, non-forested or thinly forested habitats (Kochert et al. 2002); it occurs in low densities throughout the planning area. The golden eagle feeds mainly on mammalian prey, but is an opportunistic predator. Principal prey species in Alaska include small mammals such as hares and Arctic ground squirrels (Poole and Bromley 1988). Arctic ground squirrels are absent from most of the planning area, which may limit golden eagle populations. Golden eagles nest primarily in cliffs, but also occasionally nest in trees, on river banks, and on the ground (Kochert et al. 2002). The species is protected by the Bald and Golden Eagle Protection Act. Although little is known of population trends in Alaska, populations in North America are thought to be declining (USFWS 2008c). As a result, regulations being formulated to implement the Bald and Golden Eagle Protection Act will be very strict in limiting take of golden eagles. The USFWS will only authorize programmatic take permits that result in "no net loss to the breeding population" (50 CFR Parts 13 and 22), and no individual take permits are being issued at this time.

Short-eared owl *Asio flammeus*

The short-eared owl is widespread throughout the state in open lowland habitat in summer, except southeast Alaska. In general, any area that is large enough, has low vegetation with some dry upland for nesting, and that supports suitable prey (primarily small rodents) may be considered potential breeding habitat, although many will not have breeding short-eared Owls. The nomadic nature of this species (concentrate in areas and times of high prey abundance) makes them difficult to census. The species has undergone a significant long-term downward population trend: the estimated 1980–2003 trend for Canada was -9.7 percent per year and in the U.S. was -4.3 percent per year. (AKNHP 2008).

Blackpoll warbler *Dendroica striata*

The Blackpoll warbler is common in central Alaska; less common in eastcentral Alaska. Nests predominantly along rivers, streams, or bogs in deciduous forests and tall shrub thickets (especially Salix alaxensis and Alnus incana) sometimes with a sparse spruce (particularly in central Alaska) or mixed spruce-paper birch overstory. Also inhabits ecotones between treeline taiga and alpine or coastal tundra. Breeding density highest in riparian habitats in western Alaska (AKNHP 2006). Alaska population has declined by over 50 percent since 1980 (about 2.9 percent per year). Species is declining throughout broader geographic range, but declines are most pronounced on breeding range in Alaska and Canada. Causes of the decline are uncertain. Greatest threat in Alaska is collision with communication towers, wind turbines, and tall buildings, particularly in coastal areas. (AKNHP 2006)

BLM Alaska Watch List Species of Note

Beaver Creek Chinook salmon *Oncorhynchus tshawytscha*

The population of Chinook salmon in Beaver Creek was designated as a BLM Alaska sensitive species in 2004, due in part to concerns about decreasing salmon population sizes in the Yukon River. The Alaska Board of Fisheries identified Yukon River Chinook salmon as a stock of yield concern in 2000 and Chinook runs in recent years continue to be below average (Volk et al. 2009). In 2001, Beaver Creek was removed from the list of waters closed to subsistence fishing, which also contributed to BLM's move to list Beaver Creek Chinook salmon as a sensitive species. Beaver Creek Chinook salmon are one of the smaller populations in the upper Yukon River basin, and this may make them more susceptible to overharvest and adverse environmental factors than larger populations (Collin et al. 2002). Subsistence use of Chinook salmon in Beaver Creek is not expected to increase substantially. Sport fishing uses may increase somewhat, but sport fishing opportunities are limited to those who have access to remote portions of Beaver Creek. Only very small numbers of Chinook salmon have been documented in areas of the Beaver Creek watershed that are currently accessible by road.

3.2.7.3. Plants

The 2010 BLM Alaska Sensitive Species List includes sensitive plant species found within Alaska, all of which are either ranked S1, S2 or S3 by the AKNHP. Many species on this list do not occur within the panning area. There are 18 BLM Alaska sensitive plant species documented in or immediately adjacent to the planning area, and may occur on BLM lands. Twelve of these have been documented to occur on BLM lands through on-the-ground inventory.

Table 3.20 below lists plants on the BLM Alaska Sensitive Species List known to occur in the planning area. The highlighted species in this table have been documented on BLM lands in the planning area. A complete list of BLM Alaska sensitive species can be found in Appendix K, *BLM Alaska Sensitive Species*.

Table 3.20. BLM Alaska Sensitive Species and Watch List Species Plants

Species	Common Name	Global Rank	State Rank	List	Typical or observed habitat[a]
Antennaria densifolia	Dense-leaf Pussytoes	G3	S1S2	Sensitive	Calcareous rocky soils, dryas fellfields and screes from treeline into the alpine.
Claytonia ogilviensis	Ogilvie Mountains Spring Beauty	G1	SP	Sensitive	Fine, calcareous alpine screes; or shale between limestone outcrops (found in Canada within one kilometer of planning area).
Cryptantha shackletteana	Shacklettes' Catseye	G1Q	S1	Sensitive	Calcareous gravel barrens and slopes in the Mentasta Mountains, and on non-calcareous rubble slopes, fine screes, and outcrops at Eagle and Calico bluffs.
Douglasia arctica	Mackenzie River Douglasia	G3	S2S3	Sensitive	Dry, rocky steppe bluffs, and on other rocky open habitats; typically alpine but also lower elevations.
Draba murrayi	Murray's Whitlow-grass	G2	S2	Sensitive	Early successional, dry-mesic calcareous sites. Rocky and/or bare soil microhabitats within variety of habitats: South- and north-facing outcrops; open mixed or deciduous forest; steppe bluffs; and, burns.
Draba ogilviensis	Ogilvie Mountains Whitlow-grass	G3	S2	Sensitive	Moist alpine meadows, wet seeps and screes, and in the moist, mossy understory of shrubs in the subalpine. Limestone.
Erigeron yukonensis	Yukon Fleabane	G2G4	S1	Sensitive	Calcareous, stony slopes.

Species	Common Name	Global Rank	State Rank	List	Typical or observed habitat[a]
Eriogonum flavum var. *aquilinum*	Yukon Wild-Buckwheat	G5T2	S2	Sensitive	Xeric steppe (graminoid) bluffs, rock outcrops, and rubble slopes
Erysimum asperum var. *angustatum*	Narrow-leaved Prairie Rocket	G5T2	S1S2	Sensitive	Dry, rocky slopes; steppe bluffs; rock outcrops; and in the herbaceous, dry understory of open woodlands.
Montia bostockii	Bostock's Miner's-lettuce	G3	S3	Sensitive	Consistently found shallowly rooted in wet-to-moist mossy depressions within tussock or heath tundra on ridgetops and upper slopes
Oxytropis huddelsonii	Hudelson's Crazy-weed	G3	S2S3	Sensitive	Solifluction soil; rock outcrop on treeline ridge top.
Phacelia mollis	Macbride Phacelia	G2G3	S2S3	Sensitive	Sandy or gravelly sites along roadsides and other disturbed areas; open woods
Lesquerella calderi	Calder's Bladder-pod	G3G4	S2	Sensitive	Open, dry habitats such as screes, rock outcrops, rocky ridgetops, floodplains, dunes, fellfields, and open woodlands. Limestone.
Poa porsildii	Porsild's Bluegrass	G3	S2S3	Sensitive	Alpine moist-to-mesic herbaceous-heath or tussock tundra; often associated with gelifluction lobe fronts or snow melt areas
Ranunculus cammissonis	Glacier Buttercup	G4T3T4	S2	Sensitive	Wet soil on grassy slopes, meadows, terraces, ridges, and in tundra. Found, at least in part, on granite substrates.
Ranunculus turneri	Turner's Buttercup	G3	S2S3	Sensitive	Moist subalpine and alpine tundra and meadows, under open riparian willow, in snow beds, and along moist creek banks
Artemisia laciniata	Siberian Wormwood	G4	S2	Sensitive	Steppe bluffs, open dry woodlands, shrubby rubble slopes. Rarely common in a locality.
Trisetum sibiricum ssp. *litorale*	Siberian False-oats	G5T4Q	S2	Sensitive	Disturbed, moist site within shrub heath; damp gelifluction hillside.
Douglasia gormanii	Gorman's Douglasia	G4	S3	Watch	Rocky alpine tundra, screes, exposed ridges.
Draba densifolia	Dense-leaf Whitlow-grass	G5	S1	Watch	Gravelly slopes, fellfields, alpine screes, outcrop crevices.
Draba paysonii	Payson's Whitlow-grass	G5	S1S2	Watch	Similar to *D. densifolia*.
Draba porsildii	Porsild's Whitlow-grass	G3G4	S1S2	Watch	Moist to sometimes drier sites; generally rocky or gravelly, in the subalpine and alpine zones on ridges, slopes, cliffs, ledges, and summits. Habitats include limestone or shale talus, scree, and gravel slopes; moist banks; moist turfy sites (incl. slopes); moist gravelly open soil; and grassy meadows. Sites sometimes within boreal spruce forest matrix.
Minuartia yukonensis	Yukon Stitchwort	G3G4	S3	Watch	Dry, open rocky habitats at all elevations such as steppe bluffs, dry rocky slopes, and outcrops.
Oxytropis tananensis		G2G3Q	S2S3	Watch	Open, dry habitats such as subalpine slopes, bluffs, sand dunes, and gravel floodplains.
Podistera yukonensis	Yukon Podistera	G2	S1	Watch	Usually dry rocky screes and rubble slopes at mid elevations and in the alpine. In Yukon also in xeric steppe (graminoid) slopes, sandy blowouts, and open, dry understory of aspen-white spruce forest. Yukon Territory.

Species	Common Name	Global Rank	State Rank	List	Typical or observed habitat[a]
Stellaria dicranoides	Matted Starwort	G3	S3	Watch	Dry rocky ridges, screes, outcrops, alpine fellfields, and Dryas mats; limestone talus and carbonate rocks
Phlox richardsonii subsp. *richardsonii*	Richardson's Phlox	G4T2T 3Q	S2	Watch	Alpine limestone. Dry mountain slopes and rocky or gravelly alpine tundra.
Saxifraga nelsoniana subsp. *prosildiana*	Heart-Saxifrage	G5T4	S2	Watch	Grows in a variety of moist habitats, including rocky outcrops, screes, meadows and stream edges throughout montane and alpine zones.

[a]Habitat associations are from Parker et al. (2003), Parker and Herriges (unpublished), Alaska Natural History Program, and NatureServe (2009) species accounts.

3.2.7.3.1. Sensitive Plants Known to Occur in the Planning Area

Antennaria densifolia

Antennaria densifolia was first identified in Alaska in the Keele Range near the Alaska-Yukon Territory border during a BLM sponsored inventory in 1991 (Lipkin and Tande 1992). The plant was collected in both 1991 and 2007 at different localities in the Keele Range where it was found to be scattered, but frequent. The only other known Alaskan collections are two locations in the Ogilvie Mountains within Yukon-Charley Rivers National Preserve.

Douglasia arctica Hook.

Douglasia arctica has an East Beringian distribution restricted to east central Alaska and northern Yukon Territory, Canada. The species is known from the Yukon-Tanana Uplands near Eagle Summit, and from Mount Schwatka, Victoria Mountain and VABM Fossil in the White Mountains NRA (Parker et al. 2003). It is found in the Ogilvie Mountains, along the central Yukon and Porcupine river valleys. The species was also found growing on a rocky, dry aspen-white spruce woodland slope in the Little Black River headwaters in a 2008 BLM-sponsored survey.

Erysimum asperum (Nutt.) DC. **var. *angustatum*** (Rydb.) Boivin

An East Beringian endemic, *Erysimum asperum* var. *angustatum* is narrowly restricted to east central Alaska and southern Yukon Territory, Canada. *Erysimum asperum* var. *angustatum* was first collected and described under the name *E. angustatum* from Dawson, Yukon Territory (Rydberg 1901). Since then the species has been documented from additional Dawson area sites, from Burwash Creek in southwestern Yukon Territory, and in Alaska from several sites along the central Yukon River valley and the lower portions of its major tributaries in Yukon-Charley Rivers National Preserve. The collection sites of two specimens at the University of Alaska Herbarium labeled from the Porcupine River are uncertain at this time, as the collectors (Howenstein (deceased) and Borron) were working on the Yukon River in Alaska at the time these collections are dated (Rob Lipkin, pers. comm.). Due to the few documented localities, some which lack protective management policies, and its very limited distribution, the current state ranking for the species will not be changed based on these most recent Little Black River collections (Rob Lipkin, pers. comm.). *Erysimum asperum* var. *angustatum* was found on three bluffs in the headwaters of the Little Black River during June 2008. These are the only known locations on BLM-managed lands.

Montia bostockii (A. Pors.) Welsh

This species was found at three South Fork Birch Creek localities (Parker et al. 2003). Most populations consisted of 10 to 70 plants, but one site supported approximately 300 individual plants.

Oxytropis huddelsonii A. Pors.

Oxytropis huddelsonii was collected on a rock outcrop along a ridge top at treeline above Yukon Fork Birch Creek headwaters (Parker et at. 2003). A few scattered individuals were found at this single locality.

Phacelia mollis - J.F. Macbr

This is a Beringian endemic, restricted to the unglaciated area of Alaska and Yukon Territory. It is endemic to central-eastern Alaska and the northern Alaskan panhandle and central and western Yukon Territory (Cody 1996). It has been identified in the Fortymile River and Healy Lake watersheds.

Physaria calderi (G.Mulligan & A. Porsild) O'Kane & Al-Shehbaz

Recent locations where *Phsaria calderi* has been documented include sites in the Yukon Territory's Ogilvie Mountains, the northern Yukon Territory's Richardson Mountains, and Alaska's Ogilvie Mountains and Keele Range. An East Beringian endemic, it is narrowly restricted to east central Alaska and northern Yukon Territory. Based on 2007 BLM-sponsored collections from the Keele Range, combined with additional collections made in the Yukon Territory, the AKNHP global and state rankings of *P. calderi* were changed in 2008 from G2G3 S1S2 to G3G4 S2. However, due to the species' restricted distribution, mostly on lands lacking any protective management policies, this revised ranking is not likely to be changed again unless future collections document a significant number of new populations and a total range expansion. A significant portion of the known Alaskan distribution is on BLM lands; *Physaria calderi* was collected at three sites in upper Fort Creek (a tributary of the Salmon Fork Black River) in 2007, near VABM Storm, and also in the Salmon Fork headwaters in 1991.

Poa porsildii Gjaerevoll

Poa porsildii appears to be rare in the White Mountains, where in recent years only a single clump has been found. However, in the South Fork Birch Creek area flowering plants were abundant whenever the species was encountered, and some patches were extensive (more than 0.4 ha [one acre]). Until recently, it was known in Alaska only from Lime Peak, Eagle Summit, and Mastodon Dome. It has recently been documented at VABM Fossil vicinity in the White Mountains, the Ogilvie Mountains, and at many localities in central Yukon Territory, Canada.

Ranunculus camissonis L. (Schlechter) L.D. Benson

This rare Beringian endemic species is documented in only a few, widely scattered collections from western Alaska and the Mount Prindle and Lime Peak area in the Yukon-Tanana Uplands.

Ranunculus turneri E. Greene

This species was first described from specimens collected along the Porcupine River near the Alaska-Yukon Territory border (Greene 1892). Additional Alaskan localities where the species has since been documented include St. Lawrence Island, the Cape Thompson area, and Mount Casca

in the Ogilvie Mountains. During a BLM-sponsored inventory in the Keele Range in 2007, *R. turneri* was found at several sites in the vicinity of upper Fort Creek and one population supported several hundred individuals. Of the additional known locations for the species in Alaska and Yukon Territory, only the Mount Casca area populations, within Yukon-Charley Rivers National Preserve, have any protective land management policies. *Ranunculus turneri* was collected at five sites, and observed in a few more sites within the small area inventoried in the Keele Range.

Artemisia laciniata Willd.

In Interior Alaska and Yukon Territory, Canada, *Artemisia laciniata* is known by a few records from steppe bluffs and open dry woodlands along the central Yukon and Porcupine river valleys, and from several sites within the Tanana River valley. During BLM-sponsored surveys, the species was collected on a rubble, shrub-covered slope in the Keele Range in 1991 (Lipkin and Tande 1992), and from a xeric woodland bluff in the Salmon Fork Black River headwaters in 2007.

Trisetum sibiricum Rupr. **ssp. litorale** (Rupr.) Rosch.

This species has a circumpolar, but primarily Asian, arctic distribution. It was collected from a disturbed, moist site within shrub heath along a small drainage below Mount Schwatka in the White Mountains NRA. This species was also collected by Gjaerevoll (1958) on a damp gelifluction hillside near Lime Peak.

BLM Alaska Watch List Species of Note

Draba densifolia

This species is ranked critically imperiled in Alaska (S1) and is known from a very small area. Many of the known occurrences of this plant in Alaska are on BLM lands in the planning area, including Lime Peak and Mount Prindle areas. Alaska populations of this species are more than 350 miles disjunct from the nearest populations in Canada and may represent unique genetic material.

Table 3.21. Alaska Natural Heritage Program, Global and State Ranking Criteria[a]

Global Rank	State Rank
G1: Critically imperiled globally because of extreme rarity (5 or fewer occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction. Considered critically endangered throughout its range.	S1: Critically imperiled in state because of extreme rarity (5 or fewer occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction. Considered critically endangered throughout the state.
G2: Imperiled globally because of rarity (6 to 20 occurrences) or because of other factors demonstrably making it very vulnerable to extinction throughout its range. Considered endangered throughout its range.	S2: Imperiled in the state because of rarity (6–20 occurrences), or because of other factors making it very vulnerable to extirpation from the state.
G3: Either very rare and local throughout its range or found locally (even abundantly at some locations) in a restricted range (21 to 100 occurrences). Considered threatened throughout its range.	S3: Rare or uncommon in the state (21–100 occurrences).
G4: Widespread and apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.	S4: Apparently secure in state, but with cause for long-term concern.
G5: Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.	SP: Occurring in nearby state or province; not yet reported in state, but probably will be encountered with further inventory.

Global Rank	State Rank
G#G#: Global rank of species uncertain, best described as a range between the two ranks. G#Q: Taxonomically questionable.	S#S#: State rank of species uncertain, best described as a range between the two ranks.
G#T#: Global rank of the species, and global rank of the described subspecies or variety	
G?: Unranked.	S?: Unranked.

[a]Source: Lipkin and Murray 1997

3.2.8. Vegetative Communities

3.2.8.1. Ecoregions

Ecoregions are relatively large geographic areas with characteristic and distinct climate, geology, and assemblages of vegetation and natural communities. Lands managed by the BLM in the planning area occur primarily in the Yukon-Tanana Upland Ecoregion, except the Upper Black River Subunit occurs in the North Ogilvie Mountains (higher elevations) and Old Crow Basin (lower elevations) ecoregions. The Natural Resources Conservation Service includes almost all BLM lands in the planning area within the *Interior Alaska Highlands* Major Land Resource Area (NRCS 2004). The climate feature common to the entire planning area is a strong continental climate (cold winters, warm summers with moderate precipitation occurring mostly in summer).

3.2.8.2. Community Distribution and Composition

Vegetation in the planning area occurs in characteristic communities or types. The occurrence of the various types across the landscape depends largely on topography, soil, presence of permafrost, and the history of ecosystem processes. A summary of vegetation distribution in the Alaskan boreal forest is provided by Chapin et al. (2006).

Upland and lowland black spruce forests are by far the dominant forest type on BLM lands in the planning area. Black spruce forests tend to occur in open canopy stands on lowlands and north-facing uplands, such as sites with cold and wet soils and typically shallow permafrost. The ground layer is typically dominated by feathermosses. Lichens can be abundant, especially in older stands and in areas with shallow or rocky soils. Common shrubs are willow, green alder, Labrador tea, bog blueberry, and low-bush cranberry. Tree birch and white spruce occur occasionally. Black spruce forests are also highly flammable. Following fire, a black spruce stand may be replaced by a community very similar to the previous forest community, except that black spruce occur only as seedlings and an increase in abundance of herbs, grasses, and shrubs typically occur for a number of years. In drier sites and/or conditions of severe fire (exposed mineral soil), black spruce may be replaced by birch or aspen.

White spruce is found on warmer, more well-drained sites and is also often the spruce species occurring at tree-line. White spruce is a late-succession seral stage which is typically preceded by deciduous forest. Mixed stands of white spruce and aspen or birch are common. Common shrubs in white spruce stands are blueberry, low-bush cranberry, and Labrador tea. Feathermosses often dominate the ground layer and herbs include horsetails and pumpkinberry. In well-drained floodplain sites, white spruce often occurs with balsam poplar (cottonwood) and alder shrub and will replace balsam poplar as succession proceeds. At treeline, white spruce occurs in an open woodland (often mixed with black spruce) with shrub birch and willow understories. Commercial logging in Interior Alaska is focused on white spruce stands on productive sites.

Deciduous forests occur relatively infrequently. Deciduous forests are found most commonly on south-facing slopes or well-drained sites on other aspects. Aspen dominates on the drier, south-facing slopes while birch stands occur on somewhat cooler, moister sites such as east- and west-facing slopes. Aspen stands often have in the shrub layer willow, highbush cranberry, prickly rose, and buffaloberry; and in the herb layer bedstraw, pumpkinberry, and bluejoint grass. Mosses and lichens are typically scarce. If moisture is sufficient, white spruce may establish and dominate in late succession. Birch dominated stands typically have alder, willow, rose, high bush cranberry, and low-bush cranberry as shrubs. Bluejoint grass or horsetail are often the dominant herb, and heavy leaf litter limits moss and lichen cover. Drier birch stands can have scattered white spruce and may be replaced by white spruce in late succession, while wetter sites can contain some black spruce and may be replaced by black spruce. Narrow stands of balsam poplar can occur along larger rivers.

Non-forested lowland bogs occur where shallow permafrost impedes drainage and the soil remains too wet for tree growth. These bogs are dominated by tussock-forming cottongrass (*Eriophorum vaginatum*) or Bigelow's sedge (*Carex bigelowii*). Where shrub cover exceeds 25 percent, they are generally considered shrublands and include shrub birch, Labrador tea, bog rosemary and bog cranberry. Cottongrass tussock tundra occurs on shallow slopes in the uplands as well.

Shrub types occur in a variety of habitats. Shrubs may be abundant in many sites following wildland fire. Willows and alder shrublands often occur in moist draws and along rivers and streams. Alder slopes occur occasionally near treeline. The most common shrubland is dominated by dwarf birch and Labrador tea; it occurs commonly near treeline and also on north facing slopes and areas with little slope or poor drainage. Dwarf birch shrublands often intergrade with open woodland black spruce and tussock tundra.

Above treeline, low shrub grades into the lower-stature dwarf shrub tundra which is typically dominated by bog blueberry, crowberry, low bush cranberry, and bearberry. Lichens and mosses can be abundant. Wet areas above treeline often support herbaceous communities.

Steep south-facing slopes may support steppe-like (treeless) communities. They are dominated by drought-tolerant species of bunch-grasses, sage, and a variety of herbs. Although they occur on a very small proportion of lands, they support a high number of species endemic (limited in distribution to a particular locality) to Alaska or Beringia (an area comprising the Bering Strait and adjacent Siberia and Alaska which was ice-free in past glacial time periods) as well as other species characteristic of the intermountain western U.S. They are sites of typically high species diversity and, due to atypical vegetation, add diversity to the surrounding area. Many of the BLM Alaska sensitive and watch species plants in the planning area, occur on these "steppe" sites. Where not as steep or dry, these south-facing slopes support open aspen forests and also open white spruce or birch.

A variety of plant communities or types can occur in wetlands. Hydrophytic vegetation (vegetation typically adapted for life in saturated soil conditions) is one indicator of wetlands. Shallow permafrost which results in near-surface saturated soils occurs throughout much of the planning area and many Interior Alaska plants are adapted to saturated soil conditions. As a result, large parts of the planning area would be considered wetlands, including much of the black spruce forests in lowlands and north-facing slopes. In addition, many shrublands and tussock tundra communities have saturated soils that would result in their consideration as wetlands.

Table 3.22. Coverage of Eight General Vegetation Types Within a Study Area Including the White Mountains NRA and Steese National Conservation Area in 2002, as Measured at 184 Randomly Distributed Monitoring Sites Below 2,800 Feet Elevation (Treeline). [a]

Vegetation Type	Proportion of Sites (percent)
White spruce forest and woodland	16
Black spruce forest and woodland	54
Deciduous forest and woodland	0.5
Spruce and deciduous forest and woodland	6.5
Medium and low shrub	16
Dwarf shrub	1
Tussock tundra	2
Herbaceous (grass/forb, includes recent burns)	4

[a]The area above 3,000 feet, comprised primarily of alpine tundra and rocky barren types, is approximately 20 percent of the study area. In the Fortymile subunit, the area above 3,000 feet is likely a similar proportion. In the Upper Black River, a smaller proportion of the subunit is above 3,000 feet.

3.2.8.3. Wildland Fire and Vegetation

Fire regimes in Alaska forest types are generally characterized by low frequency/high intensity fire events. The range of reported fire cycles reported by Viereck (1983) is roughly 40–120 years for black spruce forest and 80 to 150 years for floodplain white spruce. Studies in the White Mountains NRA and Steese National Conservation Area and an adjacent watershed however, indicate longer fire return intervals for both types (Herriges, unpublished data, Fastie et al. 2003). Average forest stand age reported by Collins et al. (2011) in the Fortymile subunit was 101 years.

Northern boreal forests are adapted to wildland fires. Vegetation recovers by sprouting from roots or from seed stored in the forest organic layer after fire. The exact response varies by fire intensity, season, moisture condition and plant species. In general, sites with more severe fire (greater organic layer consumption and more mineral soil exposure) and lower soil moisture are more likely to change from spruce-dominated to deciduous-dominated following fire (Johnstone and Hollingsworth 2007). Some later successional species, especially lichens, will be scarce in post-fire stands for long periods. Lichens, which are important winter forage for caribou and reindeer, typically require 60-to-80 years to reach abundance (Thomas et al. 1996; Joly et al. 2003, Collins et al. 2011). Black spruce often replaces itself as the dominant tree in the absence of competition from other tree species. Post-fire recovery of white spruce stands depends on the stage of seed production at wildland fire occurrence and the distance to unburned spruce as sources of new seed and/or the presence of dispersal agents.

3.2.8.4. Current Condition and Trends

On a broad scale, vegetative communities in this large and relatively inaccessible planning area are largely undisturbed by human activities. Fires have the greatest impact on vegetative communities in the planning area. Local disturbance of riparian communities by placer mining has occurred in some areas and OHV use has created networks of trails in some areas. However, over most of the planning area, it is possible to emphasize protection rather than restoration in managing vegetation and multiple land uses.

Wildland Fire and OHV Use

Prior to 1980, it was policy that all wildland fires in the state would be completely and aggressively suppressed. (More recently, in areas assigned the Critical, Full, and Modified fire management options, fire suppression continues to be the primary strategy, while in areas assigned the Limited fire management option, fires are primarily managed for resource benefit.) Much of the planning area is within 100 miles of fire suppression resources located in Fairbanks, Central, Delta, and Tok, and wildland fire suppression likely affected the distribution of seral communities on the landscape. Older seral stages are likely more predominant than they would have been without fire suppression efforts, or at least areas of similar successional stage are likely larger in areal extent due to suppression. A somewhat lower diversity in vegetation types may have been the result.

Wildland fires have become increasingly common in the last few decades. During the years 2004 and 2005 the largest and third-largest total acreages burned in Alaska were recorded. Closed-basin wetlands have been drying in many areas of Alaska (Riordan et al. 2006). Woody vegetation (trees and shrubs) visibly invaded alpine habitats and sedge wetlands in Denali National Park between 1976 and 2005 (Roland 2006). Treeline in areas along the Steese Highway has risen slowly. White spruce in a variety of study sites in Interior Alaska have shown lower radial growth during summers with increasing temperature, presumably due to drought stress (Barber et al. 2000, Lloyd and Fastie 2002). These and other changes are likely to continue and increase in rate with predictions for continued climate warming.

OHVs have created many miles of trails in the accessible portions of the planning area, and new trails are created annually. Much of the planning area is susceptible to impacts from OHV travel. Even a few passes by an OHV can, in many soil and vegetation types, result in long-lasting impacts to vegetation and soil. This then leads to detouring off the trail and subsequent widening of impacts. Although many miles of OHV trail exist in accessible parts of the planning area, the percent of vegetative cover which is impacted is currently still quite small, likely less than 1 percent.

OHV ownership and use has increased substantially since 1986, when the current RMPs for the Steese National Conservation Area and White Mountains NRA were put in place. In addition, the capabilities of OHVs to travel over difficult terrain has changed significantly. Three-wheelers were the most common OHV at that time. A more diverse array of OHVs are now available to users. This has resulted in an increased ability of OHV users to travel cross-country and an increase in the average distance that can be comfortably traveled, resulting in a greater potential for disturbance of vegetation.

Riparian and Wetland Vegetation

Riparian areas are the areas where land and water meet along stream and lake margins. Wetlands are areas such as swamps or marshes or other areas that remain saturated most of the year. Riparian vegetation improves water quality, rebuilds floodplains that help store water to lessen impacts of floods, stabilizes stream banks, reduces erosion, and improves water storage for groundwater recharge and subsequent increases in base flow for downstream users. Riparian areas, and their associated streams and wetlands, are also indicators of watershed health, as they are among the first landscape features to reflect damage from improper management or natural events within the watershed.

Placer mining has impacted riparian vegetation, especially in the Birch Creek and Fortymile drainages, but has directly affected only a small proportion of riparian vegetation within the planning area.

The BLM has completed riparian assessments for only a few of the approximately 11,000 stream miles in the planning area. However, most of the planning area is remote, and most streams have had no substantial land use activity and are generally assumed to be in proper functioning condition. There are limited areas (estimated at less than 5 percent) of substantial riparian disturbance, typically associated with abandoned placer-mine lands.

Many of the valleys in the Fortymile River, Birch Creek, and Beaver Creek watersheds have been repeatedly mined for placer gold beginning in the late 1800s. Early gold operations often mined the streambed gravels from valley wall to valley wall, with little or no reclamation. Riparian vegetation has partially recovered in some areas. Several miles of stream channel and flood plain in the Birch Creek and headwaters of Beaver Creek watersheds have ongoing reclamation efforts.

Changes in requirements for reclamation of placer mined lands (initiated in 1981) and changes in mining practices and have resulted in generally faster natural revegetation of mined sites. Additionally, the numbers of active mining operations within the White Mountains, Steese National Conservation Area and Fortymile WSR Corridor have decreased since the original RMPs were written in the 1980s. However, much placer-mined land has not recovered functionally or vegetatively.

3.2.9. Visual Resources

3.2.9.1. Current Management Practices

The current management of visual resources is guided by decisions made in the existing land use plans (BLM 1986a, BLM 1986b, BLM 1980) and river management plans (BLM 1983a, BLM 1983b, and BLM 1983c). These RMPs and river management plans establish general Visual Resource Management (VRM) goals, which are to:

1. Maintain scenic quality by adhering to visual resource management objectives while implementing a program of visual assessment of all surface-disturbing activities, such as, new access trails, mining activities, OHV use, support structures and developments, and recreational facilities;
2. Manage WSR corridors to maintain the natural landscape; and,
3. Manage viewsheds to maintain the natural landscape.

Visual resources have been identified according to VRM classes for the Fortymile, Birch Creek, and Beaver Creek WSR Corridors, the Steese National Conservation Area and the White Mountains NRA. These VRM classes are based on conditions such as scenic quality, viewing distance zones, and viewer sensitivity levels. The VRM class objectives and their descriptions are:

VRM Class I: The objective of Class I is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activities. The level of change to the characteristic landscape should be very low and should not attract attention.

VRM Class II: The objective of this class is to retain the existing character of the landscape. The level of change to the landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes to the landscape must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

VRM Class III: The Class III objective is to partially retain the existing character of the landscape. The level of change to the landscape should be moderate. Management activities may attract the attention of the casual observer, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape

VRM Class IV: The objective of Class IV is to provide for management activities which require major modifications to the existing character of the landscape. The level of change to the landscape can be high. The management activities may dominate the view and may be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic visual elements of form, line, color, and texture (BLM 1986b).

3.2.9.2. Visual Resource Inventory

Visual resource inventory class areas for the planning area were delineated using the process in BLM's Visual Resource Inventory Handbook (H-8410-1). The results of this inventory are described in Appendix D, *Visual Resource Inventory* .

- **Class I**: Approximately 284,000 acres; includes wild river segments of the Fortymile Wild and Scenic River (WSR), Birch Creek WSR, and Beaver Creek WSR.
- **Class II**: Approximately 5,442,000 acres; includes areas in the Steese National Conservation Area and the White Mountains NRA, scenic and recreational segments of the Fortymile WSR.
- **Class III**: Approximately 479,000 acres; includes areas in the Steese National Conservation Area and the White Mountains NRA and some of the planning area outside special conservation areas.
- **Class IV**: Approximately 528,000 acres; includes most of the planning area outside special conservation areas.

Table 3.23. VRM Classes in the Eastern Interior Planning Area

VRM Class	Existing Management Class Acres	Inventory Class Acres (BLM lands)
Fortymile Subunit		
Class I - Designated Wild segments	145,000	145,000
Class II	No management classes assigned	1,878,000
Class III		6,000
Class IV		47,000
Steese Subunit		
Class I	69,000	69,000
Class II	64,000	1,136,000
Class III	1,075,000	25,000
Class IV	0	45,000
Upper Black River Subunit		
Class I	No management classes assigned	0
Class II		1,478,000
Class III		448,000
Class IV		435,000
White Mountains Subunit		
Class I	69,000	70,000
Class II	507,000	950,000
Class III	428,000	0
Class IV	0	0

3.2.9.3. Current Conditions

The planning area includes many areas that possess a high degree of scenic quality and a high level of visual sensitivity. In general, high scenic quality results from the diverse and distinct topography, geology, botany and cultural history. The area possesses scenically unique views and river ways; rare and unusual geological formations of glacial and periglacial features as well as tors and outcrops; a diversity of vegetation ranging from alpine tundra to closed spruce forests; and historic structures. Visually sensitive areas are the result of visitor interest and public concern for the visual resources of a particular area, the high degree of visibility to the public for a particular area, the level of use of an area by the public, and the type of visitor use that an area receives.

Primary areas that possess both outstanding scenic quality and high visual sensitivity include, but are not limited to: the Steese National Conservation Area, White Mountains NRA, Beaver Creek WSR, Birch Creek WSR, and Fortymile WSR, Research Natural Areas, and Pinnell Mountain National Recreation Trail. Areas of high scenic quality and visual sensitivity associated with travel corridors include the Alaska, Elliott, Richardson, Steese, Taylor, and Top of the World highways. Portions of the Steese, Richardson, Taylor and Top of the World highways are also state scenic byways. The planning area contains thousands of miles of river trails, OHV trails, and foot trails that are traveled as scenic routes, some of which are nationally recognized.

The planning area is still primarily a natural landscape where humans have not substantially changed the scenic quality. However some areas were modified by human activities. These are called cultural modifications. Cultural modifications can blend in with or stand out from the surrounding landscape. While these areas introduce modifications to the landform, they also provide places of use and special interest or key observation points from which to evaluate the sensitivity levels.

Buildings are generally the most visible cultural modification. Buildings exist in scattered communities, particularly along the road system. Homestead areas, mining claims, Native allotments, and isolated cabins can be found throughout the planning area. Most of the buildings outside a community are in relative harmony with the landscape in that they are small, made of local materials, and have primarily natural based colors.

Other modifications include the highways, and other roads. Airstrips can be found in the Fortymile, Steese, and Upper Black River Subunits. While the profile of an airstrip is low, landform changes are introduced by brown colors in predominantly green vegetation and more regular lines than the surrounding irregular vegetation. A few capped oil and gas exploration wells exist within the Upper Black River Subunit. However, given their small footprint and with most either flush with the landscape or consisting of a marker pipe less than six feet tall, these modifications are very hard to see from a distance of more than a couple hundred feet.

OHV trails exist in all subunits to varying degrees. Summer travel in the Upper Black River Subunit is primarily by watercraft along rivers. However, snowmobile trails and seismic lines can be seen from elevated locations. Summer ATV travel has occurred in the Fortymile, Steese, and White Mountains subunits with many trails or travel routes being visible for long distances from elevated locations.

Each Scenic Quality Rating Unit was evaluated to determine its scenic quality and is rated as Class A, B or C. Results are summarized in Table 3.24, "Scenic Quality Rating Units, Classes, and Sensitivity Ratings in the Planning Area" below. See also Appendix D.

- Class A: SQRU has a great deal of visual variety, contrast, and harmony.
- Class B: SQRU has a moderate amount of visual variety, contrast, and harmony.
- Class C: SQRU has little visual variety, contrast, and harmony.

Visual sensitivity levels are a measure of public concern for the scenic quality of an area. Areas identified as sensitive include known travel routes, especially state scenic byways, areas of human habitation, areas of traditional use, Native allotments, and area identified through Benefits Based Management studies (Fix 2007; Stegman et al. 2008). Numerous locations in the planning area have potentially high visual sensitivity because area residents and visitors view the natural landscape as very important, and have a high level of interest and sensitivity to changes to the natural landscape. There are three levels of overall sensitivity: High (H), Medium (M) and Low (L).

Table 3.24. Scenic Quality Rating Units, Classes, and Sensitivity Ratings in the Planning Area

Scenic Quality Rating Unit (SQRU)	SQRU Class	Visual Sensitivity Rating	Fortymile Subunit	Steese Subunit	Upper Black River Subunit	White Mountains Subunit
Alaska Range – Central and Eastern Part (40)	A	M	X[a]			
Kokrine-Hodzana Highlands (16)	B	M				X
Northern Foothills (41)	A	M	X			
Northway-Tanacross Lowlands (13)	B	M	X			
Ogilvie Mountains (10)	A	M	X		X	
Porcupine Plateau (8)	B	M			X	
Rampart Trough (15)	C	M				X
Tanana-Kuskokwim Lowland (26)	C	L	X			
Tintina Valley (11)	B	L	X			
Yukon Flats Section (14)	C	M	X	X	X	
Yukon-Tanana Upland (12)	A	M	X	X		X
Visual Resource Inventory Class			**I-IV**	**I-IV**	**II-IV**	**I-II**

[a]X indicates presence of the SQRU within the subunit

3.2.9.4. Trends

The number of tourists visiting Alaska is increasing. Within the planning area, visitor use is increasing through recreational and vehicular use. Many tourists to Alaska come to visit Denali National Park and Preserve, Yukon-Charley Rivers National Preserve and the National Wildlife Refuges adjacent to the planning area and then remain in the Interior to recreate on BLM lands. These recreational activities contribute to the cumulative impact on visual resources.

The use of OHVs, trail use, and dispersed camping could have long-term cumulative impacts on visual resources. Mineral exploration and development are expected to increase within the planning area and contribute some additional impacts to visual resources. Long-term trends for impacts to visual resources are:

- Conflicts between OHV users and hikers, sightseers, campers, hunters, river floaters, and others who seek a high-level of scenic quality.

- Increasing dispersed camping impacts, often as overflow from the nearby National Parks and Wildlife Refuges, could impact VRM through increased surface and vegetative disturbance;
- Increasing OHV-related recreational use could cause visual impacts within the planning area;
- Increasing recreation-related development, and mineral exploration and development use could cause visual impacts within the planning area;

3.2.10. Water Resources

Surface Water

Approximately 11,000 miles of streams and rivers and 14,000 acres of lakes and ponds are present on BLM lands in the planning area. Timing and duration of stream flow are weather dependent; there are no major reservoirs or diversions on Interior Alaska streams. The planning area is entirely within the upper portion of the Yukon River basin. Major rivers in the planning area are listed in Table 3.25, "Discharge and Water Quality Parameters of Major Streams in the Planning Area" and shown in Map 82. Headwaters of the Yukon River, Nation River, Kandik River, Salmon Fork of the Black River, and Porcupine River originate in remote areas of the Yukon Territory, Canada. Tributaries of the upper Yukon and Tanana rivers emanate from glaciated areas and carry heavy loads of sediment during summer.

Except for suspended sediment in the Yukon and Tanana rivers, water quality is generally good to excellent, with low dissolved solids, dissolved oxygen near saturation, and neutral to moderately basic pH. Water temperatures during summer are typically less than 14 degrees C. During winter, small streams are often frozen to the bed by mid-winter. Flows in larger rivers are usually at a minimum in March and maximum in June, July, or August. Winter flows are generally about 20 percent of peak summer flows. Ice on lakes and larger streams is normally about four feet thick by March. Runoff containing sediment and/or other pollutants may occur during spring snowmelt and heavy rainfall events in summer and fall. Abandoned placer gold mine operations, with little to no reclamation, increased OHV use on unauthorized trails, and runoff from wildfire areas contribute minor to moderate excess sediment to local streams during summer.

Three streams in the planning area were included in the National Wild and Scenic Rivers System by ANILCA (P.L. 96-478): the Fortymile River, Birch Creek, and Beaver Creek. River segments within the Fortymile WSR Corridor (Map 102) were designated as "wild," "scenic," or "recreational." Approximately 126 miles of upper Birch Creek and 127 miles of upper Beaver Creek were classified and designated as "wild" river segments. By classifying Birch and Beaver creeks and portions of the Fortymile as "wild" river segments Congress mandated that these river segments "be managed to be free of impoundments and generally inaccessible except by trail, with watersheds or shorelines primitive, and waters unpolluted…representing vestiges of primitive America." About 77 miles of Birch Creek flows through the Steese National Conservation Area where Congress identified Birch Creek as a special value for the area.

Stream segments not meeting water quality standards for assigned uses for one or more pollutants are placed on the Section 303(d) list of water-quality impaired bodies, as required by the Federal Clean Water Act. Several tributaries in the Birch Creek drainage are listed in Section 303(d) as impaired waters, because they exceeded water-quality criteria for turbidity (ADEC 2008a). Upper Birch Creek is the only stream on BLM-managed lands on the State of Alaska's 303d list of impaired waterbodies. The EPA issued a total maximum daily load (TMDL) for total suspended solids to meet water-quality standards for turbidity in Upper Birch Creek of 20 mg/L.

The BLM, in cooperation with the U.S. Geological Survey (USGS), has been monitoring daily stream flow and periodic water quality measurements since 2008 on placer-mined streams including upper Birch Creek and Nome Creek The intent is to determine if water quality and water chemistry downstream of previously mined areas are in compliance with ADEC water quality standards. Preliminary results indicate that at moderate to low stream flows, mined streams now typically meet ADEC water quality standards. Some sections of stream channel in Birch Creek and Nome Creek have ongoing reclamation efforts.

The four planning subunits are associated with four watersheds; the Black River watershed, the Steese National Conservation Area-Birch Creek watershed; the White Mountains NRA-Beaver Creek watershed; and the Fortymile River watershed. The current condition of water quality in these watersheds, as well as other Yukon River tributaries, is generally good (Table 3.25, "Discharge and Water Quality Parameters of Major Streams in the Planning Area"), based on available data. Water quality parameters of temperature, pH, DO, and conductivity are well within State of Alaska water quality standards. Many of the water courses within the planning area flow through private, Native corporation, state, and other federally managed lands. In many cases the BLM can only address water quality-related issues that arise from activities on BLM-managed lands.

Table 3.25. Discharge and Water Quality Parameters of Major Streams in the Planning Area

Site Name	Date (m/d/yyyy)	Agency	Discharge (ft^3/s)[a]	Water Temp (degrees C.)	pH Standard Units	Dissolved Oxygen (mg/L)[b]	Specific Conductivity (µS/cm)[c]
Fortymile River	7/24/2007	BLM	4,450	13.8	7.76	9.38	139
Yukon River at Eagle	6/11/2002	USGS	183,000	13	8.1	9.6	182
Nation River	6/13/2002	USGS	2,670	11.9	7.96	9.9	116
Kandik River	6/15/2002	USGS	2,330	10.4	7.41	11.1	111
Charley River	6/16/2002	USGS	2,020	11.2	7.51	10.8	79
Salmon Fork Black River abv Kevinjik	6/13/1991	BLM	1,414	11	8	--	189
Black River	6/20/2002	USGS	6,180	13.3	7.68	9.5	134
Porcupine River	8/28/2002	USGS	38,183	9.9	7.66	10.4	187
Chandalar River	6/22/2002	USGS	10,700	9.9	7.89	11.3	250
Birch Creek above 12 mile Creek[d]	9/24/2007	BLM	77	2.41	7.66	11.6	177
Upper Mouth Birch Creek	6/21/2002	USGS	883	14.4	7.53	9.2	114
Lower Mouth Birch Creek	6/23/2002	USGS	1,670	14.1	7.85	11.5	126
Beaver Creek at Big Bend	8/21/2008	BLM	948	6.78	7.3	10.87	40
Beaver Creek Mouth	9/3/2002	USGS	2,537	10.1	7.63	11.6	154
Hodzana River	9/3/2002	USGS	365	10.7	7.71	9.8	141
Dall River	9/4/2002	USGS	206	9.8	7.32	10	104

Site Name	Date (m/d/yyyy)	Agency	Discharge (ft^3/s)[a]	Water Temp (degrees C.)	pH Standard Units	Dissolved Oxygen (mg/L)[b]	Specific Conductivity (µS/cm)[c]
Yukon River near Stevens Village	9/4/2002	USGS	253,000	11.3	7.8	9.9	213
ADEC Standard				**< 15**	**6.0 - 8.5**	**> 4.0**	**750**

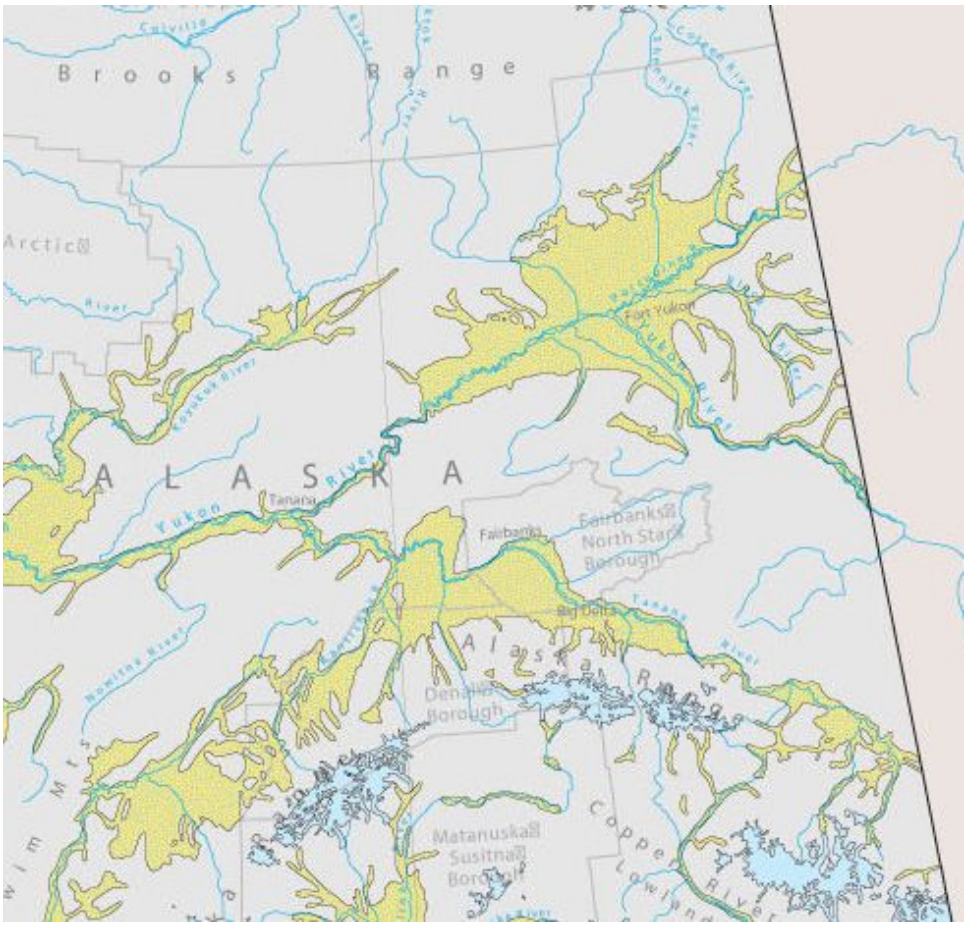
[a]ft3/s = cubic feet per second
[b]mg/L = milligrams per liter
[c]µS/cm = micro Siemens per centimeter
[d]Birch Creek above 12 Mile Creek is Sec. 303(d) listed for sediment

Groundwater

Groundwater is an important source of water in Interior Alaska because surface waters are frozen or covered with ice for much of the winter and major rivers, including the Yukon and Tanana, transport heavy loads of glacial silt during the summer, making the water unsuitable for household use. About 50 percent of Alaska's population and 90 percent of the state's rural residents depend primarily on groundwater for public supplies (ADEC 2008b).

Unconsolidated deposits of sand and gravel that were deposited as alluvium or glacial outwash or both form the most productive aquifers in Interior Alaska (Miller et al. 1999). In major watersheds these deposits comprise thick aquifers that yield large quantities of good quality water to wells. In many smaller upland and mountain valleys, limited groundwater is available in alluvium beneath permafrost or in unfrozen alluvium beneath or adjacent to riverbeds. Anderson (1970) found water levels in the Tanana River aquifer near Fairbanks were tied to river and stream recharge. As a result, groundwater levels in the alluvial aquifers are generally at a seasonal high in late summer or early fall and then decline over the winter. The groundwater level generally reaches a seasonal low during late winter months, March or April, normally the period of lowest stream discharge.

The frozen ground blocks the downward percolation of rainfall or meltwater, and thus restricts recharge to sub-permafrost aquifers. Where the permafrost table is shallow, it can perch water near the land surface and promote rapid runoff to streams. Permafrost also blocks the lateral movement of groundwater and acts as a confining unit for water in sub-permafrost aquifers. Natural discharge of water confined beneath the permafrost is possible only through unfrozen zones that perforate the permafrost layer (Miller et al. 1999).



Coarse-grained alluvial and glacial-outwash deposits (displayed in yellow) form the most productive aquifers in Interior Alaska (Modified from Milller et al. 1999)

Figure 3.2. Major Alluvial Aquifers of Interior Alaska

Factors that locally affect the presence and thickness of permafrost include soil and rock type, relief, slope aspect (steepness and the direction which the slope faces), vegetation, snow cover, and the presence of surface-water bodies or flowing groundwater. An important aspect of Interior Alaska alluvial aquifers is that the warming effect of large streams, rivers, and lakes may extend to a depth of several hundred feet and result in local areas where permafrost is thin or absent (Miller et al. 1999). Beneath small shallow lakes or creeks that completely freeze during the winter, permafrost is usually present only a few feet below the bottom of the surface-water body. Williams (1970) found that the local occurrence of permafrost was strongly influenced by the thermal effect of rivers and lakes and caused recorded differences in permafrost thickness of as much as 400 feet over a horizontal distance of only a few hundred feet. At Fort Yukon, for example, shallow wells dug in unfrozen gravel along the riverbank provided the only source of groundwater until 1963. Holes that had been drilled to depths of 300 to 400 feet in frozen alluvium just east of the village were unsuccessful. Most of the groundwater wells in the Yukon River villages, from Canada to the Bering Sea, are along the riverbank where the warming effect of the river affects the thickness of frozen ground (Williams, 1970).

Most of the groundwater in unconsolidated deposits is suitable for domestic uses with moderate or minimal treatment. Locally, the most common treatment problems in groundwater systems are for naturally occurring concentrations of arsenic and antimony (Mueller et al. 2001), and iron,

and manganese in excess of the recommended federal drinking-water standards (ADEC, 2008b). Alluvial groundwater is typically a calcium bicarbonate or calcium magnesium bicarbonate type and is hard to moderately hard, and may require treatment for some uses (Cederstrom, 1963).

Knowledge of regional and local variations in permafrost distribution is important in locating groundwater sources and in understanding the hydrology of specific sites. Human activities can affect the local thickness of permafrost because changes in ground surface temperature of only a few degrees C. can change permafrost thickness. Removing natural vegetation and its insulating effect in the process of clearing land causes increased solar absorption, a rise in surface temperature, and thinning of permafrost. Prolonged climate warming would contribute to permafrost degradation and increased groundwater recharge, storage capacity, movement, and discharge in the planning area. Alternatively, prolonged climate cooling where the average annual ground-surface temperature was below freezing, would result in permafrost forming and extending downward until the heat gained from the earth raised the local temperature above the freezing point.

In view of projected climate warming and increased global demand for fresh water, Alessa et al. (2011), noted that Alaska is a relatively water-rich region of the world and its role in future international water markets may be significant. They suggest the state's exceedingly long coastline provides ample locations for establishing ice-free export infrastructure that would make it possible to ship water in large quantities. Various options for increasing supply to the Southwest have been considered, including that of building a freshwater subsea pipeline to transport water from Alaska to California (U.S. Congress, 1992).

At present only a small proportion of the freshwater in the planning area, as well as in Alaska in general, has been developed or modified. Substantial water resource development is not expected in the reasonably foreseeable future because a majority of the planning area is remote, with little or no road access, and no expectation of large-scale industrial development.

3.2.11. Wilderness Characteristics

There are no Congressionally-designated Wilderness areas or wilderness study areas in the planning area. The BLM inventoried lands in the planning area for wilderness characteristics and found that 6,677,000 acres has wilderness characteristics (BLM 2011a). This inventory is incorporated by reference. A summary of the inventory can be found in Appendix F, *Wilderness Characteristics Inventory*.

In order to qualify as having wilderness characteristics, the areas must meet the following criteria:

- The appearance of naturalness
- Outstanding opportunities for solitude or primitive or unconfined recreation
- Roadless areas with a minimum size of 5,000 acres, or meet one of the size exceptions

Table 3.26. Wilderness Characteristics Inventory in the Planning Area

Subunit	Inventory Acres[a]	Has Wilderness Characteristics (acres)	No Wilderness Characteristics (acres)	Has Wilderness Characteristics (percent)
Fortymile	2,075,868	2,034,942	40,926	98
Steese	1,292,551	1,269,750	22,801	98
Upper Black	2,361,421	2,357,581	3,840	99.8

Subunit	Inventory Acres[a]	Has Wilderness Characteristics (acres)	No Wilderness Characteristics (acres)	Has Wilderness Characteristics (percent)
White Mountains	1,020,282	1,014,463	5,819	99
Total	**6,750,122**	**6,676,736**	**73,386**	**99**

[a]Acres in this table are not updated to reflect recent land conveyance

3.2.11.1. Fortymile Subunit

Approximately 2,035,000 acres in 12 inventory units were found to have wilderness characteristics (Appendix F, *Wilderness Characteristics Inventory*). The only lands that do not contain wilderness characteristics are parcels of less than 5,000 acres which do not meet the size criteria and mined areas. Active and historic mining areas in Dome Creek, Fortymile River, South Fork Fortymile, Franklin Creek, Uhler Creek, Mosquito Fork, Walker Fork, and Wade Creek are lacking in naturalness.

Although there are four major roads in the subunit: the Taylor Highway, Top of the World Highway, Alaska Highway and Tok Cutoff, BLM lands are mostly roadless and have had very limited human intrusion. Other than the highways, there are only a few roads on BLM lands, most accessing mining claims. Additionally, most of BLM lands are not near the highways. Although there are many federal mining claims in the Fortymile watershed, many of these claims have not been developed and are still natural in appearance, or have been reclaimed. Overall, most lands in the Fortymile Subunit are natural in appearance, having been primarily affected by the forces of nature, and contain generally minimal evidence of people's work.

Outstanding opportunities for solitude exist in the Fortymile River watershed, especially during low river use periods. Recreationists floating on one of the many rivers or hiking cross-country would be unlikely to encounter any evidence of humans, including sight or sound, except for the area near the Taylor Highway. Visitors are easily able to avoid the sights, sounds and evidence of other people. The overall size and remoteness of these lands provide opportunities for primitive and unconfined recreation. River users on the "wild" segments of the Fortymile WSR experience outstanding recreational float-boating on whitewater in a primitive setting.

Lands with wilderness characteristics in the Fortymile subunit include portions of the Fortymile Wild and Scenic River. Currently all lands in the subunit are withdrawn from the mining and mineral leasing laws. The subunit is managed according to the Fortymile MFP (BLM 1980) and the Fortymile River Management Plan (BLM 1983a) which do not address wilderness characteristics. Other than in the Fortymile River Corridor, there are no OHV designations. Primary uses of lands with wilderness characteristics include valid existing mining claims, subsistence hunting, and dispersed recreation.

3.2.11.2. Steese Subunit

Approximately 1,270,000 acres in the Steese Subunit were found to have wilderness characteristics (Appendix F, *Wilderness Characteristics Inventory*). These can be grouped into three general areas for the purposes of discussion: the North Steese, the South Steese, and lands near the village of Circle.

Approximately 522,000 acres in three inventory units in the North Steese, including the North Steese, Pinnell Mountain, and Pinnell Mnts. South units, were found to have wilderness characteristics. The only lands that do not contain wilderness characteristics are active mining

claims in Bachelor Creek. Although parts of Bachelor Creek and Preacher Creek have been staked for mineral development, few of these claims have been developed. There are a number of abandoned and void claims along American Creek, Preacher Creek, Loper Creek, and Willow Creek. Many of these claims have never mined or have revegetated, resulting in a natural appearance. There are no roads in the North Steese, however there is evidence of OHV travel. OHV routes occur in the upper Preacher Creek area and are noticeable to varying degrees, depending on vegetation, terrain, and viewing elevation.

Overall, the area is generally natural in appearance, having been primarily affected by the forces of nature, and contains generally minimal evidence of people's work. The North Steese units retain their primeval character. Due to the remoteness of the area, there are outstanding opportunities for solitude and primitive types of recreation. This isolation provides exceptional opportunities for wilderness experiences. Recreationists hiking cross-country would be unlikely to encounter any evidence of humans, including sight or sound. Hikers on the Pinnell Mountain National Recreation Trail experience outstanding scenic vistas of high mountain terrain in a primitive setting with very few encounters with other people.

Approximately 707,000 acres in four inventory units in the South Steese, including the Birch Creek, North of Birch Creek, Harrison Creek, and Wolf Creek units, were found to have wilderness characteristics. The only lands that do not contain wilderness characteristics are active mining claims on Fryingpan Creek, Harrison Creek, North Fork Harrison Creek, Clums Fork, and Volcano Creek, and the roads accessing these areas. There are a few roads in the South Steese area, including the Fryingpan Creek and Harrison Creek-Portage Creek roads, both north of Birch Creek. The rest of the area is roadless. Some ATV routes occur in the area and are noticeable to varying degrees, depending on vegetation, terrain, and viewing elevation. Local residents and visitors to the area have traveled by motorized vehicle (primarily snowmobiles) over parts of the area, particularly near Central. Many of the creeks have been staked for mineral development but only a few have been actively mined and the overall character is that of a natural, undisturbed landscape, with very few obvious signs of modern human influence or presence. As in the North Steese, there are a number of abandoned and void claims. Many of these claims were never mined or have revegetated, resulting in a natural appearance. Remote cabins located along rivers and creeks remain from past mining activities are in various stages of deterioration, and are generally screened from view. The South Steese units retain their primeval character.

Due to the remoteness of the area, there are outstanding opportunities for solitude and primitive types of recreation. This isolation provides exceptional opportunities for wilderness experiences. Recreationists hiking cross-country would be unlikely to encounter any evidence of humans, including sight or sound. Floaters on Birch Creek experience outstanding recreational float boating on whitewater in a primitive setting.

The Circle Area inventory units, encompass 40,000 acres. These lands are roadless, although there are likely a few OHV routes and winter trails, given their proximity to Native corporation lands and the Village of Circle. These lands are generally natural in appearance, having been primarily affected by the forces of nature, and contain generally minimal evidence of people's work. Overall, the units in this area retain their primeval character. Due to the remoteness of the area, there are opportunities for solitude and primitive types of recreation.

Lands with wilderness characteristics in the Steese subunit include the Birch Wild and Scenic River, the Steese National Conservation Area, and two Research Natural Areas. Currently all lands in the subunit are withdrawn from the mining and mineral leasing laws. The subunit is

managed according to the Steese RMP (BLM 1986a) and the Birch Creek River Management Plan (BLM 1983b) which do not address wilderness characteristics. OHV use is limited by weight and season of use. Primary uses of lands with wilderness characteristics include undeveloped, valid existing mining claims, subsistence hunting, and dispersed recreation.

3.2.11.3. Upper Black River Subunit

Approximately 2,357,600 acres in three inventory units Black River Unit (including Upper Kevinjik Creek) and Black River Scattered Parcels Unit, were found to have wilderness characteristics (Appendix F, *Wilderness Characteristics Inventory*). These units encompass all of the Upper Black River Subunit (Map 4), except one parcel east of Circle that is less than 5,000 acres.

These lands have had very limited human intrusion due to remoteness and lack of access. There are no roads. Although there are likely a few winter trails, especially near the village of Circle. Remote cabins located along various rivers are generally used as seasonal dwellings for subsistence fishing camps. There are a few Native allotments located primarily along rivers. Other facilities found in the southern portion the subunit include a few airstrips and brushed lines that remain from past oil and gas exploration. Scars of this past activity are still noticeable in some areas, especially from the air. This limited evidence of human use is substantially unnoticeable and the area has been affected primarily by the forces of nature and has retained its primeval character.

Outstanding opportunities for solitude and primitive and unconfined recreation exist throughout the area. These opportunities are largely attributed to the extreme remoteness of the area. Recreationists floating on one of the many rivers or hiking cross-country would be unlikely to encounter any evidence of humans, including sight or sound. Visitors are easily able to avoid the sights, sounds and evidence of other people. This isolation provides exceptional opportunities for wilderness experiences.

Currently all lands in the subunit are withdrawn from the mining and mineral leasing laws. There is no existing land use plan. Primary uses of lands with wilderness characteristics include subsistence hunting and fishing, and dispersed recreation.

3.2.11.4. White Mountains Subunit

Approximately 1,014,500 acres in the White Mountains inventory unit was found to have wilderness characteristics (Appendix F, *Wilderness Characteristics Inventory*). This inventory unit encompasses all of the White Mountains NRA except for the developed area in Nome Creek Valley. It also includes adjacent lands in the Wickersham Dome area, except for the parking lot and trailhead area.

The overall character of the White Mountains unit is that of a natural, undisturbed landscape, with few obvious signs of modern human influence or presence. There are approximately 220 miles of maintained multiple-use winter trails, 11 public use cabins, two trail shelters, and scattered historic cabins, primarily in the southern half of the unit. There is evidence of OHV travel, both summer and winter. This limited evidence of human activity is substantially unnoticeable and the area has been affected primarily by the forces of nature and has retained its primeval character.

Many outstanding opportunities for solitude and a primitive and unconfined recreation experience exist. There are no developed trails in the northern half of the unit. Beaver Creek provides an

outstanding opportunity for non-motorized boating. Recreationists hiking cross-country would be unlikely to encounter any evidence of humans, including sight or sound. These opportunities are largely attributed to the remoteness of the area and the limited trail density.

Part of the Nome Creek valley does not have wilderness characteristics. It is accessed by the Nome Creek road, which connects to the Steese Highway, via the U.S. Creek road. Besides a major access road, the area contains two developed campgrounds, and a BLM administrative site. There is also evidence of significant historic mining activity in Nome Creek, including tailings piles from dredging.

Lands with wilderness characteristics in the White Mountains subunit include the Beaver Wild and Scenic River, the White Mountains NRA, and three Research Natural Areas. Currently all lands in the subunit are withdrawn from the mining and mineral leasing laws. There are no valid existing claims on lands with wilderness characteristics. The subunit is managed according to the White Mountains RMP (BLM 1986b) and the Beaver Creek River Management Plan (BLM 1983c) which do not address wilderness characteristics. OHV use is limited by weight and season of use. The primary use of lands with wilderness characteristics is recreation, including both motorized and non-motorized activities.

3.2.12. Wildland Fire Ecology and Management

Fire is an important natural mechanism of change in the planning area. Wildland fire is an essential ecological process that maintains and achieves a range of vegetative communities. The vegetation communities in the planning area have evolved with fire, resulting in their current composition and structure. While the distribution and dominance of a particular species in any given area may have changed as climate has fluctuated, fire-dependant species have been represented in the planning area for at least the last 6,500 years (Hu et al. 1993).

3.2.12.1. Fire Occurrence

A fire history dataset, containing perimeters for large wildland fires reported by the BLM from 1950 to the current year, is maintained for the planning area and updated yearly by the BLM Alaska Fire Service. The numbers of wildland fires and acres burned in the planning area from 1950 to 2014 are 3,433 wildland fires and 16,860,900 acres (Map 86). Of these fires, 265 had their point of origin on BLM-managed lands, and 34 were human-caused (the remaining 231 were lightning-caused or unknown). Human-caused fires typically occur near villages and towns, along roads, or near rivers where human presence is highest. Due to land ownership patterns, human-caused fires in the planning area rarely occur on BLM-managed lands.

The majority of the wildland fires occurring in the planning area are caused by lightning. From mid-June through late July, thunderstorms start wildland fires when environmental conditions facilitate natural ignition. Lightning can occur as early as April and as late as September, however 99 percent of all lightning strikes occur May through August, while 91 percent occur in June and July.

The fire return interval is the number of years between two successive fire events at a specific site. Within the planning area, fire return intervals may range from 50 to 300 years (Figure 3.3).

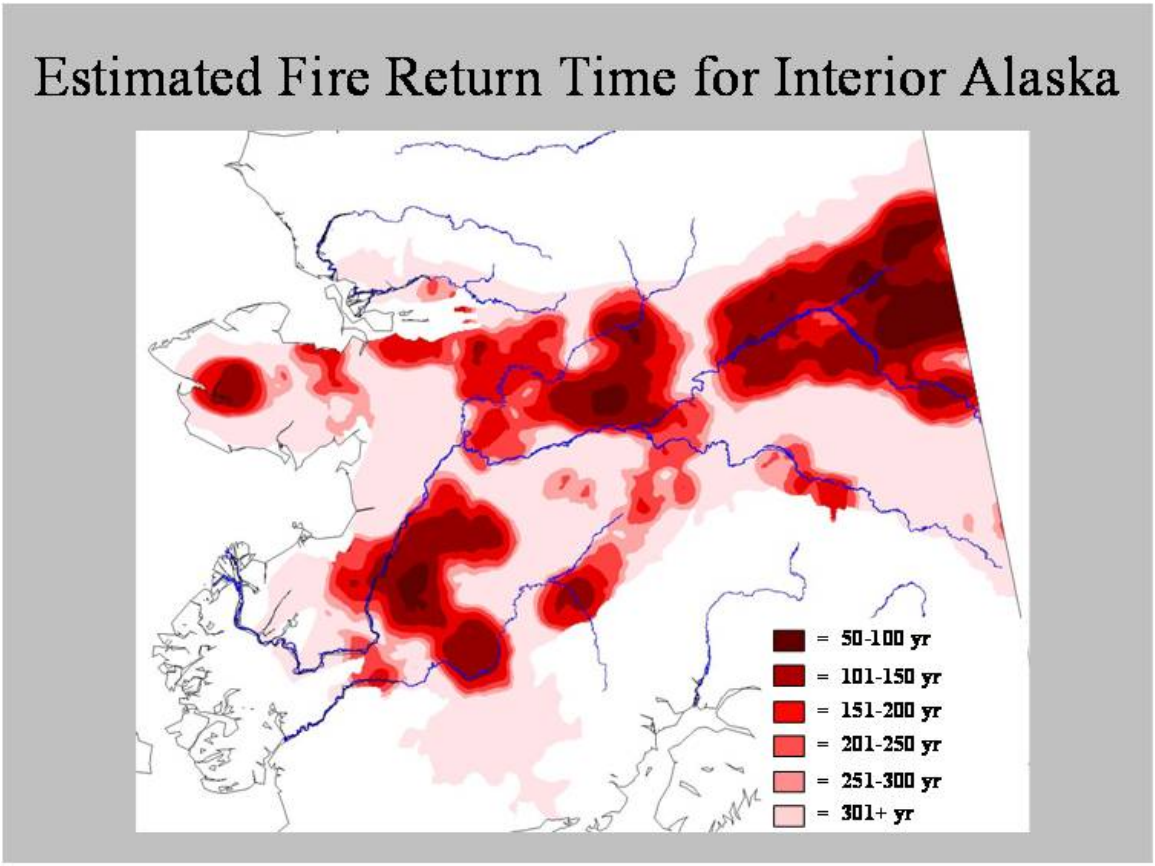


Figure 3.3. Estimated Fire Return Intervals for Interior Alaska

Source: T.S. Rupp. University of Alaska-Fairbanks, Joint Fire Science Project LAI-02-007 (unpublished): 2002.

3.2.12.2. Fire Regime Condition Class

Fire Regime Condition Class (FRCC) is a standardized tool for describing the degree of departure from reference condition vegetation, fuels, and disturbance regimes (Hann et al. 2003). Fire regime describes the patterns of fire occurrences, frequency, size, and severity in a give ecosystem. The vegetation types in the planning area have been categorized into biophysical settings (BpS), described in Hann et al. (2003). Biophysical settings are based on geographic area, physical setting, and vegetation community. Physical characteristics include climate, geology, geomorphology, and soils. Vegetation includes native species and successional stages found under the best understanding of the historic range of variation, including disturbances. Each biophysical setting also has distinct ecological processes associated with it, notably fire frequency, severity, and size (Hann et al. 2003).

Condition class is combined with fire regime to determine a FRCC. There are three possible FRCC classifications: FRCC 1 (low departure), FRCC 2 (moderate departure), and FRCC 3 (high departure). FRCC is further defined by a relative measure of the degree of departure from the natural fire regime. There are three classes of departure (condition class) for each fire regime. Condition Class 1 is defined as being within the natural range of natural variability of vegetation characteristics. Condition Class 2 is a moderate departure from the natural fire regime, and

involves a moderate risk of losing key ecosystem components. In Class 2, the fire return intervals have departed from natural frequencies by one or more return intervals. This can be either an increase or decrease in the fire frequency. There are moderate changes in one or more of the following ecological components: vegetation characteristics, fuel composition, fire type, or other associated disturbances. Condition Class 3 is a high departure from the natural fire regime. In this class fire regime has been substantially altered from its natural range and there is a high risk of losing ecosystem components. Fire frequencies have departed from natural frequencies by multiple fire return intervals. Dramatic changes can occur in one or more of the following ecological components: vegetation characteristics, fuel composition, fire type, or other associated disturbances.

Fire suppression occurred in the planning area for more than fifty years. Large areas of the planning area were in the Full and Modified Management Options up until 10–15 years ago (1990s). Currently most of BLM-managed lands are in the Limited Management Option (Map 14). A fire regime and condition class assessment was completed for the planning area using Landfire data and the FRCC Mapping Tool at www.landfire.gov (GRS 2008). The results of the assessment are shown in the table below.

Table 3.27. Fire Regime Condition Class for the Planning Area

Fire Regime Condition Class (FRCC)	Percent of Planning Area	Percent of BLM Lands
FRCC1	68	49
FRCC2	22	44
FRCC3	9	0
Unclassified	1	7

Two thirds of planning area and half of BLM lands are in FRCC1. Nearly one quarter of the planning area and half of BLM-managed lands are in FRCC2. Areas classified as FRCC3 include lands with mining activity or rock slide areas with sparse vegetation. These do not represent significant acreage. There are almost no FRCC3 areas on BLM-managed lands. Unclassified areas cannot be evaluated and include bodies of water, rock, and snow and ice.

The large amount of FRCC2 in the planning area is due to two factors associated with the black spruce biophysical settings. The first factor is the presence of large homogeneous stands of mature black spruce located along the Steese, Richardson, and Alaska highways, and along the Yukon River. Due to land ownership and proximity to roads and communities, these lands are being managed under the Full and Modified Fire Management Options (e.g., providing a higher level of fire suppression). These are not BLM-managed lands.

The second factor is large areas of mixed FRCC2 and FRCC1 scattered throughout the planning area, much of it on BLM-managed lands. Most of these lands have been moved out of higher protection categories (Full or Modified) in the last 10–15 years (1990s and 2000s) and are now in the Limited Fire Management Option. Partially as a result of these management option changes, large acreages burned in the last decade (2000s).

Past attempts at fire exclusion in these areas affected the vegetation characteristics used in the FRCC model, by rearranging the succession allocations. In other words, fire suppression changed the normal seral class distribution in black spruce. More acres are now in the early and late seral stages than would be expected if these areas had been subject to a natural fire regime. This has resulted in the classification of these areas as FRCC2.

The number of biophysical settings in the planning area are too numerous to display. A complete breakdown of the biophysical settings and succession allocations for each biophysical setting can be found in "Fire Regime Condition Class Assessment for Eastern Interior Alaska" (GRS 2008). Table 3.28 below shows one of the black spruce biophysical settings as an example. The reference condition displays the distribution of seral stages that would be expected in the Boreal Mesic Black Spruce Forest under a natural fire regime. The modeled condition displays the current distribution of seral stages. The amount of black spruce in Classes C and D is much lower than expected. Similarly, the amount of black spruce in Classes A and E is much higher than expected. This indicates a significant departure from the natural fire regime.

Table 3.28. Example of a Biophysical Setting

Biophysical Setting (Bps)	Bps#	Seral Stage (Age Class)				
		Class A (percent)	Class B (percent)	Class C (percent)	Class D (percent)	Class E (percent)
Boreal Mesic Black Spruce Forest - Boreal						
Reference Condition	16041	5	15	30	30	20
Modeled Condition	16041	9.22	28.58	3.61	12.53	46.06

If left in the Limited Fire Management Option, which allows for a more natural fire regime, these areas will move from a FRCC2 to a FRCC1 over time.

3.2.12.3. Fire Behavior

In Alaska, the BLM uses the Canadian Forest Fire Danger Rating System (CFFDRS) for both fire danger and fire behavior predictions. The vegetation in the planning area has been classified into the CFFDRS fuel types in the following table.

Table 3.29. Fuel Types in the Planning Area

Fuel Type (code)	Fuel Type (Percent Planning Area)	Fire Intensity
Matted or Standing Grass (O-1)	22	Generally low to moderate
Boreal Spruce (C-2)	34	Often moderate to extreme
Spruce Lichen Woodland (C-1)	8	Generally moderate to high
Boreal Mixedwood (M-1/M-2)	35	Low to moderate
Water, glaciers, and snowpack	1	None

Matted or Standing Grass O-1: The fire behavior would be low to moderate burning intensity with low to moderate rates of spread and flame lengths. Under extended drought conditions with strong winds and low relative humidities, this fuel type can exhibit high to extreme rates of spread and high intensity burning. Tussock tundra communities may burn with a higher intensity, rate of spread, and flame length if there is a large component of dead standing grass. The severity of burn depends on the amount of moisture in the organic layer. Most fires will be low severity surface fires; however, long period of dry conditions can produce fires that remove some to the entire organic layer, resulting in moderate to high severity fires.

Boreal Spruce C-2: This fuel type is made up of moderate to very dense stands of black spruce with a very deep organic layer. It usually has a large component of volatile shrub species, such as dwarf birch or Labrador tea in the understory. Organic layer depth is usually one foot, but can be

as deep as two feet. This fuel type routinely exhibits moderate to extreme burning intensities and flame lengths, and moderate rates of spread. The fuel type burns as a dependant crown fire and almost always has a portion to the entire canopy involved. While it does not exhibit the extreme rates or spread of the grass fuel models, it will move at speeds up to two miles an hour. Combined with the intensities and flame lengths generated, this fuel type can be very volatile, even under what would otherwise be considered moderate environmental conditions. Upland white spruce is also in this fuel type. While it does not burn as often and needs drier conditions to burn, it may exhibit the same extreme fire behavior as black spruce. Fires in riparian white spruce are very rare; during most burning conditions these communities slow a fire's progress. To burn, white spruce require extreme drought or stand degradation due to disease or over maturity.

Spruce Lichen Woodland C-1: The C-1 fuel type is the less volatile than the C-2 fuel type. It has a black spruce component, but the trees are more widely spaced and the organic layer is shallower (two to four inches) than in the C-2 fuel type. Additionally, it usually does not have volatile shrub species in its understory. It exhibits moderate to high burning intensities and flame lengths, and will generate slightly faster rates of spread than the C-2 fuel model. Rates of spread are moderate to high. It will also involve the crown, but because of fewer trees, the intensities and flame lengths are lower than in the C-2 type. Fires range in severity from just surface fuel consumption to severe fires that consume the entire organic layer.

Boreal Mixedwood M-1/M-2: The M-1/M-2 fuel type is a mix of hardwoods and spruce. Hardwoods found with white spruce are either aspen or birch. Aspen and black spruce can be found on colder sites. Surface fuels are primarily leaf litter. This fuel type is prone to surface fires before green-up. Early season fires may or may not kill the trees. In late summer when drought conditions exist, fires have a smoldering phase that consumes the entire organic layer after the surface fire passes. These fires usually kill and tip over all the trees in the burned area. Fires do not burn in this fuel type after green-up or when drought conditions are absent, and during these conditions, boreal mixedwood areas may be used as safety zones. This fuel type is scattered throughout the planning area except in areas of high elevation.

3.2.12.4. Fire Policy

The overriding priority for all wildland fire actions is firefighter and public safety. Once people have been committed to an incident, these human resources become the highest value to be protected.

DOI Manual 620, Wildland Fire Management (DOI 1998), directs the BLM to provide fire suppression services on all DOI-managed and Native lands within Alaska. The BLM has implemented this direction by creating the Alaska Fire Service which provides wildland fire suppression services in support of management plans on DOI-managed lands and on those lands that require protection under ANCSA.

All other fire management activities such as fire planning, education and prevention, use of prescribed fire, fuels management, emergency stabilization and rehabilitation, establishing initial suppression response strategies, and setting emergency closures priorities are the responsibility of the Eastern Interior Field Office.

In 2005, the BLM developed a Land Use Plan Amendment for Wildland Fire and Fuels Management for Alaska (BLM 2004b, 2005c) which identifies land use and resource objectives,

wildland fire suppression options, and fuels (vegetation) management activities. The amendment applies until such time as new or revised RMPs are completed.

The Alaska Interagency Wildland Fire Management Plan (2010) provides a statewide, coordinated, cost-effective, landscape scale approach to fire management. This plan and its supporting documents contain a description of the local environmental and socioeconomic conditions, natural and cultural resources, fire history and behavior, and local subsistence activities. It also provides a consistent interagency approach to operational procedures and the identification and prioritization of values-to-be-protected. The plan defines four fire management options (Critical, Full, Modified, and Limited).

The four management options are shown in the following table and on Map 14. The designation of a management option pre-selects initial strategies (management response) to a wildland fire; responses range from immediate and aggressive suppression to periodic surveillance. More detailed information is contained in the Alaska Interagency Wildland Fire Management Plan (BLM 2010).

Table 3.30. BLM Alaska Fire Management Options

Fire Management Option	Intent	Management
Critical	Protect areas where there is a threat to human life, inhabited property, designated physical developments, and structural resources designated as National Historic Landmarks	Highest priority for assignment of available suppression resources to exclude fire from the area or site.
Full	Protect cultural and historical sites, uninhabited private property, natural resource high-value areas, and other high-value areas that do not involve the protection of human life and inhabited property.	Priority is below Critical for available suppression resources to suppress fires at the smallest reasonably possible acres.
Modified	Balance acres burned with suppression costs and accomplish land and resource objectives. Strategies are based on an annual conversion date.	Priority for assignment of available suppression resources is below Full. Suppression efforts vary: when risks of large fires are high, the initial response to a fire is analogous to Full without the intent to minimize acres but to balance acres burned with suppression costs. When the risks are low, the appropriate response to a wildland fire is analogous to Limited.
Limited	Allow fires to burn under the influence of natural forces within predetermined areas to accomplish land and resource management objectives. Estimated costs of suppression efforts are a factor.	Surveillance to observe fire activity and to determine if site-specific values or adjacent higher priority management areas are compromised. Site-specific actions when necessary to protect human life and site-specific values.

Fire Management Option designations are based on the values to be protected as well as land and resource management objectives. These management strategies are currently implemented in the planning area. Management options are reviewed yearly and adjusted to ensure resource goals and objectives are being met.

Table 3.31. Fire Management Options in the Planning Area (2015)

Fire Management Option	Total Lands in Management Option (acres)	BLM Lands in Management Option (acres)	General Description of Lands
Critical	428,000	5,000	Majority is in and around villages; under the ownership of village and regional corporations; protects areas of human habitation
Full	5,080,000	49,000	Majority surrounds critical management option areas near villages; ownership of those lands is mostly village and regional corporations; high resource values
Modified	2,571,000	169,000	Low resource value; surrounds Full option; few values at risk
Limited	22,853,000	6,510,000	Low resource value; areas where fire is considered beneficial; few values at risk
Unplanned	16,000	0	A small portion of the landscape is not assigned a Fire Management Option.

Some areas within the Fire Management Options have specific site designations of Critical, Full, Avoid, and Non-sensitive to highlight special concerns, such as structures, cultural and paleontological sites, small areas of high resource value, and threatened and endangered species habitat. These site designations provide more specific guidance for small sites.

Sites designated as "Critical" and "Full" are to be protected from wildfire and generally include all structures (i.e., national historic landmark or permanent residence) meeting criteria in the BLM Alaska Wildland Fire Structure Policy (IM no. AK-2007–033) described below.

Sites designated as "Avoid" are areas where fire suppression efforts should be avoided and effects from suppression efforts minimized because of detrimental effects from wildland fire suppression activities. All aircraft should be restricted from these areas. An "Avoid" site may include endangered species or their habitat, or a cultural or prehistoric site.

The BLM Policy for Structure Protection defines the protection criteria for structures, and criteria for establishing historic value for structures if those values had not been determined prior to a fire event.

3.2.12.5. Fuels Management

To date, prescribed burns or other fuels treatment projects have not been implemented in the planning area on BLM-managed lands. Fuels treatment projects require activity level plans and an environmental analysis. An ANILCA Section 810 analysis may also be appropriate. Management of wildland fires for resource benefit is allowed in the planning area.

3.2.12.6. Smoke Management

Alaska Department of Environmental Conservation (ADEC) is responsible for declaring air episodes and issuing air quality advisories, as appropriate, during periods of poor air quality or inadequate dispersion conditions. After the ADEC develops a State Implementation Plan for regional haze, additional fire tracking and emission management actions many be required. Under state law, all agencies, corporations, and individuals that burn 40 or more acres of land require written approval from ADEC prior to burning. The Enhanced Smoke Management Plan

developed by ADEC outlines processes to help ensure that prescribed fire activities minimize smoke and air quality problems. It also address elements required by the EPA's Interim Air Quality Policy on Wildland and Prescribed Fire (EPA 1998).

3.2.12.7. Fire Prevention

Human-caused wildland fires are infrequent in the planning area and most occur near villages and towns. Of the 265 wildland fires with a BLM point of origin between 1950 and 2014, only 34 were human-caused.

3.3. Resource Uses

3.3.1. Forest and Woodland Products

3.3.1.1. Current Level and Location of Use

The majority of the planning area is forested. However, black spruce (*Picea mariana*) compose a significant portion of the forested area and offer limited commercial value. There are several species that have the potential for commercial value depending on the market conditions: white spruce (*Picea glauca*), paper birch (*Betula papyrifera*), aspen (*Populus tremuloides*), and balsam poplar (*Populus balsamifera*). Pure stands of a single species are rare; mixed stands of hardwood and conifers are common. Tree diameters vary widely through a stand, which makes maximum utilization difficult. In most stands, over 75 percent of the trees are not large enough to utilize as saw logs or house logs. In order to maximize the use of the fiber from these forests, an integrated mill with multiple processing capabilities would be necessary.

The current level of use for timber and forest products in the planning area is limited. Most managed lands with forest resources are located in remote areas with poor access. Nearly all harvest that is occurring is for personal use; including firewood, house logs, and edible forest products. In the past 30 years, only 15 Small Timber Sales, 10 free-use Timber Permits, and five Forest Product Sales have been issued in the planning area. The amount of undocumented harvest for subsistence use within the planning area may exceed that which is permitted.

A number of small communities and isolated residence are found within the planning area. These people often rely, to some extent, on local timber products for building and heating. Generally these needs are met from much more economically feasible harvest areas on state and private lands. BLM has continued to acknowledge and entertain rural needs for timber products but has experienced little demand based on feasibility.

3.3.1.2. Anticipated Demand for Use

The demand for timber products on BLM-managed lands within the planning area is expected to climb slowly in the foreseeable future. The current increase in fossil fuel prices and interest in alternative fuel sources (including bio-fuels) will likely drive much of this increased demand. The number of small local mills in and around Fairbanks, Delta, and Tok has increased by about five in the past decade, to the current level of about 25. Some of these mills have recently upgraded their facilities to include kilns and planers. Large mills, including the pulp mills in Southeast Alaska, appear to be on the decline along with the overall export of forest products from Alaska.

To date, timber sales on State lands have been able to adequately meet current demand in Interior Alaska with over half of all their timber sale offerings going unsold.

An increase in the use of wood stoves and wood fired boilers, especially in the Fairbanks area, has increased the demand for firewood. This increase is due to higher heating fuel prices and to some extent a perceived increase in firewood availability after record wildland fires in 2004 and 2005. The demand on BLM-managed lands has been limited mostly due to access and feasibility but some people have requested permits to harvest firewood while they are participating in other activities such as recreation and hunting. The demand for firewood in some of the smaller communities such as Central, Eagle, and Chicken will not likely change much.

The issuance of permits for commercial use of forest products (e.g., mushrooms or berries) is not expected to change much in the future. After the Tok Fire in 1990, a substantial harvest of mushrooms occurred. After the big wildfire year of 2004, there was significant interest in harvesting mushrooms, but no significant crop materialized. With a sizeable portion of BLM-managed lands burned in recent times and an unpredictable post-fire mushroom crop, demand should only be modest and sporadic related to fire season activity. An increase in the demand for commercial harvest of wild berries may occur in the future. Recent studies have shown positive health benefits from these fruits and this may drive that demand. As with timber resources, access to forest product harvest areas on BLM lands would continue to be very limited.

3.3.2. Land Tenure

3.3.2.1. Disposal Actions

Discretionary disposal actions (i.e., exchange, airport conveyances, Recreation and Public Purposes (R&PP) sales, or FLPMA sales) are usually initiated in response to public requests or application. These actions result in transfer of title and lands from the public domain. Most R&PP sales include revisionary clauses to return the lands to the public domain, if the land is no longer used for the purposes conveyed. FLPMA sales and exchanges do not include reversionary clauses and are generally final.

Non-discretionary disposals such as Native and state conveyances, and Native allotments are not subject to the planning process.

Under the Alaska Statehood Act, the State of Alaska is entitled to receive 104 million acres of federal land. ANCSA requires the transfer of 45 million acres of public land to Alaska Native corporations. Approximately 1.4 million and 1.1 million acres of BLM lands in the planning area are State- and Native-selected, respectively (Table 1.1, “Surface Management Responsibilities and Status”). Final conveyance priority lists for Native and State selections have been submitted to the BLM. At the present time Doyon, Limited, has overselected by more than one million acres and the state has overselected 25 percent on a statewide basis. Some of the selected lands will remain in federal ownership over the long-term. State-selected lands in the Upper Black River Subunit are ranked as priority level 14. This is the lowest priority classification available and it is likely that these lands will remain under BLM-management.

The Native Allotment Act (43 U.S.C. § 270–1 through 270–3, 1970) and the Alaska Native Veterans Allotment Act (43 U.S.C. § 1629g, as amended) allow for the transfer of up to 160 acres of land to eligible Alaska Natives if they occupied the land on August 31, 1971. These are called

Native allotments. There are some Native allotment applications in the planning area that have not been finalized. However, no new applications can be filed.

Finalization of conveyances to the State of Alaska, Native corporations, and individuals (Native allotments) are ongoing. Unselected lands in the planning area are currently retained for public use. Any selected lands which remain after all entitlements are fulfilled, will also generally be retained for public use. However, tenure adjustments, including sale or exchange, may be made in order to meet management needs (such as disposing of isolated parcels).

The needs of local communities will be considered and may also be met by lease or sale under the Recreation and Public Purposes (R&PP) Act (43 U.S.C. 869 et seq.). Although no exchanges, sales, or R&PP disposals have been made in recent years, there is one existing R&PP lease in the planning area.

Section 203 of the Federal Land Policy Management Act (FLPMA) establishes criteria under which public lands may be considered for disposal. In general, all such proposals are to be reviewed under the criteria established by FLPMA. There are no pending FLPMA sales in the planning area.

3.3.2.2. Acquisitions

Section 205 of FLPMA authorizes the acquisition of real property, by purchase, exchange, donation, or eminent domain, where it is consistent with the mission of the department and departmental land use plans. The Eastern Interior FO has recently acquired one private inholding within the Beaver Creek WSR corridor. No other acquisitions are being pursued at this time.

3.3.2.3. Exchanges

43 CFR subpart 2200 regulates the procedures for the exchange of public lands for non-federal lands and interests. No exchanges have been made or are pending at this time. However, approximately 15,000 acres of State land located within or adjacent to the Steese National Conservation Area have been identified for future acquisition (BLM 1986a).

3.3.3. Land Use Authorizations

Public lands in the planning area are open to leases, permits and rights-of-way (ROWs). Applications and proposals are addressed on a case-by-case basis. Surface-disturbing and disruptive activities associated with all types of authorizations and/or development are subject to appropriate mitigation. Although there are six transportation corridors identified in the current plans, ROWs outside of these corridors are not prohibited (section 3.3.3.2 Access Corridors).

On average, approximately three to five ROWs, six 2920 Land Use Permits, and 18 to 20 Long-Term Camping (Land Use) Permits in support of nearby state mining claims are issued each year in the planning area.

Existing guidance for the authorization of trapping cabins is found in the Alaska Supplement to BLM Manual 2920 dated 11/2/87 and IM 2012-022.

“It is the policy of the State Director, Alaska, that cabins may be authorized or recommended for lease in accordance with existing law and regulations on BLM lands in conjunction with

legitimate uses of the land. Cabins may be authorized by permit, only if the value of the structure can be amortized over the period of the permit. 43 CFR 2920.1-1(b)."

Most, if not all, of the current authorizations for cabins are permits issued for trapping cabins. There are no BLM authorizations for Special Use or Subsistence Use Cabins within the planning area.

Communication sites are authorized under 43 CFR 2800 and Title V of FLPMA. At the present time there are four such authorizations within the planning area. Requests for communication site authorizations have been few; however, given the ever increasing demand for reliable communications, it seems reasonable to expect that more requests for communication site authorizations will be received in the future.

3.3.3.1. Unauthorized Use or Trespass

BLM's policy and guidance for dealing with trespass is found in BLM Manual 9232 – Realty Trespass Abatement (dated August 14, 1989). The manual states, in part, that the policy of the BLM is to: ensure that all appropriate realty-related use, occupancy, or development of the public lands is properly authorized under the FLPMA, the Mineral Leasing Act, or other appropriate law; and attempt to resolve the trespass administratively before resorting to civil or criminal procedures for resolution. At the time of this writing, there were approximately 80 known, suspected, or potential cases of trespass (unauthorized use, development or occupancy) within the planning area.

3.3.3.2. Access Corridors

Two transportation corridors are identified in the White Mountains NRA (BLM 1986b). One corridor crosses upper Nome Creek from U.S. Creek Road and extends into the vicinity of Champion Creek. This corridor is intended to provide recreational access to the ridge complex leading to the Mount Prindle area and the highland country. The other corridor begins at the NRA boundary near the Steese Highway and extends to lower Nome Creek. The intended purpose of this corridor is to provide access to a put-in point on Nome Creek which provides access to floatable water on Beaver Creek. Both corridors could also be used to provide access to existing and possible future mineral development (Map 19).

Four transportation corridors are identified in the Steese National Conservation Area; two in the North unit and two in the South unit (Map 19). In the North Steese, one corridor follows the existing Montana Creek trail to Preacher Creek. The other corridor extends from the end of the Porcupine Creek Road to Loper Creek. In the South Steese unit, both corridors were identified to provide access to the south side of Birch Creek; one at Great Unknown Creek and one at Portage Creek/Buckley Bar. Both of these corridors follow existing trails into the Birch Creek WSR Corridor, and both cross the river. The Frying Pan Creek Road was constructed partially within the Great Unknown Creek Transportation Corridor.

In accordance with Section 1107 of ANILCA, any authorized transportation system within the Birch Creek WSR Corridor must be compatible with wild river values and shall be constructed in a manner that does not interfere with or impede stream flow or transportation on the river. Location and construction techniques will be selected to minimize adverse effects on scenic, recreational, fish, and wildlife and other values of the river area.

No other transportation corridors have been identified within the planning area.

3.3.4. Minerals

3.3.4.1. Leasable Minerals

Leasable minerals are defined by the Mineral Leasing Act as leasable solid and leasable fluid minerals. Leasable solid minerals include coal, oil shale, native asphalt, phosphate, sodium, potash, potassium, and sulfur. Leasable fluid minerals include oil, gas, coalbed natural gas, and geothermal resources. Production of these minerals on public land may only occur on leases acquired by competitive leasing.

3.3.4.1.1. Oil and Gas

The planning area contains two oil and gas basins: the Kandik and the Yukon Flats Basin. Four hydrocarbon wells (one coalbed methane and three oil and gas) have been drilled within the boundaries of the planning area. Two additional shallow holes were drilled and encountered gas. The oil and gas potential is not fully realized for this area.

Presently, there are no active federal oil and gas leases. However, there are 91 suspended oil and gas lease offers within the planning area. Most of these pending, noncompetitive offers were filed prior to 1975. Of these, 81 are within the Yukon Flats NWR, leaving 10 pending leases on BLM-managed lands. These 90 suspended lease offers comprise less than 10,000 acres within the Upper Black River Subunit. These suspended leases have had limited exploration and no oil and gas development. If the Native-selected mineral estates underlying these offers are not conveyed to a regional Native corporation, the offers will be adjudicated and, if appropriate, leases will be issued at such time as the land withdrawals suspending the offers are removed. If the mineral estates are conveyed, the offers will be rejected.

History and Development

The Kandik Basin is a structural depression containing Paleozoic-Mesozoic sediments that straddles the Alaska-Yukon Territory border. Three wells were drilled in the Kandik region (Upper Black River Subunit), but were not located within the basin.

The Yukon Flats Basin spans all four planning subunits. In 2004, the USGS conducted a study of the Yukon Flats Basin and determined the existence of technically recoverable oil. The report estimated a resource of 173 million barrels (mmb) of oil, 127 mmb of natural gas liquids, and 5.46 trillion cubic feet of gas. Unfortunately, the lack of deep wells within the basin contributes to an uncertainty in this resource assessment. In 2004, the BLM and USGS drilled a coalbed natural gas test well, reaching a depth of 2,287 feet, which is the deepest hole drilled in the basin. The results of this test well were not favorable, as coal with only minor amounts of biogenic methane were encountered.

Occurrence Potential

Several geologic elements are necessary for the accumulation of oil and gas. These elements include an organic-rich source rock, the combined effects of heat and time, a porous and permeable reservoir rock, and a trap to prevent the oil and gas from escaping to the surface. Traps generally exist in predictable places, such as at the tops of anticlines, next to faults, in the updip pinchouts of sandstone beds, or beneath unconformities. Map 87 shows the occurrence

potential for oil and gas throughout the planning area; however, there is no implication that these resources can be developed economically.

The USGS prepares estimates of oil and gas resources in the United States based on the concept of a "play," which is defined as a set of oil and/or gas accumulations sharing similar geographic boundaries and geologic attributes, such as source rock, reservoir type, and trap (Beeman et al. 1996). Plays occur within oil and gas basins and by definition, plays identified by the USGS are to be considered high potential for future oil and gas exploration.

Development Potential

Kandik Basin

According to the USGS, the Kandik basin contains six conceptual plays in Yukon Territory, Canada (three oil and three gas) and two conceptual plays in Alaska (the Kandik Pre-Mid-Cretaceous Strata Play, Kandik Upper Cretaceous and Tertiary Non-Marine Strata Play). A conceptual play is a hypothesized play based on the subsurface geologic knowledge of the area.

The overall resource potential of the Kandik Pre-Mid-Cretaceous Strata Play is poor, despite having a world-class source rock in the Glenn Shale, due to the risk associated with both reservoir and trap integrity being very large (Stanley 1995). The Kandik Upper Cretaceous and Tertiary Non-Marine Strata Play has little to no development potential.

Yukon Flats Basin

The available reconnaissance 2D seismic data shows that the Birch Creek deep portion of the Yukon Flats Basin can be divided into multiple Geologic Plays: Tertiary Sandstone Play, Sub-thrust Play, and Crooked Creek Play. With the current data on the Yukon Flats Basin, there is general agreement on the existence of sedimentary rocks, faults, folds and where the most likely portion of the basin has the highest potential for oil and gas.

Most of the estimated technically recoverable resources are in the Tertiary Sandstone Play. At the mean, approximately 97 percent (5.28 trillion cubic feet (tcf)) of the undiscovered gas, and 96 percent (165.57 mmb) of the oil is estimated to be within this play (Stanley et al. 2004). Less than 1 percent (0.02 tcf and 0.61 mmb) of the technically recoverable oil and gas is located in the Sub-thrust Play (Stanley et al. 2004). Approximately 3 percent of the technically recoverable gas (0.16 tcf) and 4 percent of the technically recoverable oil (6.47 mmb) is in the Crooked Creek Play (Stanley et al. 2004).

3.3.4.1.2. Coal

Sedimentary rocks with known coal deposits occur in several areas within the planning area (Map 87). Subbituminous grade coal occurrences can be found in the Eagle Field, as well as the Chicken, Circle, and Steese coal districts. All of the coal deposits within the planning area are part of the larger Upper Yukon coal province.

The Eagle Field is located in the Fortymile Subunit, approximately nine miles from the U.S.-Canadian border on its furthermost easterly flanks. It encompasses 392,500 acres, all on the southern banks of the Yukon River. The coal is ranked as subbituminous C and lignite and occurs in seams less than five feet thick and is exposed in broad open folds of Late Cretaceous and Tertiary strata (Merritt 1987). Exploration occurred in the early 1900s and resulted in the

extraction of approximately 2,000 short tons. The mined coal was sledded to various communities along the Yukon River and was used in river steamers or transported to the Dawson market (Collier 1903). Despite the large deposits of coal, there is still low potential for development, unless nearby infrastructure were to be developed.

The Chicken District is located within the Fortymile Subunit, about 50 miles south of the Eagle Field on a small tributary to the South Fork of the Fortymile River. The Chicken District's most notable coal feature is a 22-ft thick subbituminous seam that dips to near vertical in an outcrop (Merritt 1987). Coal mining did not occur here until the 1930s when a shaft was opened into the larger coal bed. The coal was used locally in placer mining operations (Merritt 1986). There is currently no coal being produced from the Chicken District. The low grade coal and the limited size of the district make it an unattractive source for large-scale development.

The Circle District is a small body of coal that is bounded by the Tintina Fault to the south and the Yukon River to the north. The Circle District encompasses roughly 77,000 acres and is mostly defined as subbituminous coal. The Steese District, which lies approximately 50 miles west of the Circle District, contains a small body of coal that encompasses 18,000 acres. Bed thickness is typically less than five feet and is predominantly defined as Tertiary subbituminous to bituminous coal. This coal seam stretches across the length of the Tintina Fault all the way to the Rampart Field, roughly 180 miles to the west. All totaled, there is an estimated resources of 50 million short tons of coal (Merritt 1987). Coal from these districts was used locally for heat, until heating fuel became available. The remoteness and low-grade of these coal districts make any large-scale development unlikely.

3.3.4.1.2.1. Coal Bed Natural Gas

Coal Bed Natural Gas (CBNG) is gas composed primarily of methane that was produced by the coals during the coal-forming process and is held within the coals by hydrostatic pressure created by the presence of water. In order to produce CBNG, the pressure within the coal needs to be reduced to release the gas. This is accomplished by pumping water from the coals.

Methane within coals has long been recognized as a hazard when mining the coals. It wasn't until the 1980s that CBNG was thought of as a potential reservoir target, even though producers often drilled through coal seams on their way to deeper targets. During the late 1990s, CBNG production increased dramatically nationwide to meet growing energy demands. In 2007, CBNG accounted for nearly 10 percent (1,754 billion cubic feet (bcf)) of total gas production (19,089 bcf) within the United States (EIA 2009).

3.3.4.1.2.2. Geothermal

Geothermal energy consists of heat stored in rocks, and, to a lesser extent, in water or steam-filled pores and fractures. Water and steam transfer geothermal heat by convection to shallow depths within the earth's crust. This heat can be tapped by drilling. Geothermal heat may also escape at the surface in geysers, thermal springs, mud volcanoes, and vents (usually volcanic) called fumaroles.

Geothermal resources of varying temperatures are known to occur throughout the planning area. Geothermal areas that have been identified include; Chena Hot Springs, Circle Hot Springs, Big Windy Hot Springs, and Flat Creek Hot Springs. None of these hot springs are categorized as Known Geothermal Research Areas (KGRA). The potential for geothermal is low due to the fact

that most springs are on private land. The only hot spring on BLM land, Big Windy Hot Springs, is a Research Natural Area.

3.3.4.1.2.3. Oil Shale

Oil shale is considered a solid leasable mineral. Oil shale was formed millions of years ago when silt and organic debris was deposited on lake beds or sea bottoms. Over time, heat and pressure transform materials into oil shale similar to the process that generates oil; however, the heat and pressure were not as intense. The extraction of hydrocarbons from oil shale is more complex than pumping oil from conventional oil wells. Oil shale must first be mined and then heated to a high temperature (retorting), the resulting liquid can then be separated and collected.

Oil shales have been identified in the Upper Black River Subunit, specifically in the southeastern margin of the Kandik Basin with exposed areas near Trout Creek, Nation River, and along the banks of the Yukon River. Initial estimations found that deposits along Trout Creek may contain 28 gallons of oil per ton, but further investigation found actual oil quantities may be as low as 0.3 to 7.6 gallons with an average of 4.8 gallons per ton (Brabb and Churkin 1969). USGS investigations have found that oil shales explored along the Yukon River, across the banks from the Nation River, contained 1.7 to 12.3 gallons per ton with an average of 4.0 gallons per ton (Troutman and Stanley 2002). There is currently no production of oil shales in the planning area. Further exploration must be conducted to fully realize the extent of oil shales in the planning area. There is no potential for production on BLM lands.

3.3.4.2. Locatable Minerals

Locatable minerals are minerals for which the right to explore, develop, and extract mineral resources is established by the staking of mining claims, as authorized under the General Mining Law of 1872. Examples of locatable minerals include metallic minerals (i.e., gold, silver copper, mercury, zinc, molybdenum, uranium, tungsten) and non-metallic minerals (i.e., limestone, barite, gypsum, diatomaceous earth, fluorspar, opals).

There is an abundance of publicly available information detailing mineral occurrences within the planning area. Two databases were used to provide site-specific mineral occurrence information on a statewide basis, the USGS's Alaska Resource Data File (ARDF) and BLM's Alaska Minerals Information System (AMIS).

The BLM Alaska State Office, Branch of Energy and Solid Minerals prepared a Mineral Occurrence and Development Potential Report for Locatable and Salable Minerals (BLM 2009b). This report provides more detailed information on locatable mineral occurrence and development potential in the planning area and is available online at www.blm.gov/ak/eirmp (Map 88).

3.3.4.2.1. History and Development

The planning area includes all or portions of 13 mining districts, as established by Ransome and Kerns (1954). The Circle, Tolovana, Eagle, Fortymile, and Fairbanks districts are classified as major gold producing districts, with the Fairbanks district being the largest producer in Alaska (Nokleberg 1993). The planning area boundary bisects the Fairbanks mining district; three quarters of the gold production of the district occurs within the planning area boundary. In total the Fairbanks District (including the Richardson Subdistrict) produced 13 million troy ounces of gold, of which 8.3 million is from placer and 4.7 million is from hard rock sources . About

11.2 million ounces of gold have been produced in the planning area since 2007. The Tolovana, Eagle, Fortymile and Circle mining districts contributed a combined total of about 1.7 million ounces of gold, as of 2007.

Table 3.32 presents an estimated summary of placer and lode gold produced in the planning area described in terms of Mining Districts (Ransome and Kerns 1954).

Table 3.32. Ounces of Gold Produced in the Planning Area Through 2007.

Mining District[a]	Total Gold Produced in Planning Area[b]	Placer Gold	Lode Gold	Placer Gold since 2001[c]	Lode Gold since 2001[c]
Rampart[d]	0	N/A	N/A	N/A	N/A
Tolovana	530,121	530,121	0	655	0
Yukon Flats	0	0	0	0	0
Circle	1,084,035	1,084,035	0	25,592	0
Black	2	2	0	2	0
Eagle	52,045	52,045	0	45	0
Fortymile	564,631	564,631	0	18,197	0
Chisana[d]	0	N/A	N/A	N/A	N/A
Tok	280	280	0	0	0
Goodpaster	375,534	2,050	373,484	0	373,184
Fairbanks[e]	9,387,708	7,946,562	4,321,592	31,117	2,144,147
Delta River	8,2770	8,270	0	0	0
Sheenjak	0	0	0	0	0
TOTAL	11,525,626	10,757,820	4,763,876	195,778	2,517,331

[a]District boundaries established by Ransome and Kerns, 1954

[b]Source: Szumigala 2008

[c]2001 production data from Swainbank et al. 2002

[d]Gold produced in the Rampart and Chisana Districts was out of the planning area

[e]Production includes gold produced in the Richardson Subdistrict/Fairbanks Mining District

3.3.4.2.2. Placer Gold

Gold was discovered in the planning area in 1887 on Franklin Creek, a tributary of the Fortymile River, in the Fortymile Subunit. Gold has been continually mined in the region since. The ARDF database contains information on 236 placer gold occurrences existing in the planning area. The Alaska Division of Geological and Geophysical Surveys (DGGS), in the 2007 Mineral Industry Report list 81 separate companies or individuals that are estimated to be producing gold in the planning area (Szumigala et al. 2008).

3.3.4.2.2.1. Low-sulfide Au-quartz veins

The ARDF database indicates there are 29 quartz veins that were past producers of gold in the planning area. None of these are located in the Upper Black River Subunit. The Locatable Mineral Occurrence and Development Potential Report (BLM 2009b) presents a summary of historic lode producers based on a query of the ARDF database (USGS 2008a,b). The Cleary Hill/Summit, Henry Ford, and the McCarty Shaft mines were the largest producers of this deposit type. Cleary Hill (ARDF# LG119), is estimated to have produced over 100,000 fine ounces of gold since it was first mined in the early 1900s. It is estimated to contain another 100,000 ounces of gold in steeply dipping high-grade quartz veins. The McCarty Shaft (ARDF# LG150) and

the Henry Ford Mine (ARDF # LG153) are both mines on the McCarty/American Eagle vein system just east of Cleary Hill.

Significant Deposits

Although the AMIS and ARDF electronic databases list all reported occurrences and deposits regardless of economic potential, Nokleberg et al. (1987, 1993, and 1994) provide summaries of those lode deposits considered most significant based on size, favorable geology, likelihood of economic development, and industry interest at the time of press. The Alaska DGGS, through its annual Alaska's Minerals Industry Report series, provides updating to the list of significant mineral deposits (Szumigala et al. 2008). Using data from the ARDF (USGS 2008a), the DGGS Special Report series, the list of Significant Deposits was amended to include additional sites not known or fully developed at the time of Nokleberg's publications and to highlight occurrences with resource volume data. The following table presents a summary of Significant Deposits for the planning area.

Table 3.33. Significant Mineral Deposits in the Planning Area

Deposit Name	Quadrangle	Deposit Model Type[a]	Commodity	Production
Fort Knox	Fairbanks	Fort Knox type porphyry Au	Au	Large
Delta District (MID)[b]	Mount Hayes	Kuroko massive sulfide (28a)	Pb, Zn	None
Blue Lead; Blue Lead Extension[b]	Big Delta	Low-sulfide Au-quartz veins (36a)	Au	Small
Cleary Hill; Summit[c]	Livengood	Low-sulfide Au-quartz veins (36a)	Au	Medium
Livengood/Money Knob[d]	Livengood	Low-sulfide Au-quartz veins (36a)	As, Au, Fe, Sb	None
Democrat; Mitchell Lode[b]	Big Delta	Plutonic Related Au (No Model #)	Au	Small
Pogo; Liese Creek[c]	Big Delta	Mesothermal Shear hosted Quartz veins	Au	Large
LWM[d]	Eagle	Polymetallic Replacement Deposits (19a)	Ag, Au, Hg, Pb, W, Zn	None
Taurus[b]	Tanacross	Porphyry Cu-Mo (21a)	Cu, Mo	None
Slate Creek Asbestos	Eagle	Serpentine-hosted asbestos (8d)	Asbestos	None
LMS[d]	Big Delta	Undetermined	Au	None
Roy Creek (formerly Mount Prindle)[b]	Circle	Undetermined	U	None
True North[c]	Livengood	Undetermined	Au	None
Dolphin[c]	Livengood	Undetermined	Au	None
Gil[c]	Livengood	Undetermined	Au	None

[a]Deposit models based on Cox and Singer (1987)

[b]Based on descriptions from Nokleberg et al. (1993)

[c]Based on descriptions from Szumigala et al, Special Report 62 (2008)

[d]Based on descriptions from USGS Open-File Report 2008–1225 (Grybeck, 2008)

Mining Claims

There are 930 active mining claims within the planning area. Federal mining claim locations generally indicate a level of mineral potential and exploration known prior to 1971. There have been no opportunities to stake new federal mining claims on most BLM lands within the planning

area since that time due to ANCSA 17(d)(1) and ANILCA withdrawals. There are no existing federal mining claims on BLM-managed land in the Upper Black River Subunit.

Table 3.34. Mining Claims and Prospecting Sites in the Planning Area

Type	Acres Claimed[a]	Number of Individual Claims[b]	Number of Unique Owners[c]
Federal Mining Claims (unpatented)	25,600	938	80 names
State prospecting sites	21,000	132	16 names
State mining leases	12,700	19	13 names
State mining claims	1,250,500	16,018	422 names
State claims Total	1,284,200	16,169	451 names
Grand Total	**1,309,800**	**17,107**	**933 names**

[a]State claims data based on a 11/23/2008 extract from State of Alaska database

[b]Federal claims data based on 10/23/2008 version of the data set

[c]Unique names represent large mining companies, Native corporations, individuals, or small associations

3.3.4.2.3. Rare Earth Elements

Industry interest in rare earth elements (REE) is currently high due to possible shortages of these elements for use in hybrid automobiles and wind turbine generators (BLM 2011). REE occur in the White Mountains NRA, which is withdrawn from locatable mineral entry by ANILCA, but ANILCA allows for a mineral leasing program at the discretion of the Secretary of the Interior. A supplement to the Draft RMP/EIS was prepared to consider hardrock mineral leasing in the White Mountains, including REE. This supplemental EIS can be found in Appendix M.

The Roy Creek High LMP area lies about 15 miles west-northwest of Mount Prindle in the White Mountains NRA. Armbrustmacher (1989) shows the mapped boundaries of a uranium and REE anomalous syenite granite at the headwaters of Roy Creek. An excerpt from the report states: "Interest in the syenite complex stems from the fact that it is genetically and spatially associated with several small deposits that are extremely high in thorium and rare-earth elements (REE)". The location of REE in this area was backed up by anomalous geochemical sampling results collected by USGS (Weber et al. 1988) from trenches and drill core. The DGGS published the results of their Mineral Assessment of the Lime Peak – Mount Prindle Area and found additional syenite intrusives to the east of the Roy Creek intrusive (Smith et al. 1987). This area lacks any ARDF sites but does include one Significant Mineral Deposit (Nokleberg et al. 1987) ,two AMIS sites related to REEs and the location of lode claims that covered the area in the late 1970's. Mineral occurrences immediately around Mount Prindle are have higher uranium concentrations relative to REEs.

3.3.4.3. Salable Minerals

The local demand for salable minerals, also called mineral materials, in the planning area is generally being met by producers located on private or State lands. The primary mineral material commodity is sand and gravel used in construction and road maintenance. The ARDF database does not evaluate mineral materials but BLM's AMIS database lists 20 sites as producing sand and gravel or stone. Of these 20 sites, twelve are sand and gravel sites, located along the major highways and provided sites for road construction. The other eight sites are listed in AMIS as "Stone" occurrences and are most likely also used for construction material.

Mineral Materials production has gradually decreased since construction of the Trans-Alaska Pipeline. Sand, gravel, and stone production is surveyed by the DGGS and reported in the annual Alaska's Mineral Industry reports. The State's production of sand and gravel from 1967 to 1986 averaged 40 million tons per year. From 1987 to 2007 production averaged 14 million tons. The higher production levels in the seventies and eighties are related to the construction surrounding the Trans-Alaska Pipeline, with the annual production peaking in 1974 at 119 million tons. Various current plans to construct a natural gas pipeline along the Dalton, Richardson, and/or Alaska highways will drive the materials demand higher, but engineering design (buried or above ground) will ultimately drive the level of demand. It is foreseeable that most of the resource for this portion of the proposed route will come from State or private lands.

The Alaska Mineral Industry report also provides production by region. In 2007, 4.4 million of the reported 14.2 million tons of sand and gravel produced for the whole state came from the DGGS' "Eastern Interior" region (Szumigala et al. 2008). Statewide production of building stone (such as crushed stone, D-1, riprap) has averaged about 3 million tons for the last 20 years. Of the 2.2 million tons of building stone reported for 2007, only 105 thousand tons came from the entire DGGS' Eastern Interior region (Szumigala et al. 2008). The DGGS' Eastern Interior region is about twice as large of an area as BLM's Eastern Interior Planning Area.

There are currently 10 active, BLM-managed mineral material sites in the planning area, with a total production of less than 150,000 cubic yards/year sand and gravel. These sites are utilized for local consumption and are generally located along the road system.

3.3.5. Recreation

3.3.5.1. Fortymile Subunit

Located in Interior Alaska along the United States-Canada Border, the Fortymile Subunit is approximately 180 air miles (290 km) east of Fairbanks, 325 air miles (523 km) northeast of Anchorage, and 70 miles (112 km) west of Dawson, Yukon Territory. Although generally accessible by road, air, and water, predominant access to the region is provided by the Taylor Highway. Several small communities are located along the highway, including Chicken (at Mile 66), with a permanent population of about 25 people and Eagle (Mile 160) with a permanent population of about 150 people (Map 2).

BLM-managed lands in the subunit offer a diversity of outdoor recreation opportunities, which include land, water, and snow-based activities. Examples of recreation activities commonly conducted in the area include boating and river-based recreation, camping, fishing, gathering of edible plants and berries, hiking and backpacking, hobby mineral collecting, and OHV use. In addition, the presence of migratory and resident wildlife produces abundant opportunities for hunting, trapping, photography, and wildlife viewing.

Although the Fortymile Subunit is actively promoted as a recreational destination, BLM facilities and recreation staff remains limited. There have been major increases in recreational visitation and use over the last 15 years, and impacts to other resources from recreation have been identified.

Until such a time as the Eastern Interior RMP process is complete, the 1980 Fortymile MFP in conjunction with the 1983 Fortymile River Management Plan, will be the relevant planning documents for BLM-managed lands in this region.

The five objectives for recreation management in the Fortymile MFP were (1) to provide interpretation for visitors to the Fortymile resource area; (2) to provide recreation facilities that will enable visitors to use and enjoy the public lands in a safe and healthful manner; (3) to manage areas with exceptional wilderness values in a manner that will protect and preserve these values; (4) to develop and implement a program for the regulated use of off-road vehicles within the Fortymile resource area; and (5) to provide a program of resource protection and visitor assistance services within the Fortymile resource area.

On December 2, 1980, ANILCA (P.L. 96-487) established the Fortymile, and certain tributaries, as a component of the NWSR. ANILCA also directed the Secretary of the Interior to establish detailed boundaries, prepare a management and development plan, and to present this information to Congress by December 2, 1983. In response to these directives, the detailed boundaries of the Fortymile WSR were set forth by the Fortymile River Management Plan, (BLM 1983a) signed in December 1983.

The three objectives for recreation management in the Fortymile River Management Plan were (1) to provide high-quality recreational opportunities associated with a free-flowing river for present and future generations; (2) to provide recreational use of fish and wildlife resources, including hunting and fishing within the framework of appropriate federal and state laws; and (3) to provide for a level of utilization of land and water resources which will leave the existing environment unimpaired for the use and enjoyment of future generations.

Off-highway Vehicle Management

Off-highway vehicle (OHV) use in the Fortymile Subunit has become an issue of significant concern due to possible degradation of resources that can result from high levels of use and the proliferation of pioneered routes. The Fortymile MFP did not set OHV designations. Between the months of mid-August and late-September, motorized travel increases with the advent of the fall big game hunting season. During this time, travel along the Taylor Highway increases significantly as highway vehicles scout the area for game and areas to stage for OHV use. Although the majority of OHV use occurs predominantly on existing roads and trails, there is an increasing trend in cross-country travel by hunters accessing remote areas, and by those retrieving game. This type of travel pattern often leads to route-proliferation. These user-created routes are unsustainable and can cause significant resource damage. However, as is the case in much of Alaska, the majority of existing routes are the result of user-created trails that either follow historic non-recreational routes (such as, mining or access) or were created by OHV users repeatedly driving cross-country. Accordingly, many of the existing routes within the Fortymile Subunit are not sustainable from a resource management perspective.

With increased pressures from growing populations and advances in OHV technology, the BLM anticipates that travel demands in the Fortymile Subunit could see significant growth in both land use and levels of activity participation. Since OHV use accounts for the majority of travel-related activities in the Fortymile Subunit, it is perceived that the demand for this activity will continue to grow in the future. As this occurs, the need for additional trails and mechanisms for managing these trails could become necessary. Mechanism for managing the effects of OHV use include, designating routes, prohibiting use in sensitive areas, providing user education, and providing appropriate law enforcement in the area. Doing so may further ensure that user satisfaction remains high while maintaining minimal impacts to the natural environment.

Special Recreation Permits

Special Recreation Permits (SRPs) are authorizations which allow specified recreational uses of public lands and related waters. They are issued to provide a mechanism to accommodate commercial recreational use, protect natural and cultural resources, and to manage visitor use. As authorized by the Land and Water Conservation Fund Act, there are five types of uses for which SRPs are required: commercial, competitive, vending, individual or group use in special areas, and organized group activity and event use. Permits can be issued for periods ranging from 1 to 10 years. Currently, the demand for SRPs in the Fortymile Subunit remains fairly low, with the administration of only one active SRP for guided river trips.

The BLM collects fees in several locations throughout the Fortymile Subunit, including the West Fork, Walker Fork, and Eagle campgrounds. Services to the public are provided from these monies by reinvesting recreation fees at the local sites where they were collected, to benefit visitors through enhanced facilities and services. These services include (but are not limited to) maintenance of campgrounds, trails, and restroom facilities; staffing of campgrounds with seasonal hosts; and expenses related to interpretive signs and programs. Fees amounted to approximately $10,000 in 2008.

Recreation Management Areas

Encompassing approximately 250,000 acres within the Fortymile Subunit, the Fortymile River SRMA caters to a diverse market of international, national, regional, state, and local recreation users. Although the majority of visitors to the Fortymile Subunit are Alaska residents, an increasing number are from national and international locations. Drawn to the area by its array of Alaska wilderness recreational opportunities, visitors come to the region from all over the U.S. and abroad. Most numerous are the Taylor Highway travelers, who are generally passive users of the river environment. Their use is most commonly reserved to the activities of camping, fishing, hiking and backpacking, photography, and wildlife viewing. Accordingly, the majority of non-resident visitor use occurs from May to September.

Resident users of the Fortymile Subunit can be categorized into two primary groups: year-round and seasonal occupants. Although it is estimated that less than 150 people reside year-round in the Alaskan basin (U.S. side of the Fortymile region), BLM-managed lands are often used as "backyard" recreation areas by local residents. The communities of Chicken and Eagle are located directly adjacent to BLM-managed lands. This proximity to public lands provides year-round access to outstanding recreational opportunities. This use increases during the summer, due to an influx of seasonal residents. The approximately 250,000 acres that comprise the Fortymile WSR Corridor receive an estimated 90,000 visits per year, according to the BLM's Recreation Management Information System.

The Chicken Field Station, located at Mile 68 of the Taylor Highway, is the primary administrative site for the management of the area. BLM employees and volunteers, who live and work there seasonally (May through September), staff the station. Developed recreation sites within the Fortymile River SRMA include: the Mount Fairplay Wayside, Logging Cabin Creek Wayside, West Fork Campground and River Access (25 sites), Mosquito Fork Wayside, Mosquito Fork Overlook Trailhead, South Fork Wayside, Walker Fork Campground (22 sites), Davis Dome Wayside, Fortymile Wayside and River Access, Eagle Campground (18 sites), and Fort Egbert National Historic Landmark.

Trends in Outdoor Recreation Activities

According to BLM staff, the following trends in recreation have been observed in the Fortymile Subunit:

- increased OHV use
- increased demand for trails, both motorized and non-motorized
- increased hunting pressure
- increased visitation of recreation and cultural sites due to an increase in the distribution of information via the Internet and other media outlets
- increased demand for non-motorized water based recreation experiences
- increased demand for overnight RV and tent camping areas

Most public land use estimates and activity participation estimates depend entirely on field observations and professional judgment of BLM recreation staff, and are approximate and not scientifically based. The 250,000 acres that comprise the Fortymile Subunit receive an estimated 90,000 visits per year. With increased pressures from growing populations and advances in recreation technology, recreation use in the Fortymile Subunit has seen significant growth in both land use and levels of activity participation. As this continues to occur, the need for additional facilities and/or trails, and the mechanisms for managing these assets will become increasingly necessary.

3.3.5.2. Steese Subunit

Located approximately 70 miles north of Fairbanks, and encompassing 1.2 million acres, the Steese National Conservation Area is divided into two units by State of Alaska lands and the Steese Highway. The North Unit is bounded on the southwest by the Fairbanks North Star Borough, the west by the White Mountains NRA, the north by the Yukon Flats NWR, and on the east and south by State of Alaska lands. The South Unit is bounded on the west and south by the Borough, the east by Yukon-Charley Rivers National Preserve, and on the east and north by State of Alaska lands.

As the popularity of the area has increased, so has visitation and demand for a variety of recreational opportunities. The Steese National Conservation Area offers a diversity of outdoor recreation pursuits, which includes land, water, and snow based activities. Examples of recreation activities commonly conducted in the area include boating and river-based recreation, fishing, hiking and backpacking, gathering of edible plants and berries, dog mushing, skiing, skijoring, hobby mineral collecting, and OHV use (including snowmobiling). In addition, the presence of migratory and resident wildlife produces abundant opportunities for hunting, trapping, photography, and wildlife viewing.

Most of the recreational opportunities occur during the snow free seasons (May through September), with the fall big game hunting season attracting the greatest number of visitors for caribou and moose. Spring bear hunting is also popular, but does not attract as many visitors as the fall season. Grouse and Ptarmigan hunting also attract a small number of visitors in the fall and throughout the winter season.

Until such a time as the Eastern Interior RMP process is complete, the Steese RMP (BLM 1986a), the Birch Creek River Management Plan (BLM 1983b), and the 1993 Recreation Activity Management Plan (RAMP) for the Steese National Conservation Area and Related Lands along the Steese Highway will be the relevant planning documents for BLM-managed lands in this region.

Steese National Conservation Area Resource Management Plan: Established by Congress in 1980, the Steese National Conservation Area was directed to consider, in planning and management, the special values of caribou range and Birch Creek. To accommodate these directives, the Steese RMP (BLM 1986a) was developed using the BLM planning system, as outlined in Section 201 of FLPMA (P.L. 94579).

Twelve objectives were identified in the RMP. The five that related to recreation were (1) to protect existing viewsheds along Birch Creek; (2) to improve access to recreational opportunities; (3) to provide for quality hunting, trapping, fishing, and wildlife viewing; (4) to protect Primitive recreation values in the Mount Prindle/Lime Peak area and along the Pinnell Mountain Trail; and (5) to provide opportunities for OHV use where compatible with fish, wildlife, and recreation objectives.

Birch Creek River Management Plan: Subject to prior existing rights, ANILCA classified and designated approximately 126 miles of Birch Creek as a "wild" river pursuant to the Wild and Scenic Rivers Act (WSRA, P.L. 90 542). In doing so, Congress intended that Birch Creek WSR be preserved in a free-flowing condition, and that the river and its immediate environment be protected for the benefit and enjoyment of present and future generations. It also directed BLM to develop a River Management Plan which was completed in 1983 (BLM 1983b).

Of the eight management objectives that were identified in the plan, the two that pertained to recreation were (1) to provide high quality primitive recreational opportunities for present and future generations; and (2) to provide a variety of opportunities for interpretive, scientific, educational, and wildlands oriented uses.

Recreation Activity Management Plan for the Steese National Conservation Area and Related Lands along the Steese Highway: The Steese RMP (BLM 1983a) called for the preparation of a Recreation Activity Management Plan (RAMP), to provide specific detailed locations, timing, methods, and rationale for (1) public information and interpretation; (2) a remote public use cabin program; (3) campgrounds, trailheads, boat launches, or other facilities; and (4) summer and winter trails, with particular emphasis to hiking trails associated with Birch Creek.

The plan identified three issues:

- Basic accessibility, safety, health, and sanitation services;
- Resource protection; and,
- Establishment and maintenance of desired experience opportunities.

A RAMP was approved in October 1993. Since that time, four sites were identified as roaded natural under the ROS, and site improvements were made following the BLM activity-level planning process. Twelvemile Summit and Eagle Summit waysides provide access to the Pinnell Mountain Trail, while Upper Birch Creek and Lower Birch Creek waysides provide access to Birch Creek.

Off-highway Vehicle Management

The Steese RMP (BLM 1986a) describes the level of OHV opportunities available; however, some decisions were subsequently amended by *Federal Register* Notices. Currently there are approximately 1,065,000 acres designated as Limited to summer use of OHVs with weight restrictions, nearly 1,200,000 acres designated as Limited to winter use of OHVs with weight restrictions, and approximately 12,000 acres Closed to OHVs. Off-highway vehicle use is monitored intermittently in various locations. Monitoring includes the use of photos and

observing changing conditions such as increased erosion, water accumulating on routes from use, and/or route braiding.

The Great Unknown Creek and the upper Preacher Creek areas receive the most intense OHV use. Demand for OHV activities is expected to continue to increase in the subunit. This will place demands on the BLM to provide for and monitor motorized users. The increased demand will also have implications on OHV designations, pressures on providing a sustainable trail system, and increases in maintenance workloads.

Special Recreation Permits

There are currently four active SRPs in the Steese National Conservation Area which including the Birch Creek WSR. Most of these permits allow for operations both within and outside of the area. SRP activities and locations include; outfitting and guided trips on Birch Creek WSR; outfitting trips on the Pinnell Mountain NRT; and competitive dogsled races on winter trails. Overall permitted use remains fairly low. New SRPs related to guided hunting trips have not been issued during the past five years.

Recreation Management Areas

Consisting of approximately 1.2 million acres within the Steese Subunit, the Steese SRMA accommodates a growing market of national, state, and local recreation users. While the majority of these users are from Fairbanks and surrounding communities, an increasing number are arriving from national locations as well. The major attractions within the Steese National Conservation Area are the Pinnell Mountain Trail and Birch Creek Wild and Scenic River.

The Central Field Station, located at Mile 127 of the Steese Highway, is the primary administrative site for the management of the Steese National Conservation Area. BLM employees and volunteers, who live and work there seasonally (May through September), staff the station. Developed recreation sites within the Steese National Conservation Area include: Upper Birch Creek Wayside, Lower Birch Creek Wayside, Eagle Summit Wayside, Ptarmigan Creek Trail Shelter, North Fork Trail Shelter, and Twelvemile Summit Wayside.

Trends in Outdoor Recreation Activities

The following trends in recreation have been observed in the Steese National Conservation Area:

- increased OHV use
- increased demand for trails, both motorized and non-motorized
- increased hunting pressure
- increased visitation of recreation sites due to an increase in the distribution of information via the Internet and other media outlets
- increased demand for non-motorized water based recreation experiences

Recreation use estimates are derived from trailhead registers, SRP post-use reports, trail counters, over flights, as well as recreation staff and law enforcement observations. The 1.2 million acres that comprise the Steese National Conservation Area receive an estimated 10,000 visits per year. The largest number of users arrive during the caribou and moose hunting season, from August 10 to September 15. Due to the close proximity of the Steese National Conservation Area to the city of Fairbanks, the growing population base of the region, and the increases in fuel prices, a noticeable increase in use has occurred over the past 10 years. An increase in cross-country

travel has also occurred, where recreational hunters use OHVs for accessing remote areas and for retrieving game.

3.3.5.3. Upper Black River Subunit

Located approximately 100 miles northeast of Fairbanks, and encompassing 2.6 million acres of BLM lands, the Upper Black River Subunit is undeveloped and very remote. The subunit is bounded on the east by the Yukon Territory, Canada, on the north by the Alaska NWR, and on the south by the Yukon-Charley Rivers National Preserve. There are a few isolated tracts of state and Native corporation land within the subunit

BLM-managed lands in the subunit offer a diversity of outdoor recreation opportunities, which includes hunting, fishing, trapping, and gathering of edible plants and berries. Most of the recreational opportunities occur during the snow free-seasons (May through September), with the fall big game hunting season attracting the greatest number of visitors, for caribou and moose. Occasional winter use, although not as prevalent, also occurs.

Recreation management in the Upper Black River Subunit is limited to custodial actions only. The subunit is remote and seldom visited, with access only by air. With the exception of three known airstrips located on private lands, there are no developed sites that are associated with recreation activities. Travel is currently unrestricted to all forms of highway and off-highway vehicle use. As such, motorized vehicles are allowed year-round, and are not subject to special restrictions. However, use is likely limited to primarily snowmobiles near the edges of the subunit. There are currently no active SRPs in the subunit; however, permits for guided hunting have been issued in the past.

The following trends in recreation have been observed in the Upper Black River Subunit:
- increased OHV use
- increased hunting pressure

3.3.5.4. White Mountains Subunit

Located approximately 40 miles north of Fairbanks, the White Mountains NRA encompasses approximately one million acres and is bordered on the south by the Fairbanks North Star Borough, the west by State of Alaska lands, the north by the Yukon Flats NWR, and the east by the Steese National Conservation Area.

The White Mountains NRA is recognized for both its recreational opportunities and its extraordinary natural beauty and landscapes. As the popularity of this area has grown, visitation and demand for a variety of recreational opportunities has increased as well. Examples of activities commonly conducted in the area include boating and river-based recreation, camping, hiking, sightseeing and photography, horseback riding, hunting, dog mushing, skiing, skijoring, and OHV use (including snowmobiles). Visitation and the activities performed in the White Mountains NRA often vary with the weather. During the milder winter temperatures, visitors may enjoy traveling using the network of winter trails and cabins, while during the summer season, visitors may enjoy dispersed camping associated with motorized access.

The overall management strategy for the White Mountains NRA is to enhance the outdoor recreation opportunities available by developing facilities that promote greater user access. This includes, winter trails and cabins, motorized and non-motorized trails, and campgrounds.

Until such a time as the Eastern Interior RMP process is complete, the 1986 White Mountains RMP, the 1983 Beaver Creek River Management Plan, and the 1988 White Mountains Recreation Activity Management Plan will be the relevant planning documents for BLM-managed lands in this region.

White Mountains RMP: Established by Congress in 1980, the White Mountains NRA was directed to provide for public outdoor recreational use and for the conservation of scenic, historic, cultural, and wildlife values that includes other uses if they are compatible or do not significantly impair these values. To accommodate these directives, the White Mountains NRA RMP (BLM 1986b) was developed.

Sixteen objectives were identified in the RMP. The eight that related to recreation were (1) to improve access for recreational use of Beaver Creek within the confines and stated purpose of the WSR Act and the approved river management plan; (2) to improve recreational access to the interior highlands emphasizing Primitive and Semi-Primitive experiences; (3) to establish hiking opportunities related to river floating use; (4) to establish backcountry hiking/horseback riding opportunities along the high ridge complex linking Cache Mountain, Lime Peak, and Mount Prindle; (5) to maintain natural ecosystems in order to enhance Primitive and Semi-Primitive recreational experiences; (6) to provide for Semi-Primitive motorized recreation on the lands along the southern and western boundaries of the White Moutains NRA; (7) to provide opportunities for off-road vehicle use where compatible with recreation objectives; and (8) to provide opportunities for hunting, trapping, fishing, and wildlife viewing.

Beaver Creek River Management Plan: ANILCA classified and designated Beaver Creek as a "wild" river pursuant to the Wild and Scenic Rivers Act (WSRA, P.L. 90 542). In doing so, Congress intended that Beaver Creek WSR be preserved in a free-flowing condition and that the river and its immediate environment be protected for the benefit and enjoyment of present and future generations. It further directed the BLM to develop a river management plan, which was completed in 1983 (BLM 1983a).

Of the eight management objectives that were identified in the river management plan, the two that pertained to recreation were (1) to provide high quality primitive recreational opportunities for present and future generations; and (2) to provide a variety of opportunities for interpretive, scientific, educational, and wildlands oriented uses.

White Mountains Recreation Activity Management Plan: The RMP for the White Mountains NRA called for the preparation of a RAMP to address the details for implementing the recreation specific land-use decisions of the RMP. Within the RAMP is specific guidance on the management and development of trails for summer and winter use, trailhead management and development, a public recreation cabin program, access improvements, campgrounds, OHV designations, and visitor information and management. All of these decisions had timetables and costs associated with each project. Most of the projects identified have been constructed and managed since the writing of the RAMP in February 1988.

Off-highway Vehicle Management

The White Mountains RMP (BLM 1986b) describes the level of OHV opportunities available. Currently there are approximately 402,500 acres designated as Limited to summer use of OHVs with weight restrictions, nearly 990,000 acres designated as Limited to winter use of OHVs with weight restrictions, and approximately 13,000 acres Closed to OHVs.

Off-highway vehicle use is monitored intermittently in various locations in the White Mountains NRA. Monitoring includes the use of photo points and observing changing conditions such as increased erosion, water accumulating on trails from use, and/or trail braiding.

The Nome Creek Valley and surrounding trails receive the most intense OHV use. Demand for OHV activities is expected to continue to increase in the subunit. This will place additional demands on the BLM to provide for and monitor motorized users. The increased demand will also have implications on OHV designations, pressures on providing a sustainable trail system, and increases in maintenance workloads.

Special Recreation Use Permits

There are currently seven active SRPs in the White Mountains NRA. Most of these permits allow for operations both within and outside of the area. SRP activities and locations include; day-hiking trips and ski racing in the Wickersham Dome area, outfitted and guided trips on Beaver Creek, and military training exercises on winter trails. Overall permitted use remains fairly low. SRPs related to guided hunting trips have not been issued during the past five years, but two applications were received in 2009.

The Eastern Interior FO collects fees in several location including the Cripple Creek, Offer Creek, and Mount Prindle campgrounds, and the 12 public use cabins located throughout the subunit. Services to the public are provided from these monies by reinvesting recreation fees at the local sites where they were collected, to benefit visitors through enhanced facilities and services. These services include (but are not limited to) maintenance of campgrounds, cabins, roads, trails and restroom facilities, as well as, expenses related to interpretive signs and programs. Fees amounted to approximately $23,000 in 2008.

Recreation Management Areas

The White Mountains SRMA is approximately one million acres including both the designated NRA and adjacent BLM-managed lands supporting access and similar recreational opportunities. The White Mountains SRMA serves primarily the Fairbanks and surrounding community, though users from around Alaska, the lower forty-eight states, and international locations are not uncommon. Local users are very interested in the winter cabin and trail system that offers a unique opportunity for users outside of the normal summer season. During this time, primary activities include snowmobiling, dog sledding, skiing, and skijoring. Summer use tends to focus in three key geographic areas including, Wickersham Dome, Nome Creek (including Cripple Creek Campground and Quartz Creek Trail), and Beaver Creek. The majority of these users are local and are looking for a reasonable day or weekend getaway for outdoor opportunities. Though the types of activities shift between the three geographic areas, primary activities include, boating and river-based recreation, camping (both developed and dispersed), hiking, backpacking and sightseeing, hunting, fishing, hobby mineral collecting, berry picking, and OHV use.

Located just 40 miles north of Fairbanks, a city and borough of nearly 90,000 residents, the White Mountains NRA offers a unique opportunity for year-round recreational opportunities. The SRMA receives roughly 35,000 visits per year, with many of those being repeat users. Peak use periods include early March through mid-April for winter type activities, based on longer days and warmer temperatures, and late summer for activities focused more around berry picking and hunting. Unlike many other areas around Alaska, the White Mountains does not have a large targeted salmon run and is not located on a primary travel and tourism route. This allows for a more dispersed type of use.

The Nome Creek Field Station, located at the lower end of Nome Creek Road, is the primary administrative site for the management of the White Mountains NRA and is staffed seasonally (May through September). Developed recreation sites within the White Mountains SRMA include: Colorado Creek, Wickersham Dome, McKay Creek, and U.S. Creek trailheads, and Cripple Creek, Offer Creek, and Mount Prindle campgrounds. The BLM also maintains the Fred Blixt Cabin (Mile 62.5 Steese Highway), two trail shelters and 12 public-use cabins that have been built at scenic locations along the White Mountains winter trail system.

Trends in Outdoor Recreation Activities

The following trends in recreation have been observed in the White Mountains NRA:

- increased OHV use
- increased demand for trails, both motorized and non-motorized
- increased hunting pressure
- increased visitation due to increased distribution of information via the Internet and other media outlets
- increased demand for non-motorized water based recreation experiences
- increased demand for overnight RV and tent camping areas
- increased demand for public-use cabins

Based on comments from the public and field observations by BLM staff, issues and concerns for the White Mountains NRA include an increase in cross-country motorized travel, and the need for additional public-use cabins.

During the summer months, an increase in cross-country motorized travel occurs primarily during the big-game hunting season, as recreational hunters use OHVs for accessing remote areas and for retrieving game. A noticeable increase in use has occurred over the past 10 years. This is due to the close proximity of the White Mountains NRA, and the increases in fuel prices. The construction of the Nome Creek Road in 1998 also increased the popularity of the area. The Nome Creek Valley receives the largest number of users in the White Mountains NRA, partly due to ease of access and developed recreational facilities.

The reservation demands for public-use cabins in the White Mountains NRA has significantly increased over the last 20 years. Even though additional cabins have been constructed during this period, BLM has been unable to meet public demand and interest during peak use periods. Peak use periods include holidays and late spring when warmer temperatures and longer days prevail. It is not uncommon for public to be turned away due to a lack of cabin availability. Occupancy rates generally range around 80 percent during this time of year.

3.3.6. Renewable Energy

The BLM Land Use Planning Handbook (BLM 2005a) requires that plans address existing and potential development areas for renewable energy projects, including wind, solar, and biomass. In cooperation with the National Renewable Energy Laboratory (NREL), BLM assessed renewable energy resources on public lands in the western United States (BLM and DOE 2003). The assessment reviewed the potential for concentrated solar power, photovoltaics, wind, biomass, and geothermal on BLM lands in the west. Alaska was not included in this report. However, some of the site screening criteria outlined in this report were used to determine potential for renewable energy development in the planning area.

The potential for commercial solar operations is very low. One of the criteria outlined in *Assessing the Potential for Renewable Energy on Public Lands* (BLM and DOE 2003) is a solar resource of at least 5 kWh/m^2/day. This criteria is not met anywhere within the planning area (DOE 2008a and 2008b) and solar power is not discussed further.

3.3.6.1. Wind Resources

The BLM encourages the development of wind energy within acceptable areas, consistent with the Energy Policy Act of 2005 and the BLM Energy and Mineral Policy (August 26, 2008). However, BLM policy is not to issue ROW authorizations for wind energy development for areas where such development is incompatible with specific resource values. Specific lands excluded from wind energy site monitoring and testing and wind energy development include designated areas that are part of the National Landscape Conservation System (I.M. 2009-043). In the planning area, this includes the Steese National Conservation Area, and Birch Creek, Beaver Creek, and Fortymile wild and scenic rivers.

There is increasing interest in wind energy development in Alaska. The Alaska Energy Authority and rural utilities are considering the development of wind power projects at many villages in the State. BLM Anchorage Field Office has received applications for wind monitoring towers. The Department of Energy's Wind Program and National Renewable Energy Laboratory has published a wind resource map for Alaska online at http://www.windpoweringamerica.gov/maps_template.asp?stateab=ak which shows wind speed estimates at 50 meters above the ground and depicts the resource that could be used for utility-scale wind development.

As a renewable resource, wind is classified according to wind power classes, which are based on typical wind speeds. These classes range from Class 1 (the lowest) to Class 7 (the highest). In general, at 50 meters, wind power Class 4 or higher can be useful for generating wind power with large turbines and are considered good resources. Particular locations in the Class 3 areas could have higher wind power class values at 80 meters than shown on the 50 meter map because of possible high wind shear. Given the advances in technology, some locations in Class 3 areas may suitable for utility-scale wind development. Primary criteria for wind development outlined in the *Assessing the Potential for Renewable Energy on Public Lands* (BLM and DOE 2003) included a wind power Class 4 and above for short-term, and Class 3 and above for long-term; and transmission access within 25 miles and road access within 50 miles.

Within the planning area, wind potential is generally poor to fair (Class 1-3). The exception is the higher elevation areas in the White Mountains NRA and Steese National Conservation Area where there are limited areas with class 4-7 (DOE 2006). Given that many of the areas with class 4 or higher wind potential are excluded from potential development by policy and that most remaining BLM lands are not within 25 miles of a major transmission line, no lands with high potential for utility-scale wind development have been identified in the planning area. The population in the planning area is low, particularly in areas near BLM-managed lands, and infrastructure to transport electricity to regional population centers is extremely limited.

Many smaller communities in the planning area rely on diesel-powered generating stations and the cost of generating electricity in this manner is very high. Using wind turbines along with diesel generation can save significant amounts of fuel. To be effective sites, need to be close to communities. Most of the land around villages is owned by Native corporations; the BLM manages very little land adjacent to communities or near existing transmission lines. Additionally,

BLM-managed lands in the planning area generally has only poor to fair wind potential (DOE 2006). Thus the potential for communities to use BLM-managed lands for local generation of wind energy is also low.

3.3.6.2. Biomass

The biomass program is the use of organic matter and waste products for production of products such as paper and pulp, value-added commodities, and bio-energy or bio-based products such as plastics, ethanol, or diesel. Alaska's most important biomass fuels are wood, sawmill wastes, fish byproducts, and municipal waste (AEA 2009, http://www.akenergyauthority.org/programsalternativebiomass.html).

The potential for the use of biomass from public lands within the planning area is limited. Most of BLM lands are to far from population centers to make use of biomass economical. No vegetative treatments have been conducted in the past and the probability of future treatments on BLM lands is low. The most likely treatment is fuel reduction projects around communities. BLM lands are generally remote from communities, making it unlikely that such projects would occur. Primary criteria for commercial biomass projects outlined in *Assessing the Potential for Renewable Energy on Public Lands* (BLM and DOE 2003) included a biomass power plant within 50 miles and a population center with skilled labor force within 50 miles. These criteria generally cannot be met on BLM lands in the planning area.

There is potential for small-scale wood biomass projects as evidenced by two existing projects: wood boilers to heat community buildings in Dot Lake and the Tok School (Hanson 2005 and Alaska Division of Forestry 2008). There may be some limited demand for small-scale biomass projects involving BLM lands. Areas with the most potential would be those that are forested, located near a community, and are not within a specially designated area. The area with the most potential is located north of Tok and Tanacross, and west of the Taylor Highway. However, the potential on these lands is still limited and there are State or private lands with higher potential near these communities.

3.3.7. Travel Management

3.3.7.1. Fortymile Subunit

3.3.7.1.1. Current Level and Location of Use

As an integral part of virtually every activity that occurs in the Fortymile Subunit, travel and transportation occur for a variety of reasons including recreational access to public lands, commercial guiding, access to mineral resources, access to private inholdings, and access to traditional subsistence areas.

Visitors to the Fortymile Subunit utilize rivers, roads, and trails as a means of accomplishing these activities. Examples of travel activities commonly conducted in the area include hiking and recreational boating such as rafting, kayaking, and canoeing. In addition, the presence of new and existing roads and trails provide abundant opportunities for OHV use.

3.3.7.1.1.1. Motorized Travel

Motorized travel in the Fortymile Subunit can be divided into two primary categories: highway and off-highway vehicle use. Most numerous are the Taylor Highway travelers, who arrive to the area by means of self-contained vehicles such as passenger vehicles, motor homes, tour buses, and vehicles pulling trailers. Drawn to the area by its array of recreational opportunities including camping, fishing, hiking and backpacking, photography, and wildlife viewing, travelers typically arrive during the spring, summer, and early fall months (May through September). It is during this time that visitor use is greatest at BLM-managed waysides and campgrounds along the Taylor Highway.

Between mid-August and late-September, motorized travel increases with the advent of the fall big game hunting season. During this time, travel along the Taylor Highway increases significantly as highway vehicles scout the area for game and areas to stage for OHV use. Although the majority of OHV use occurs predominately on existing roads and trails, there is an increasing trend in cross-country travel by hunters accessing remote areas, and by those retrieving game. This type of travel pattern often leads to route-proliferation. These user-created routes are often unsustainable and can cause significant resource damage including, but not limited to, soil compaction, vegetation deterioration, and poor water quality. As is the case in much of Alaska, the majority of existing routes are the result of user-created trails that either follow historic non-recreational routes (such as mining or access) or were created by OHV users repeatedly driving cross-country. Accordingly, many of the existing routes within the Fortymile Subunit are not sustainable from a resource management perspective.

Throughout the summer season, motorized watercraft are also employed within the Fortymile river corridor, providing access to several federal mining claims that are located throughout the region. The authorization for this use comes from the Fortymile River Management Plan (BLM 1983a) which allows for the use of motorized boats on scenic and recreational segments of the river corridor. However, on non-navigable wild segment, this use is not permitted except under the provisions of 43 CFR 3809.

Travel outside of the Fortymile WSR Corridor is currently unrestricted. Until the RMP process is complete, the Fortymile MFP, in conjunction with the Fortymile River Management Plan, will be the relevant planning documents for travel-related activities on BLM-managed lands. The Fortymile River Management Plan states that OHV use, other than vehicles weighing less than 1,500 pounds gross vehicle weight rating (GVWR), are prohibited without a permit or approved Plan of Operations within the Fortymile River corridor. For areas outside of the corridor, the Fortymile MFP states that all areas will remain open to winter use for vehicles weighing less than 6,000 pounds; while, existing roads and trails will remain open to all vehicles when the ground is frozen to a depth of six inches or more. At all other times of the year, vehicles exceeding 6,000 pounds or any vehicle with a blade, will require a permit, and vehicles weighing 6,000 pounds or less will be limited to existing roads and trails except for incidental use. Limited inventory of trails on BLM-managed lands currently exists within the Fortymile Subunit, and aside from recognized easements, trail use, and the location of trail activity, are largely unknown.

Roads

Lands accessed along the Taylor Highway and secondary road systems are primarily in State and private ownership. However, these roads do provide a level of access not found elsewhere in the

Fortymile Subunit. Except for local roads within and around BLM-managed campgrounds and facilities, there are no other publicly maintained roads within the subunit.

Trails

Other than specific ANCSA Section 17(b) easements reserved through Native corporation lands, there are no designated BLM trails within the Fortymile Subunit. The State of Alaska claims numerous rights-of-ways across federal lands under State-identified R.S. 2477 routes, including those identified in AS 19.30.400. However, the validity of these determinations will occur outside of this planning process.

Located at Mile 65 of the Taylor Highway, near the community of Chicken, the Chicken Ridge Trail provides multiple use access to public lands in the area. When not employed for mining access in the spring, the trail is most commonly used from mid-August through late-September, in concurrence with big game hunting seasons. It is during this time that motorized travel along the Chicken Ridge Trail is most notable with an increased presence of OHV use.

Since the trail occurs on state and private lands, the BLM has no management responsibilities for travel-related activities or access to this route. However, because it is the primary access route to BLM-managed lands in the Hutchinson Creek area, it remains a key feature within the Fortymile Subunit.

Airstrips

Access to the Fortymile Subunit by air is limited to remote landings by fixed-wing and rotary wing aircraft capable of landing on river gravel bars, ridgetops, and winter snows, and subject to reasonable provisions to protect the values of the Fortymile WSR. Although no remote, public airstrips have been developed by the BLM, Joseph Airstrip, in the Middle Fork drainage, serves as a traditional access point for float-boaters of the Fortymile River. In addition, all communities within the Fortymile Subunit have established air strips maintained by the State of Alaska.

3.3.7.1.1.2. Non-Motorized Travel

For those travelers seeking non-motorized forms of transportation, the Fortymile Subunit provides many opportunities in a variety of scenic settings. Float boating activities including rafting, kayaking, and canoeing, are all commonly enjoyed within the Fortymile River corridor, while the activities of hiking, biking, and horseback riding, though less prevalent, may also occur.

For boaters contemplating a trip down the Fortymile River, many options are available, ranging from one-half day to two weeks. The longest trip may begin at the Joseph Airstrip in the Middle Fork drainage, followed by an 8–12 day float trip to Eagle. An afternoon outing is available from the Mosquito Fork Bridge Wayside to the South Fork Bridge Wayside. With its variety of access points providing a diversity of floating times, the Fortymile River offers trips for boaters of almost any skill level.

Located at Mile 68 of the Taylor Highway, approximately one mile east of the community of Chicken, the Lost Chicken Dredge Overlook Trail supports non-motorized travel within the river corridor. The 1.5 mile trail provides travelers with an opportunity to hike, pull-off to rest, and learn more about the local area. At the end of the short footpath, hikers are rewarded with a view of one of the few remaining dredges accessible to Alaska road travelers today. Although it was operated for only a season and a half before its shutdown in 1937, the Lost Chicken Dredge

remains a significant icon of Alaskan history that helped shaped a new technological phase in mining operations.

3.3.7.1.2. Forecast or Anticipated Demand for Use

With increased pressures from growing populations and advances in recreational vehicle technology, travel demands in the Fortymile Subunit will see significant growth in both land use and activity participation.

Since OHV use accounts for the majority of travel-related activities in the Fortymile Subunit, it is expected that the demand for this activity will continue to grow in the future. As this occurs, the need for additional trail access and management for these trails will be necessary. Mechanisms for managing the effects of OHV use include designating routes, prohibiting use in sensitive areas, providing user education in the form of interpretive signs and brochures, and providing appropriate law enforcement. Doing so may further ensure that user satisfaction remains high while maintaining minimal impacts to the natural environment.

Increases in non-motorized modes of travel including recreational boating and hiking, are also expected, as demonstrated by recent trends. Boating and hiking have become increasingly prominent forms of recreational travel in the area, as visitors look for more cost-effective ways to recreate.

Overall, visitor use demand in the Fortymile Subunit is increasing. Subsistence and recreational users utilize the area to participate in many different activities related to travel management, and to obtain specific experiences and benefits from these activities. Simply adding more trails and/or travel opportunities may or may not be the appropriate method of travel management for the area. This RMP will analyze a range of alternatives to determine appropriate levels of travel-related use and development in the area.

3.3.7.2. Steese Subunit

3.3.7.2.1. Current Level and Location of Use

Travel and transportation within the Steese Subunit occur for a variety of reasons, including recreational access to public lands, access to mineral resources, and access to traditional subsistence areas, utilizing primitive roads, existing travel routes, trails rivers and aircraft. Examples of travel activities commonly conducted in the area include hiking, recreational boating such as rafting, kayaking, and canoeing, dog-sledding, aircraft, and OHV use.

3.3.7.2.1.1. Motorized Travel

Motorized travel in the Steese Subunit typically occurs during the fall and winter months, from August to early May and is mainly attributed to sport hunting and some traditional subsistence activities of hunting and trapping, During the month of February, sled-dog racers in the Yukon Quest International Sled Dog Race traverse portions of the South Unit. Opening this trail allows other motorized users access to remote areas.

Easier travel and the ability to cross Birch Creek and other waterbodies by motorized vehicles in the winter (within specified vehicle limitations), opens up most of the Steese Subunit to

wintertime travel. During this time, snowmobiles become the primary mode of travel. A majority of the winter travel centers around Central, Alaska and the Yukon Quest trail.

During the non-winter months (May through October), features of topography, soils, vegetation, and permafrost make travel in the Steese Subunit particularly difficult, however, there are a number of travel routes used during hunting season for access to wildlife resources. With the advent of the summer season, motorized watercraft are also employed within the Steese Subunit. Users can put on at the Steese Highway bridge (Mile 147) and motor up-river for approximately 30 miles, to Mile 80 of Birch Creek, where BLM navigable determination ends, or down-river for access to the Yukon Flats NWR.

Roads and Primitive Roads

Access to the Steese National Conservation Area by highway vehicles, such as passenger vehicles, motor homes, and vehicles pulling trailers, is limited to trailheads along the Steese Highway. Trailheads normally do not reach capacity, even on busy weekends and holidays. Much of the travel occurs during the big game hunting seasons, when the Upper and Lower Birch Creek waysides approach capacity. Around the summer solstice, crowding may also occur at Eagle Summit Wayside. Four-wheel drive vehicles can access the Steese Subunit along a number of State primitive roads (including Faith Creek, Harrison Creek, Miller Creek, Montana Creek, Porcupine Creek, and Portage Creek roads), although these are generally not maintained. In addition, the South Steese Unit may also be accessed using Fryingpan Creek Road. It is likely that the Great Unknown Creek, Harrison Creek, and Fryingpan Creek drainages have the largest potential for increased travel-related use in the summer by motorized users in the South Unit. Preacher Creek Drainage, including Bachelor Creek will continue to receive use and has the greatest potential for increased use in the North Unit.

Steese Highway

Designated as a state scenic byway for its scenic, natural, recreation and historic values, the 175 mile-long Steese Highway connects Fairbanks with the small town of Circle on the banks of the Yukon River. The highway also provides access to BLM-managed public lands north of Fairbanks. From the Steese Highway, one can explore the Steese National Conservation Area, the White Mountains NRA, Beaver Creek WSR, and Birch Creek WSR.

Trails

Although there are no designated BLM motorized trails within the Steese National Conservation Area, many miles of user-created OHV routes, associated with hunting and trapping opportunities, have come to exist. These routes are generally unsustainable from a resource management perspective, due to the features of topography, soils, vegetation, and permafrost in the area.

While existing primitive roads and travel routes are the predominate access used by OHVs, both winter and summer cross-country travel does occur in many areas, thus expanding the system of user-created routes. Many have been identified by BLM, and some have been inventoried using GPS, while others continue to remain unknown and uninventoried.

Airstrips

Access to the Steese Subunit by air is provided by Arctic Circle, Circle and Central airports as well as remote landings by fixed-wing and rotary wing aircraft. Access to the Steese National Conservation Area by air is limited to remote landings by fixed-wing and rotary wing aircraft

capable of landing on river gravel bars, ridgetops, and winter snows, and subject to provisions to protect the values of Birch Creek. Although no remote public airstrips have been developed by the BLM, a few unimproved airstrips, associated with mining and other activities, have been established within the National Conservation Area including Volcano Creek, McLean Creek, Sheep Creek and Preacher Creek airstrips.

3.3.7.2.1.2. Non-Motorized Travel

For those travelers seeking non-motorized water based forms of transportation, the Birch Creek WSR provides visitors a unique opportunity to travel through the Steese National Conservation Area by boat. Floaters begin their trip at the Upper Birch Creek Wayside and proceed down river for 110 miles to Lower Birch Creek Wayside. The average float-time for this trip is approximately six days. A shorter float opportunity also exists from Lower Birch Creek Wayside (Mile 110 Birch Creek) to the Steese Highway bridge (Mile 147). This float can take up to eight hours to cover the 16 river miles.

The Steese National Conservation Area also affords visitors numerous hiking opportunities, with the majority of use occurring along the 27-mile Pinnell Mountain National Recreation Trail. Beginning along the Steese Highway, the trail traverses a ridgeline between Twelvemile Summit and Eagle Summit, and offers its users views stretching from the Alaska Range to the Yukon Flats. There are also short access trails associated with Birch Creek NWR waysides and a short interpretive trail associated with Eagle Summit Wayside. Non-motorized cross-country travel is allowed within the subunit.

Other non-motorized use occurs rarely within the subunit. These activities include cross-country horse back riding and mountain bike use along the Pinnell Mountain NRT during summer months and cross-country skiing, dog sled and skijoring along trails during the winter months.

3.3.7.2.2. Forecast or Anticipated Demand for Use

With rising demands from increasing populations, advances in recreational vehicle technology, and the area's proximity to Fairbanks, the Steese National Conservation Area could see continued growth in both land use and activity participation. Since OHV use accounts for a sizeable portion of travel-related activities in the Steese National Conservation Area, the demand for this activity will likely continue to grow in the future. As this occurs, the need for additional trails and mechanisms for managing these trails may become necessary. Increasing demand will likely be amplified by the continued rise in gasoline prices, as visitors look for locations to recreate closer to home. The growth of non-motorized modes of travel including recreational boating, hiking, biking, horseback riding, and dog-sledding are also forecasted by recent trends. To accommodate this growth, new sustainable non-motorized trails may need to be constructed.

3.3.7.2.3. Key Features or Areas of High Potential

Established by Congress in 1968, the Pinnell Mountain National Recreation Trail is one of the few maintained primitive hiking trails in Interior Alaska. It is managed for a Primitive experience, where users feel isolated from the sights and sounds of humans, encounter a high degree of risk and challenge, and use outdoor skills. Pinnell Mountain National Recreation Trail users can experience the remote backcountry areas of the Steese National Conservation Area and enjoy outstanding views of the White Mountains, the Crazy Mountains, the Alaska Range to the south,

and the surrounding Yukon-Tanana Uplands and Yukon River valley and during June and July, the midnight sun.

3.3.7.3. Upper Black River Subunit

3.3.7.3.1. Current Level and Location of Use

Travel and transportation within the Upper Black River Subunit occur for a variety of reasons including recreational access to public lands and access to traditional subsistence resources. Examples of travel activities commonly conducted in the area include motorized river boating, aircraft use, winter snowmobile use, and hiking associated with subsistence hunting activities.

3.3.7.3.1.1. Motorized Travel

Attributed primarily to the traditional subsistence activities of hunting and trapping, access to private lands, and intervillage travel, motorized travel in the Upper Black River Subunit typically occurs during the fall and winter months (August-May). It is during this time that visitor use is greatest throughout this remote section of Interior Alaska.

During the non-winter months (May through October), features of topography, soils, vegetation, and permafrost make cross-country travel in the Upper Black River Subunit particularly difficult. During this time, travel is predominantly restricted to motorized river boat and aircraft use. With the advent of the winter season, however, snowmobiles become the primary mode of motorized travel as surfaces (both land and water) begin to freeze and become covered with snow.

Rivers

Access to the Upper Black River Subunit is very limited. Much of the travel occurs between mid-August and late-September, in concurrence with the fall big game hunting seasons and subsistence activities performed by river boat users from Chalkyitsik. For those travelers seeking non-motorized forms of transportation, the Upper Black River Subunit also provides opportunities for drop-off float boating trips along the larger rivers of the area.

Although the majority of visitor use within the Upper Black River Subunit occurs along the Black River (outside the planning area), greater interest in the Kandik and Black Rivers by the State of Alaska may result in further interest among non-motorized wilderness users of the region. Examples of rivers which may experience greater demand include the Salmon Fork of the Black River, the Little Black River, and the Upper Kandik River.

Trails

Although there are no designated BLM trails within the Upper Black River Subunit, the presence of user-created OHV routes, associated with hunting and trapping opportunities, may exist. Also, old seismic lines associated with energy exploration may be used for winter travel. It is expected that these routes would be generally unsustainable from a resource management perspective, due to the features of topography, soils, vegetation and permafrost in the area. BLM has not conducted a trails inventory in the Upper Black River Subunit, thus the extent of trails is unknown.

Airstrips

Access to BLM-managed lands by air is limited to remote landings by fixed-wing and rotary wing aircraft capable of landing on river gravel bars, ridgetops, and winter snows. Aircraft are generally unrestricted in the Upper Black River Subunit. Although no remote public airstrips have been developed by the BLM, few unimproved airstrips, associated with oil and gas exploration activities, have been established on private lands.

3.3.7.3.2. Forecast or Anticipated Demand for Use

Trends indicate that there may be increasing use and demand for access to the Upper Black River Subunit for sport hunting and trapping opportunities. As an extremely remote area of Interior Alaska, it may become identified by hunters and trappers as an area with harvest potential. Additionally, potential changes in subsistence use patterns could result in increased use of the area for subsistence in the future. It is anticipated that the area could receive an increased number of SRP applications for hunting and trapping activities.

3.3.7.4. White Mountains Subunit

3.3.7.4.1. Current Level and Location of Use

As an integral part of virtually every activity that occurs in the White Mountains NRA, travel and transportation occur for a variety of reasons, including recreational access to public lands and access to traditional subsistence areas. Visitors to the White Mountains NRA utilize existing roads, rivers and trails as the primary means for access. Examples of travel activities commonly conducted in the area include hiking and recreational boating such as rafting, kayaking, and canoeing, dog-sledding, skijoring, and aircraft use. In addition, the presence of new and existing trails provide abundant opportunities for OHV use.

3.3.7.4.1.1. Motorized Travel

Motorized travel in the White Mountains NRA can be divided into two primary categories including highway and off-highway vehicle use. Most numerous are the winter OHV users, who are drawn to the area by its over 200 miles of groomed winter trails and 12 public-use cabins. It is during this time that visitor use is greatest at BLM-managed cabins and trailheads throughout the area.

Easier travel and the ability to cross the Beaver Creek by motorized vehicle in the winter (1,000 pounds curb weight and less), opens up most of the White Mountains NRA to wintertime travel. A majority of the winter travel access in the White Mountains NRA centers around the established, maintained winter cabins and trails system. Those sections of trail near the road system tend to get the majority of use by both motorized and non-motorized user groups. Sections of trail further from the road system tend to get less use, as they are less accessible in a single day trip. Use of the more remote sections of trail is usually associated with rental of one or more public use cabins, where motorized access predominates. Main access points in the winter months are at the Wickersham Dome (Mile 28) and Colorado Creek (Mile 57) trailheads on the Elliott Highway, and McKay Creek (Mile 42) and U.S. Creek (Mile 57) trailheads on the Steese Highway.

During the non-winter months (May through October), features of topography, soils, vegetation, and permafrost make non-road travel in the White Mountains NRA particularly difficult. Boats with motors up to 15 horsepower are allowed to launch in Nome Creek (the put-in to float Beaver

Creek). There are four private in-holdings on Beaver Creek. Boats with motors larger than 15 horsepower may be encountered at these in-holdings, but are generally used for localized river travel only. In addition, some float-plane use is also associated with these private inholdings.

Nome Creek valley is the main point of summer access in the White Mountains NRA. It contains the only road suitable for automobile travel in the NRA. This area has the largest potential for increased travel-related use during the summer months, by both motorized and non-motorized users.

Roads

Access to the White Mountains NRA by highway vehicles, such as passenger vehicles, motor homes, and vehicles pulling trailers, is limited to Nome Creek valley, to trailheads along the Steese and Elliott highways, and to Cripple Creek Campground. Automobiles can also access the Fred Blixt cabin (Mile 62.5 Elliott Highway), via a short road that is maintained year-round by the BLM. Campgrounds and trailheads normally do not reach capacity, accept for some holidays or during moose hunting season. Much of the summer related travel in the White Mountains NRA occurs during the fall big game hunting seasons, from mid-August through late-September. During this time, the campgrounds and trailheads may occasionally reach capacity; however, nearby overflow and roadside parking are generally available. Much of the automobile and recreational vehicle access in the White Mountains NRA is used to stage and support OHV activities (including snowmobiles and ATVs, and river floating).

Trails

Although there are currently no designated BLM motorized trails within the White Mountains NRA, many miles of user-created OHV routes exist. These include trails along the southern and western boundaries of the NRA due to proximity to the highway, trails on nearby ridgelines which are suitable for OHV travel, pre-ANILCA trails, and old seismic lines. The primary purpose of winter trails are to provide access to recreational cabins.

While existing roads and trails are the predominate routes used by OHVs, cross-country travel does occur in many areas. This has resulted in additional user-created routes. Much of the OHV use in the White Mountains NRA occurs in the Nome Creek valley on roads, tailings piles (from previous mining activity) and on trails (both established and new user-created) that originate in the valley. The current trail system has doubled in size since 1985. An estimated two miles of user-created routes are added annually. Miles of user-created trails will continue to increase until a system of designated trails can become established.

Airstrips

Access to the White Mountains NRA by air is limited to remote landings by fixed-wing and rotary wing aircraft capable of landing on river gravel bars, ridgetops, and winter snows, and subject to reasonable provisions to protect the values of Beaver Creek WSR. Although no remote public airstrips have been developed by the BLM, few unimproved airstrips, associated with mining activities, have been established within the White Mountains NRA.

3.3.7.4.1.2. Non-Motorized Travel

For travelers seeking non-motorized forms of transportation, the Beaver Creek WSR provides a unique opportunity to travel through the White Mountains NRA by boat. Floaters begin their trip

at a small BLM-maintained staging area just past the Ophir Creek Campground, located along Nome Creek Road. From there, visitors can float on Nome Creek for approximately 2.5 miles to the confluence of Beaver Creek. Visitors can then float for approximately 107 miles to a common fly-out point, located just past Victoria Creek, or continue another 170 miles to the Yukon River bridge. The average float-time to Victoria Creek is approximately six days, and an additional 8 to 10 days to float to the Yukon River bridge and the Dalton Highway.

Victoria Creek is a common location for air taxi services to pick up floaters, as there is no road access to the Beaver Creek WSR past the put-in at Nome Creek. Floaters can also choose to continue down Beaver Creek, out of the White Mountains NRA, for another 170 miles to the Yukon River, then another 84 miles on the Yukon River, eventually taking out at the Dalton Highway bridge. The trip to the Yukon River bridge on the Dalton Highway can require an additional 10 or more days of float-time. Boaters continuing on to the Yukon River bridge usually prefer to use canoes, while boaters opting for air taxi returns usually use rafts or other inflatable boats that can be broken down, deflated and transported in small aircraft.

Throughout the year, non-motorized trails in the White Mountains NRA provide access to public lands for a wide variety of additional activities. During the summer months, some BLM trails are managed for hikers, bikers, horseback riders, and other non-motorized trail users who like to get away from it all. During the winter months, these trails are also employed for the activities of cross-country skiing, skijoring, and dog-sledding.

There is also high potential for additional non-motorized access, such as hiking trails, in the Wickersham Dome area. With its excellent views, generally good soils, and close proximity to Fairbanks, the Wickersham Dome area offers a logical location for the addition of new sustainable hiking trails to accommodate the regions growing population.

3.3.7.4.2. Forecast or Anticipated Demand for Use

Trends and field observations show increasing use and demand for travel-related activities and access in the White Mountains NRA, given its close proximity to Fairbanks. Popularity of the White Mountains NRA cabins and trails, local population numbers, and OHV ownership are all currently on the rise. Increasing demand will likely be amplified by continued high gasoline prices, as visitors look for locations to recreate closer to home. The increased demand for non-motorized modes of travel including recreational boating, hiking, horseback riding, dog-sledding, and skijoring, is also forecasted by recent trends.

3.3.8. Withdrawals

3.3.8.1. ANCSA and ANILCA Withdrawals

Virtually all of BLM-managed lands within the planning area are under some type of withdrawal pursuant to ANCSA 17(d)(1), ANILCA, the Wild and Scenic Rivers Act, or some other federal law (Table 3.35, "Existing BLM Withdrawals in the Planning Area"). Some areas are covered by multiple withdrawals.

The White Mountains NRA and the Steese National Conservation Area are withdrawn by both Public Land Order (PLO) 5180 and ANILCA. Subject to valid existing rights, under PLO 5180 these lands are withdrawn from all forms of appropriation under the public land laws, including

selection by the State of Alaska and from location and entry under the mining laws (except for metalliferous minerals) and from leasing under the Mineral Leasing Act of February 25, 1920, as amended. They are further withdrawn from mineral location by ANILCA. Additionally, lands within one-half mile of Birch Creek and Beaver Creek are withdrawn by the Wild and Scenic Rivers Act pursuant to ANILCA.

The ANILCA withdrawals on the Steese National Conservation Area and White Mountains NRA (Map 90) do not withdraw the lands from the mineral leasing laws or the Mineral Materials Act. However, PLO 5180 closes these areas to mineral leasing. The 1986 RMPs for both the White Mountains NRA and the Steese National Conservation Area provide for the disposal of sand, gravel, rock and other salable minerals under 43 CFR 3600, if such disposals are compatible with other provisions of each respective plan.

Subject to valid existing rights, Section 402(b) of ANILCA withdraws the Steese National Conservation Area from location, entry, and patent under United States mining laws. However, it further provides that where consistent with the land use plan for the area, the Secretary may classify lands within the National Conservation Area as suitable for locatable mineral exploration and development and open such lands to entry, location, and patent under United States mining laws. Lands within one-half mile of Birch Creek WSR are also withdrawn under the Wild and Scenic Rivers Act, pursuant to ANILCA. The BLM could recommend opening of the Steese National Conservation Area (outside of the Birch Creek withdrawal) to locatable mineral entry through this RMP.

The current RMP for the Steese National Conservation Area (BLM 1986a) recommends that new mineral development in certain areas outside of the Primitive and Semi-Primitive Motorized Restricted Management Units can be allowed as long as it does not significantly impair recreational values or use. However, an opening order was never issued and both PLO 5180 and withdrawal under Section 402(b) of ANILCA are still in effect. Currently, the Steese National Conservation Area is closed to both locatable and leasable minerals.

In sum, the BLM could recommend opening the Steese National Conservation Area to both locatable and leasable minerals through this RMP. To open the area to leasable minerals, the Secretary would need to modify or partially revoke PLO 5180 and the RMP would need to include a decision stating that the area was open mineral leasing. To open all or parts of the National Conservation Area to all locatable minerals, the Secretary would need to modify or partially revoke the PLO 5180 and issue an order opening the lands in the National Conservation Area to mineral entry and location under the United States mining laws. To open the National Conservation Area just to metalliferous entry, the Secretary would only need to issue an opening order, as PLO 5180 does not close the area to metalliferous minerals.

Subject to valid existing rights, ANILCA Section 1312(b) withdraws the White Mountains NRA from location, entry, and patent under United States mining laws. Lands within one-half mile of Beaver Creek WSR are withdrawn under the Wild and Scenic Rivers Act, pursuant to ANILCA. There are no longer any valid mining claims in the NRA. Unlike the Steese National Conservation Area, ANILCA does not contain a provision allowing the Secretary to open the NRA to mineral entry and location.

In sum, the BLM could recommend partial revocation or modification of PLO 5180 in the White Mountains NRA through this RMP. If the Secretary acted on this recommendation, the NRA would still remain closed to mineral entry and location under ANILCA. However, mineral leasing

could occur if PLO 5180 were modified or revoked and if the RMP included a decision to open lands to the mineral leasing laws.

Only ANCSA withdrawals apply in the Upper Black River Subunit. Lands in this subunit are withdrawn from all forms of appropriation under the public land laws by PLO 5173 and made available for selection by Alaska Native village and regional corporations. Although the withdrawal closed these lands to location and entry under the mining laws and to leasing under the Mineral Leasing Act of February 25, 1920 as amended; valid existing rights at the time of withdrawal were protected. However, there are no existing federal mining claims in the Upper Black River Subunit. The BLM could recommend opening the Upper Black River Subunit to mineral entry and leasing through this RMP. If the Secretary acted on this recommendation by modifying or revoking PLO 5173, the area would be opened to locatable minerals. Mineral leasing could occur if PLO 5173 was modified or revoked and if the RMP included a decision to open lands to the mineral leasing laws.

The vast majority of BLM-managed lands in the Fortymile Subunit are withdrawn under PLOs 5173, 5179 (as amended by 5250), 5184 or amendments to these PLOs. These PLOs close the lands to mineral entry, location, and leasing. Additionally, lands within one-half mile of the banks of the "wild" segments of the Fortymile Wild and Scenic River are withdrawn under the Wild and Scenic Rivers Act pursuant to ANILCA. The "recreational" and "scenic" segments are not withdrawn by ANILCA.

The Fortymile MFP (BLM 1980) recognized the importance of mineral resources and recommended that steps should be taken to provide access to and encourage development of those resources. One of the objectives of the MFP was that "By 1990, all land which is public land or reverts to public land, and is closed to mineral entry by unnecessary withdrawals, should be reopened to mineral entry." However, the PLOs are still in effect.

The BLM could recommend partial revocation of the ANCSA withdrawal(s) in the Fortymile Subunit through this RMP. If the Secretary acted on this recommendation, lands within one-half mile of the "wild" segments of the Fortymile WSR would still remain closed to mineral entry and location under ANILCA. Mineral leasing could occur outside of the "wild" segments of the Fortymile WSR if ANCSA withdrawal(s) were modified or partially revoked and if the RMP included a decision to open lands to the mineral leasing laws.

Table 3.35 lists existing PLOs, as amended, excluding withdrawals by other agencies. These withdrawals are generally for administrative use by the BLM (i.e., campground) or to classify lands for selection by either Native corporations or the State of Alaska (ANCSA 17(d)(1)).

Table 3.35. Existing BLM Withdrawals in the Planning Area

PLO number	PLO Type or Agency	Description
PLO 0386	BLM	Reducing withdrawal of public lands along Alaska Highway (modified by PLOs 4234 and 1613)
PLO 0399	BLM	Revocation of Executive Order (EO) 1324 1/2 withdrawing public lands containing hot springs in Alaska and amending EO 5389 to apply to hot springs in Alaska
PLO 0519	BLM	Administrative Site, Central Field Station (7 acres)
PLO 1699	BLM	Administrative Site, Chicken Field Station (11 acres)
PLO 753	BLM	Administrative Site, Eagle Field Station (12 acres)
PLO 1768	BLM	Administrative Site, Tanacross

PLO number	PLO Type or Agency	Description
PLO 3432	BLM	Withdrawal for public recreation values, Eagle Recreation Site
PLO 3943	BLM	Withdrawal for public recreation values, West Fork Campground and South Fork Wayside
PLO 4176	BLM	Withdrawal for public recreation values, Steese Highway
PLO 5150	BLM	Withdrawal for Trans-Alaska Pipeline Corridor
PLO 5182	BLM	Amended PLO 5150 (outer corridor)
PLO 5190	BLM	Modification and correction of PLO 5150, Trans-Alaska Pipeline Corridor
PLO 5173	ANCSA 17(d)(1)	Withdrawal for selection by Regional Corporation (Tanana); amended by PLOs 5252, 5321, and 5391
PLO 5178	ANCSA 17(d)(1)	Withdrawal for selection by Regional Corporation (Copper River); amended by PLOs 5213, 5214, 5252, and 5257.
PLO 5179	ANCSA 17(d)(1)	Withdrawal of Lands in Aid of Legislation concerning addition to or creation of conservation units; modified by PLOs 5192, 5250, 5251, 5257, and 5254
PLO 5180	ANCSA 17(d)(1)	Withdrawal for Classification and for Protection of Public Interest in lands; amended by PLOs 5193, 5242, 5250, 5251, 5254, 5257, 5321, 5391, and 5418.
PLO 5184	ANCSA 17(d)(1)	Withdrawal for Classification or Reclassification of some areas withdrawn by Section 11 of ANCSA
PLO 5186	ANCSA 17(d)(1)	Withdrawal for Classification and Protection of Public Interest in Lands Not Selected by State. Amended by PLO 5254 and 5242
PLO 5187	ANCSA 17(d)(1)	Withdrawal for classification and Protection Public Interest in lands for Army
PLO 5563	BLM	Amend EO 5389 to permit withdrawal of land under Section 11 of ANCSA
PLO 5657	BLM	Classification of Lands for State Selection, amends existing PLOs
PLO 6092	BLM	Classification and Open to Entry for State Selection, amends existing PLOs
PLO 6533	BLM	Classification and Open to Entry for State Selection; partial revocation 5150

3.3.8.2. Other Withdrawals

There are other types of withdrawals besides those which were authorized by ANCSA or ANILCA. These include BLM withdrawals for administrative sites and withdrawals by other agencies (Table 3.35, "Existing BLM Withdrawals in the Planning Area" and Table 3.36, "Existing Withdrawals to Other Agencies in the Planning Area"). All of the withdrawals which are reserved for or managed by the BLM will be reviewed to determine if they should be retained, relinquished, or whether some other action should be taken. Those withdrawals for the use of other agencies and purposes will be reviewed for status and will continue to be in effect until a change is required or warranted.

Recreation withdrawal in Eagle (PLO 3432): On August 13, 1964, 816 acres, located next to the City of Eagle Alaska, were withdrawn from all forms of appropriation under the public land laws and reserved under the jurisdiction of the BLM for public recreation purposes. The BLM currently maintains a campground on the property. Historic Fort Egbert is located nearby.

Eagle Administrative Site (PLO 753): On September 15, 1951, 12.23 acres of land were withdrawn from all forms of appropriation under the public land laws and reserved for use of the BLM as an administrative site. This site is located in the City of Eagle and is used by the National Park Service as headquarters for the Yukon-Charley Rivers National Preserve. Management and use of this site is controlled by a Memorandum of Understanding between the BLM and the NPS.

Chicken Administrative Site (PLO 1699): On July 30, 1958, 11.35 acres were withdrawn from all forms of appropriation under the public land laws and reserved for use of the BLM as an administrative site near Chicken, Alaska. The site provides housing and storage facilities.

South Fork Wayside and West Fork Campground (PLO 3943): On March 2, 1966, a 40 acre site where the South Fork Wayside is located and an 80 acre site where the West Fork Campground is located were withdrawn and reserved for protection of public recreation values.

Tanacross Administrative Site (PLO 1768): On December 15, 1958, 108 acres of land was withdrawn form all forms of appropriation under the public land laws and reserved for use of the BLM as an administrative site near Tanacross, Alaska. The BLM maintained a Fire Guard Station on the site. The station was closed in the mid 1980s. Since then 77.62 acres have been conveyed to Native corporations and 24.70 acres of the original site remain under BLM's management. This land is selected by the State.

Central Administrative Site (PLO 519): On August 30, 1948, 7.11 acres were withdrawn from all forms of appropriation under the public land laws and reserved for the use of BLM as an administrative site in Central, Alaska. Originally used as a Fire Guard Station, it is now a BLM field station. The site provides housing and storage facilities.

Steese Highway Recreational Withdrawal (PLO 4176): Issued on March 9, 1967, five tracts of land along the Steese Highway were withdrawn for protection of recreational values. The two of the tracts were conveyed to the State in 1991 (patent #50-91-0224). The remaining tracts under PLO 4176 include:

1. Cripple Creek: Mile 60 Steese Highway and the site of the Cripple Creek Campground.
2. US Creek: Mile 56 Steese Highway and the site of the US Creek Wayside.
3. Perhaps Creek: Mile 53 Steese Highway, this site is currently undeveloped.

Table 3.36. Existing Withdrawals to Other Agencies in the Planning Area

PLO number	Agency	Description (general location)
EO 7596	War Department	Withdrawn for Military (Fort Wainwright)
EO 8020	War Department	Withdrawn for Military - Flood Control (North Pole)
EO 8847	War Department	Withdrawn for aerial bombing range (Tanana Flats)
PLO 0684	Air Force	Withdrawn for Military (Eielson)
PLO 0690	Air Force	Withdrawn for Military (Fort Wainwright)
PLO 0748	Air Force	Correction to PLO 690
PLO 0794	Air Force	Withdrawn for Military (Eielson)
PLO 0818	Air Force	Withdrawn for Military (Fort Wainwright)
PLO 0854	Air Force	Withdrawn for Military (Fort Wainwright)
PLO 0910	Army	Withdrawn for Military (Gerstle River)
PLO 1153	Army	Withdrawn for Military (Big Delta)
PLO 1203	Air Force	Withdrawn for Military (Eielson)
PLO 1205	Air Force	Withdrawnl for Military use - Air Force (Eielson), amended by PLO 2768 and PLO 6453
PLO 1345	Air Force	Withdrawn for Military (Eielson)
PLO 1444	Air Force	Withdrawn for Military (Northway)
PLO 1521	Army	Withdrawn for Military (Eielson)
PLO 1523	Army	Withdrawn for Military (Eielson) and correction to PLO 1345
PLO 1574	Air Force	Withdrawn for Air Force Recreation Site (Birch Lake)
PLO 1640	Army	Withdrawn for Military
PLO 1760	Air Force	Withdrawn for Military (Fairbanks and Fort Wainwright)
PLO 1887	Army	Withdrawn for Military (Haines-Fairbanks Products Pipeline System)
PLO 1917	Army	Withdrawn for Military (Eielson)
PLO 2948	Army	Withdrawn for military purposes, Dept. of Army (Donnelly Flats)
PLO 3013	Army	Withdrawn for cold weather experimental purposes (Permafrost Station, Fairbanks); revoked PLO 533

PLO number	Agency	Description (general location)
PLO 6677	Air Force	Beaver Creek Radio Relay Site (near Northway)
PLO 6705	Air Force	Beaver Creek Research Site (near Northway)
PLO 1613	Bureau of Public Roads	Withdrawn for an easement for highway purposes
PLO 1980	Forest Service	Withdrawn for research site (Shaw Creek Experimental Station)
PLO 2550	FAA[a]	Withdrawn for airport - vacating Air Navigation Site #186
PLO 4349	FAA	Withdrawn for FAA Administrative Site (Northway)
PLO 3708	NASA	Withdrawn for National Aeronautics and Space Administration (NASA) Facilities (Gilmore Creek Tracking Station)
PLO 6709	NOAA	Modify PLO 3708 - transfer administration from NASA to National Oceanic and Atmospheric Administration (NOAA)
PLO 4234	GSA	Withdrawn for General Services Administration (GSA) Site
PLO 5645	GSA	Withdrawn for Customs and Immigration Station (Alaska-Canada border)
PLO 7336	GSA	Withdrawn Extension, Poker Creek Border Station.
PLO 4508	Department of Commerce	Withdrawn for Geophysical Observation

[a]Federal Aviation Administration

3.4. Special Designations

The following sections describe existing special designations in the planning area.

3.4.1. Areas of Critical Environmental Concern and Research Natural Areas

3.4.1.1. Areas of Critical Environmental Concern

Areas of Critical Environmental Concern (ACECs) are a designation unique to the BLM. BLM regulations (43 CFR Part 1610) define an ACEC as an area "…within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards." While an ACEC may emphasize one or more unique resources, other existing multiple-use management can continue within an ACEC as long as the uses do not impair the values for which the ACEC was designated. Section 202 (c)(3) of FLPMA mandates the BLM to give priority to the designation and protection of ACECs in the development and revision of land use plans. BLM Manual 1613 describes the process followed to nominated ACECs and screen areas for their suitability for ACEC designation. This process is described in more detail in Appendix C, *Evaluation of ACEC Nominations*.

Currently, there are no designated ACECs within the planning area.

3.4.1.1.1. Nominated Areas

During scoping for the Eastern Interior RMP, the Eastern Interior Field Office actively solicited nominations and comments from the public on areas that should receive consideration as ACECs. One area was nominated for ACEC designation by the public during the scoping process. Another ACEC was nominated during the public comment period on the Draft RMP/EIS. In addition to

areas nominated by the public, BLM may internally nominate areas as ACECs. These areas must meet the same criteria as externally nominated areas. During development of the Draft Eastern Interior RMP/EIS, the planning team nominated caribou calving habitat and Dall sheep habitat as ACECs. These areas were split into three distinct ACEC proposals by planning subunit.

Table 3.37. ACEC Nominations

Area Nominated	Nominated by	Values cited in nomination
Upper Black River and Salmon Fork of the Black River watersheds (Map 59))	Alaska Wilderness League, Chalkyitsik Village, and one individual	Historic, cultural, and scenic values; anadromous and resident fish habitat; subsistence resources; municipal water supply; contribution to Yukon River fishery.
Fortymile Subunit: Fortymile caribou herd current calving/postcalving habitat; Dall sheep habitat	BLM Planning Team	Caribou calving/postcalving habitat, Dall sheep habitat, ungulate mineral licks
Steese National Conservation Area: Fortymile caribou herd current and recent calving/postcalving habitat; Dall sheep habitat.	BLM Planning Team	Caribou calving/postcalving habitat, Dall sheep habitat, ungulate mineral licks
White Mountains NRA: Fortymile caribou herd historic calving habitat and White Mountains caribou herd habitat; Dall sheep habitat.	BLM Planning Team	Caribou calving/postcalving habitat, Dall sheep habitat, ungulate mineral licks
Mosquito Flats	Two individuals	Wetlands and moose calving

3.4.1.1.2. Potential ACECs

Based on interdisciplinary review, the following areas met both the relevance and importance criteria and will move forward for additional consideration as ACECs under various alternatives within this Environmental Impact Statement. Appendix C, *Evaluation of ACEC Nominations* summarizes the review process followed for evaluation of nominated ACECs.

Table 3.38. Potential Areas of Critical Environmental Concern

Potential ACEC Name	Acres	Map Reference
Salmon Fork ACEC	621,000	Map Map 59 and 69
Fortymile ACEC	546,000 - 732,000	Maps 60, 61, 62, and 63
Steese ACEC	193,000 - 927,000	Maps Map 64, 65 and 66
White Mountains ACEC	589,000	Map 64
Mosquito Flats ACEC	37,000	Map 63

3.4.1.2. Research Natural Areas

A Research Natural Area (RNA), according to 43 CFR Subpart 8223, is "an area that is established and maintained for the primary purpose of research and education." The land must have at least one of the following characteristics:

- A typical representation of a common plant or animal association,
- An unusual plant or animal association,
- A threatened or endangered plan or animal species,
- A typical representation of common geologic, soil, or water features, outstanding or unusual geologic oil, or water features, or
- The area must be of sufficient number and size to adequately provide for scientific study, research, and demonstration purposes.

According to 43 CFR subpart 8223.1, no person shall use, occupy, construct, or maintain facilities in a research natural area except as permitted by law, other federal regulations, or authorized under provisions of subpart 8233. In addition, no person shall use, occupy, construct, or maintain facilities in a manner inconsistent with the purpose of the research natural area. Scientists and educators shall use the area in a manner that is non destructive and consistent with the purpose of the area. RNAs are a type of ACEC (BLM 2005a).

3.4.1.2.1. Existing Research Natural Areas

There are four existing Research Natural Areas (RNAs) within the planning area (Map 48). These RNAs were established by the Steese RMP and the White Mountains RMP (BLM 1986a and BLM 1986b). The identification of these areas as RNAs was based on natural features of scientific interest (Juday et al. 1982) including ecologically valuable and/or scientifically interesting plant species, geologic features, and wildlife habitats. These features were called "type needs" (Juday 1983).

Table 3.39. Existing Research Natural Areas within the Planning Area

Name	General Location	Legal Location	Size (acres)
Big Windy Hot Springs	Steese South Unit	FM[a], T. 4N., R. 16E., Secs. 29 and 32	160
Limestone Jags	White Mountains NRA	FM, T. 8N., R. 1E.	5,170
Mount Prindle	White Mountains/Steese	FM, T. 8N., R. 6E.	5,950
Serpentine Slide	White Mountains NRA	FM, T. 10N., R.1W.	4,270

[a]Fairbanks Meridian

Big Windy Hot Springs: The Big Windy Hot Springs RNA is located on Big Windy Creek, a tributary of South Fork Birch Creek, about 18 miles south of Circle Hot Springs. The RNA contains several undisturbed, medium-grade hot geothermal seeps and pools. Most other hot springs in central Alaska have been modified in ways that have substantially disturbed natural geologic features and vegetation. Big Windy Hot Springs is essentially undisturbed.

At Big Windy Hot Springs, precipitation of dissolved minerals from spring water have formed travertine structures and pools, and altered granite into an uncommon mineral form. Thermophytic bacteria and algae thrive in water up to 142 degrees F. are present. The hot springs provides an important mineral lick for Dall sheep. Northern water shrew (*Sorex palustris*) has been found in the RNA, the furthest north documented occurrence of water shrew in North America (Cook et al. 1997). Big Windy Hot Springs also supports several vascular plant taxa that have widely fragmented distributions, are widely disjunct from their contiguous distribution, or represent steppe and meadow vegetation types (Parker et al. 2003).

Limestone Jags RNA: Limestone Jags RNA is located north and east of Beaver Creek, within the White Mountains NRA. The main features of geologic interest are karst (limestone dissolution) features in a subarctic setting (Juday 1989). These include caves, a natural bridge, disappearing streams, and cold springs. Karst features are rare at high latitudes because the slow chemical reaction rates of dry subarctic soils restrict the rate at which they form. In many areas such features were later destroyed by glaciation. One of the largest limestone dissolution cave reported in high latitudes of North America is found in the RNA. Unlike many mountains in the Yukon-Tanana Uplands, the central and southern portions of Fossil Creek Ridge do not appear to have been glaciated during the Pleistocene. As a result, the landforms of the RNA have been shaped over long periods (Juday 1989).

More than 300 species of vascular plants have been collected in the RNA and surrounding area (Juday 1989). The 1982 collection of a moss species, *Andreaeobryum macrosporum*, in the RNA represents the first collection of the species outside of the Brooks Range in Alaska. The cliffs and pinnacles of the RNA provide important escape terrain for Dall sheep. The RNA includes alpine habitat for the White Mountain caribou herd and was part of the Fortymile caribou herd calving area until the late 1960s. Limestone cliffs provide perching and nesting sites for raptors. Rock ledges and talus slopes provide habitat for hoary marmot and collared pika.

Mount Prindle RNA: Mount Prindle RNA is located on the boundary between the White Mountains NRA and the Steese National Conservation Area. About 60 percent of the RNA is within the White Mountains and 40 percent is in the Steese. The RNA contains examples of both glaciated landforms and periglacial (unglaciated) features in proximity, illustrating how different cold-climate processes produce different landscapes. At least four glacial advances, spanning several hundred thousand years are evident (Juday 1988), making the area useful in the study of past climates. The periglacial landscape processes have produced remnant features such as granite tors, cryoplanation terraces, and well developed solifluction lobes.

Mount Prindle is one of the highest elevations in the Yukon-Tanana Uplands and provides habitat for *Draba paysonii*, a mustard common in the Rocky Mountains but not in Alaska (Juday 1988). Alpine areas provide nesting habitat for northern wheatear. Cliffs provide perching and nesting sites for raptors. The cliffs and monoliths provide important escape terrain for Dall sheep during the spring and early summer. The RNA was part of the Fortymile caribou herd calving area until the late 1960s and provides summer habitat for caribou from the White Mountain herd.

Serpentine Slide RNA: Serpentine Slide RNA is located west of Beaver Creek, within the White Mountains NRA. The name Serpentine Slide comes from the presence of serpentine rocks and a large earthslide above Beaver Creek (Juday 1992). Serpentine is a iron- and magnesium-rich rock of ecological interest. Serpentine exposures are often relatively small because they are fragments of deep-ocean crustal material transported to the surface. The RNA contains one of the largest surface exposures of serpentine in Alaska. Serpentine forms under very specific conditions, making it useful in understanding the origin and history of continental landscapes. The earthslide is an unusual feature in Interior Alaska.

A total of 124 vascular plant species have been collected in or near the RNA (Juday 1992). Three plants collected in the RNA represent range extensions from that described in Hulten (1968). Serpentine soils often support unusual flora that includes species locally adapted to grow under the conditions these rocks produce. Plant species richness is very low on serpentine outcrops in the RNA. Harsh climactic conditions in the region 12,000–14,000 years ago may have caused extinction of locally adapted species and not enough time has elapsed to allow new species to adapt (Juday 1992). There are a few species in the RNA that appear to be relatively tolerant of serpentine conditions.

3.4.1.2.2. Nominated Areas

Although there were no nominations for new RNAs, the Alaska Wilderness League recommended that the BLM review and consider expanding the boundaries of three existing RNAs listed in Table 3.40, "Research Natural Area Expansion Nominations" to ensure that they are an adequate size to protect the integrity of the natural systems. During development of the Steese and White Mountains RMPs in the 1980s, larger areas than those ultimately designated as RNAs were evaluated. The Alaska Wilderness League recommended that the success of management related

to the size of these areas be reviewed to determine if the originally proposed larger area is necessary.

Proposed RNA expansions were evaluated under the same criteria used to evaluate ACECs. No maps were submitted detailing areas to be considered for RNA expansion. The area evaluated for Big Windy Hot Springs was the area identified in Alternatives B and C of the Steese National Conservation Area Proposed RMP/Final EIS (BLM 1984). Maps from the *Proposed Geological and Ecological Natural Landmarks in Interior and Western Alaska: Volume 2* (Young and Walters 1982), which evaluated these areas for inclusion in the National Natural Landmarks (NNL) program were used to define the area of consideration for Mount Prindle and Limestone Jags.

Table 3.40. Research Natural Area Expansion Nominations

RNA Name	Nominated by	Acres	Reasons cited in nomination
Big Windy Hot Springs RNA	Alaska Wilderness League	12,700	It is very small and susceptible to disturbances; consider expansion to ensure that values are not degraded; a much larger area was considered in the Steese Proposed RMP (BLM 1984).
Mount Prindle RNA	Alaska Wilderness League	47,000	Much larger area reviewed for inclusion in the NNL program; consider expansion to ensure proper protection of values including caribou and Dall sheep habitat, uncommon birds and vegetation, and geological features; area at risk due to accessibility and future mineral development.
Limestone Jags RNA	Alaska Wilderness League	190,000	180,000 acres that includes the Limestone Jags RNA, were nominated for inclusion in the NNL program; values include rare geological features, Dall sheep and caribou habitat.

Based on interdisciplinary review, it was determined that there was no need to expand these RNAs. Most of the lands evaluated were also included in internal ACEC nominations. For more detailed analysis, see Appendix C, *Evaluation of ACEC Nominations*.

3.4.1.2.3. National Natural Landmark Program

The National Natural Landmark program (NNLP) recognizes and encourages the conservation of outstanding examples of the United States' natural history (49 Stat. 666, 16 U.S.C. 641). The designation is made by the Secretary of the Interior. The selection process is rigorous; to be considered, a site must be one of the best examples of a region's characteristic biotic or geologic features.

There are no designated national natural landmarks in the planning area. Mount Prindle and surrounding lands (47,000 acres) were reviewed in the late 1970s for inclusion in the program. (Young and Walters 1982). The Alaska Wilderness League recommended that a new review be conducted to determine the potential inclusion of the Mount Prindle area into the NNLP.

In the Young and Walters study (1982), each site evaluated for inclusion in the NNLP was rated with respect to its significance and vulnerability to disturbance (protection priority). The report assigned the Mount Prindle site a significance priority of 4 (lowest) and a protection priority of B. A significance priority of 4 was defined as "Not recommended at the national level; may nonetheless be significant at a more local level." A protection priority of B was defined as "site is in some danger." The report concluded that Mount Prindle was an interesting and scenic site that was of local rather than national significance. Proximity to roads and the presence of placer gold in creeks draining Mount Prindle were the reasons cited for the protection priority ranking of B.

Given Young and Walters' finding of only local significance and the 1980 Congressional designation of the White Mountains NRA and the Steese National Conservation Area, which include Mount Prindle, BLM's designation of this area as a RNA remains appropriate. Current management and existing designations are sufficient to protect the values of the area. No additional studies for inclusion in the NNLP program will be conducted as part of this planning process.

3.4.2. Pinnell Mountain National Recreation Trail

The Pinnell Mountain Trail was constructed in 1970 for non-motorized use and was designated as a National Recreation Trail in 1971 under the National Trails System Act of 1968. It was the first designated trail in Alaska. Located 100 miles northeast of Fairbanks, this 27 mile trail traverses a series of alpine ridgetops entirely above timberline. The trail crosses open tundra with views north to the Yukon River and south to the Alaska Range.

The trail is one of the few maintained primitive hiking trails in Interior Alaska. It is currently managed for a Primitive recreation experience and is closed to all motorized vehicles. The trail closely parallels the south boundary of the North Unit of the Steese National Conservation Area and some sections of the trail are outside the National Conservation Area. Those sections of trail outside the National Conservation Area are on State land and BLM has obtained a 100 foot wide right-of-way from the State of Alaska.

3.4.3. Steese National Conservation Area

The Steese National Conservation Area was established in 1980 by Section 401 of ANILCA and is located 70 miles north of Fairbanks, Alaska (Maps 1 and 3). Congress identified caribou range and Birch Creek WSR as special values to be considered in planning and management of the area (ANILCA Section 401(b)). The Steese National Conservation Area encompasses approximately 1.2 million acres, and is divided into two units separated by State of Alaska lands and the Steese Highway.

The Steese National Conservation Area is a component of the BLM’s National Landscape Conservation System (NLCS). The mission of the NLCS is to conserve, protect and restore nationally significant landscapes recognized for their outstanding cultural, ecological and scientific values. Special values in the Steese National Conservation Area include Birch Creek Wild and Scenic River, caribou calving grounds and home range, and Dall sheep habitat. While various land uses are allowed in the National Conservation Area, the area is managed so that its scenic, scientific, cultural and other resources are protected.

3.4.4. White Mountains National Recreation Area

The one-million-acres White Mountains NRA was established by Congress in 1980 by Section 403 of ANILCA. The specific language of this Act directs that the NRA shall be administered to provide for public outdoor recreational use; for the conservation of scenic, historic, cultural and wildlife values; and for other uses, if they are compatible or do not significantly impair the previously mentioned values. Part of Beaver Creek Wild and Scenic River is within the NRA. ANILCA also withdraws the NRA from locatable mineral location and entry.

3.4.5. Wild and Scenic Rivers

3.4.5.1. Designated Rivers

ANILCA (P.L. 96-487 as amended) added segments of Beaver Creek, Birch Creek and the Fortymile River to the National Wild and Scenic River System (NWSR), pursuant to the Wild and Scenic Act (P.L. 90-542 as amended). Additionally, ANILCA amended the Wild and Scenic Rivers Act (P.L. 90–542) to withdrawn areas within one-half mile of the banks of "wild" river segments from locatable mineral location and entry. ANILCA did not identify Outstandingly Remarkable Values (ORV) for any of these rivers; thus these ORVs are being identified as part of this planning process. See Appendix E, *Wild and Scenic Rivers Inventory*.

3.4.5.1.1. Fortymile Wild and Scenic River

ANILCA Sec. 603 paragraph (48) identifies the Fortymile Wild and Scenic River (WSR) as "The main stem within the State of Alaska: O'Brien Creek; South Fork; Napoleon Creek; Franklin Creek; Uhler Creek; Walker Fork downstream from the confluence of Liberty Creek; Wade Creek; Mosquito Fork downstream from the vicinity of Kechumstuk; West Fork Dennison Fork downstream from the confluence of Logging Cabin Creek; Dennison Fork downstream from the confluence of West Fork Dennison Fork; Logging Cabin Creek; North Fork; Hutchison Creek; Champion Creek; the Middle Fork downstream from the confluence of Joseph Creek; and Joseph Creek; to be administered by the Secretary of the Interior," and designates segments as "wild" in Sec. 605(b) and segments as "scenic" and "recreational" in Sec. 605(c) (Map 102). "Wild" segments include Mosquito Fork, North Fork, Middle Fork, Champion Creek, and Joseph Creek.

The Fortymile WSR is being managed according to the River Management Plan for the Fortymile River (1983) and BLM Manual 8351 – Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation, and Management (1993).

Current management objectives for the Fortymile WSR in its entirety are to:

- Preserve the free-flowing conditions of the waters;
- Prevent degradation of water quality;
- Provide high quality recreational opportunities associated with a free-flowing river for present and future generations;
- Provide recreational use of fish and wildlife resources, including hunting and fishing within the framework of appropriate federal and state laws;
- Provide for a level of utilization of land and water resources which will leave the existing environment unimpaired for the use and enjoyment of future generations;
- Provide a variety of opportunities for interpretive, scientific, educational, and wildlands oriented uses;
- Assure preservation of historic values;
- Assure preservation of archaeological values;
- Protect valid existing rights and future rights granted pursuant to appropriate federal and state laws; and,
- Maintain and improve fish and wildlife habitat.

3.4.5.1.2. Birch Creek Wild and Scenic River

ANILCA Sec. 603 paragraph (46) identifies Birch Creek Wild and Scenic River as "The segment of the mainstem from the south side of Steese Highway in township 7 north, range 10 east, Fairbanks Meridian, downstream to the south side of the Steese Highway in township 10 north, range 16 east; to be administered by the Secretary of the Interior," and designates it as "wild" in Sec. 605(b).

Birch Creek WSR is being managed according to the Steese RMP (BLM 1986a), the River Management Plan for the Birch Creek WSR (BLM 1983b) and BLM Manual 8351 (1993), Special Rules and Regulations for the Steese National Conservation Area et al. (FR 1988a), and Designation of Off-Road Vehicle (ORV) Use Areas for the Steese National Conservation Area (FR 1988b).

Current management objectives for Birch Creek WSR in its entirety are to:

- Protect valid existing rights and future rights granted pursuant to appropriate federal and state laws;
- Preserve the river and its immediate environment in its natural, primitive condition;
- Preserve the free-flowing conditions of the waters;
- Protect water quality and quantity;
- Provide high quality primitive recreational opportunities for present and future generations;
- Provide a variety of opportunities for interpretive, scientific, educational, and wildlands oriented uses;
- Assure protection of significant historic and archaeological values; and,
- Maintain and improve fish and wildlife habitat.

3.4.5.1.3. Beaver Creek Wild and Scenic River

Section 603 of ANILCA, paragraph (45) identifies Beaver Creek Wild and Scenic River as "The segment of the mainstem from the vicinity of the confluence of the Bear and Champion Creeks, downstream to its exit from the northeast corner of township 12 north, range 6 east, Fairbanks Meridian within the White Mountains National Recreation Area, and the Yukon Flats National Wildlife Refuge, to be administered by the Secretary of the Interior," and designates it as "wild" in Sec. 605(b).

Beaver Creek WSR is being managed according to the White Mountains RMP (BLM 1986b), the River Management Plan for the Beaver Creek WSR (BLM 1983b), BLM Manual 8351 (1993), Notice of Special Rules and Regulations for the White Mountains National Recreation Area (White Mountains NRA) and Associated Recreation Facilities (FR 1997), and Designation of Off-Road Vehicle (ORV) Use Areas for the White Mountains National Recreation Area (White Mountains NRA) and Associated Lands (FR 1988c).

Current management objectives for Beaver Creek WSR in its entirety are to:

- Protect valid existing rights and future rights granted pursuant to appropriate federal and state laws;
- Preserve the river and its immediate environment in its natural, primitive condition;
- Preserve the free-flowing conditions of the waters;
- Protect water quality and quantity;
- Provide high quality primitive recreational opportunities for present and future generations;

- Provide a variety of opportunities for interpretive, scientific, educational, and wildlands oriented uses;
- Assure protection of significant historic and archaeological values; and,
- Maintain and improve fish and wildlife habitat.

3.4.5.2. Eligible and Suitable Rivers

The first phase of the wild and scenic river review is to inventory all potentially eligible rivers to determine which of those rivers are eligible for consideration in the National Wild and Scenic Rivers System (NWSR). In order to be eligible, rivers must be free-flowing and possess at least one Outstandingly Remarkable Value (ORV). Free-flowing is defined as existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. ORVs may include scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. The ORVs are evaluated in the context of regional and/or national significance, and must be river-related. A tentative classification of wild, scenic or recreational for each river/segment found eligible is then made based on the current level of naturalness and development associated with that river/segment. Eligibility is, in legal terms, a fact-based determination and not a planning decision.

The second phase of the review occurs as all eligible rivers are taken through the land use planning process to determine their "suitability" for designation into the NWSR. One RMP alternative (Alternative B) will consider all eligible river(s)/segments as suitable for purposes of analysis. "Suitability" determinations will be made in the record of decision for the RMP. Those river(s)/segments found suitable are then managed under specified guidelines to protect the free-flowing nature of the river(s)/segment, and to protect the identified ORVs and tentative classification.

Finally, the "suitable" river/segment determinations are reported to Congress. There is no specific time requirement for the completion of this phase; however, reporting will be done some time following approval of the record of decision. Only the U.S. Congress or the Secretary of the Interior, upon request by the State, can designate a river into the NWSR.

During the inventory phase, the BLM compiled a list of 40 potential rivers in the planning area (Table E.1, “List of Potential Rivers in the Planning Area”). Five of these rivers were not under BLM management and were excluded from further consideration. The remaining 35 river segments, totaling approximately 650 miles, were evaluated for eligibility (Map 101). All of the rivers were determined to be free-flowing. However, only five were found to have ORVs and determined to be eligible (Table 3.41, “Eligible Rivers in Planning Area” and Maps 70, 74, and 78). A full description of the inventory process is in Appendix E, *Wild and Scenic Rivers Inventory*.

While the spectrum of attributes that may be considered is broad, ORVs are directly river-related (Interagency Wild and Scenic Rivers Coordination Council 1999). These features should:

- be located in the river or on its immediate shore lands (generally within one-quarter mile of the river);
- contribute substantially to the functioning of the river ecosystem; and/or,
- owe their location or existence to the presence of the river.

A tentative classification of "wild", "scenic", or "recreational" was determined for each eligible river/segment based on the level of naturalness, development and access associated with each river/segment.

- A "wild" river is free of impoundments, with shorelines or watersheds essentially primitive, and with unpolluted waters.
- A "scenic" river may have some development, and may be accessible in places by roads.
- A "recreational" river is considered as a river or segment of river accessible by road, may have more extensive development along its shoreline, and may have undergone some impoundment or diversion in the past.

The five river segments listed below were found to be eligible as they are free-flowing and possess at least one ORV. A full description of the ORVs for each can be found in Appendix E, *Wild and Scenic Rivers Inventory*.

Table 3.41. Eligible Rivers in Planning Area

Subunit	Segment Name	Outstandingly Remarkable Values	Tentative Classification	Miles
Fortymile	Dome Creek	historic	"recreational"	5
	Gold Run	historic	"wild"	4
Steese	Big Windy Creek	scenic, geologic, wildlife	"wild"	14
Upper Black River	Salmon Fork Black River	wildlife	"wild"	52
White Mountains	Fossil Creek	scenic, geologic	"scenic"	23

3.5. Social and Economic

3.5.1. Public Safety

3.5.1.1. Abandoned Mines

The planning area has numerous areas of concern generated by historic mining activities and current placer mining. A list of known Abandoned Mine Land (AML) sites has been complied and continues to grow as rural areas are developed or mined. These sites consist of current claims on BLM lands and historic sites of concern. In order to minimize the possibility of contamination in the future, BLM takes steps to educate permittee's regarding current ADEC and EPA regulations. Stipulations are annotated in all permits and tailored to the type and size of the operation. The Hazard Management and Resource Restoration program and the AML program within BLM have commonalities with regards to protecting human health, the environment, and wildlife.

Past mining operations included the use of numerous hazardous substances with little to no regard for the environment. A variety of petroleum, oil and lubricants (POLs), waste drums, explosive materials, acids, caustics, equipment parts, possible military surplus items and household trash can be found on some of the known sites. Chemical hazards are not the only concern with AML sites; physical hazards can also pose life threatening injuries.

Upon discovery of physical or environmental hazards at mine sites, temporary safety measures are implemented to warn the public of the risks associated with the site. A site assessment is performed to determine the extent of the hazards and the remediation required. Hazardous Management Resource and Restoration program and the AML program work together to

remediate sites of concern. The Hazmat program covers the cleanup of hazardous materials and the AML program covers the remaining site cleanup.

3.5.1.2. Hazardous Materials

BLM's Hazard Management and Resource Restoration program provides a framework for hazardous materials management. Federal and state environmental laws and regulations govern the storage, handling, disposal and release of hazardous materials. Numerous regulations and laws govern environmental protection, including but not limited to: Occupational Health and Safety Administration (OSHA, 29 CFR), Department of Transportation (DOT, 49 CFR), Resource Conservation and Recovery Act (RCRA, 42U.S.C. 6901 et seq. 1976), Toxic Substances Control Act (TSCA), National Contingency Plan (NCP), and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 which was amended by the Superfund Amendments and Reauthorization Act (SARA) in 1986.

The goals of BLM's Hazard Management and Resource Restoration program are:

- To protect public health, safety and environmental resources by minimizing environmental contamination and hazards on public land and BLM facilities.
- To comply with federal and state hazardous materials management laws and regulations.
- To maintain the health of ecosystems through assessment, cleanup, correction, and restoration of contaminated sites and other hazards.
- To manage hazards and hazardous materials-related risks, costs and liabilities.
- To integrate environmental protection and compliance with all environmental statutes into all BLM activities.

3.5.1.2.1. Contaminated Sites of Concern

A database of known contaminated sites of concern is maintained. Sites include active placer mines, abandoned mine lands, unauthorized use and numerous other activities. Known sites of concern as of January 2009 are identified in Table 3.42, "Contaminated sites of Concern Within the Planning Area".

Fortymile Subunit: Numerous areas within the Fortymile Subunit are sites of concern, regarding the release of hazardous substances and petroleum, oils and lubricants (POLs). AMLs, active mining claims, camping activities and unauthorized uses of public land are sources of contamination within the subunit. This subunit is relatively accessible, with two state maintained highways, increasing the potential for future environmental contamination.

As of 2009, two sites of concern, the Fort Egbert dump in Eagle, Alaska and the Tanacross Airfield/Administrative site, are in varying stages of remediation. These areas have been identified as a priority in accordance with State and federal regulations governing the cleanup of contaminated sites. The Fort Egbert dump is in the final stages of remediation. The Tanacross Airfield/Administrative site has had extensive environmental clean up over the last few years, including removal of underground storage tanks, drum removal, solid waste cleanup, contaminated soil disposal and building demolition/removal. Monitoring wells located on the administrative site are being reviewed and steps are being taken for decommissioning.

The Fort Egbert dump is located immediately adjacent to the City of Eagle within the Fort Egbert grounds, a National Historic Landmark. The area of concern within the dump is modern (since the 1940s), although the general locale had been used as a refuse disposal area since historic times.

The historical dump was started about 1899 when Fort Egbert was established and then used by the Army until about 1925. Historical refuse is found along an approximately 0.5 mile stretch of bluff between the fort buildings and the Yukon River. The dump was unauthorized and was closed by BLM and the Alaska Department of Environmental Conservation (ADEC) in 1989. There has been no evidence of public use since the closure. The dump is believed to contain household wastes, batteries, old appliances, vehicle parts and a variety of other known source contaminants.

Tanacross complex is comprised of two locations, one on either side of the Alaska Highway. Tanacross Airfield Site (TAS) is 11 miles northwest of Tok, Alaska and occupies 3,400 acres north of the highway. Tanacross Administrative Buildings site is located south of the Alaska Highway and occupies 102 acres. The TAS has been utilized by numerous entities since the early 1900s and became the responsibility of BLM in the 1960s. The land is prioritized for conveyance to Tanacross Village Corporation.

In the late 1980s, ADEC and the EPA requested the investigation of environmental contamination at the TAS. Soil sampling has been completed throughout the site. Seven monitoring wells were drilled on BLM property after a site assessment identified the flow of ground water and possible routes contaminants could be carried to the water table. As additional hazards are identified, they are assessed and remediated as necessary. The airfield currently occupies Stateselected lands. Conveyance of the Tanacross complex could be delayed by remediation activities.

The Tanana Administrative Building was once a BLM administrative site supporting wildland fire operations at the TAS. In the 1980s, the main building caught fire and burned to the ground. Remediation of the burn site was completed in 2006. In 1997, two leaking underground storage tanks were removed. Groundwater was believed to be impacted and seven monitoring wells were installed. BLM plans to continue monitoring and remediation in accordance with ADEC and EPA guidance.

Steese Subunit: This subunit has a limited potential for sites of concern. Waysides, river and highway access are the main points of entry to the Steese National Conservation Area. Outdoor activities within readily accessible areas could lead to the accumulation of solid waste. Lack of trails within this subunit reduces the potential for release of POLs and minimizes the damage to the environment. If lands within the subunit are opened to mineral entry, the potential for hazmat sites will increase.

Upper Black River Subunit: The remote location of the Upper Black River Subunit makes identifying sites of concern extremely difficult, but also makes the creation of new sites less likely compared to the more accessible subunits. As human uses increases, the potential for the accumulation of solid waste and the release of hazardous substances to the environment will increase. One site of concern has been identified at this point, but more are anticipated as BLM visitation to the area increases.

White Mountains Subunit: The White Mountains Subunit has the potential for sites of concern, due to its status as a NRA with an extensive trail system and available cabin rentals. Waysides, river, and highway access are the main points of entry the White Mountains. The use of off-highway vehicles and camping equipment increases the potential for release of POLs to the environment during cooking, refueling and maintenance operations. Implementing good OHV maintenance and organized camping practices as promoted by Leave No Trace will reduce the potential for new sites.

3.5.1.2.2. Remediation of Contaminated Sites

BLM's policy regarding remediation of contaminated sites begins with identifying potentially responsible parties (PRPs) who may be liable for hazardous substance releases affecting BLM lands and resources. If PRPs have not been identified, or are unable to assist with remediation, BLM evaluates the effects to the environment and creates a priority list for remediation. The nature and amount of suspected contamination determines the regulatory requirements, involvement of federal and/or State regulatory agencies, and other requirements for the site investigation, and potential clean up actions.

1. Preliminary Analysis is the basic level of review when the likelihood of human intrusion is very low.
2. Initial Assessment is used when the likelihood of contamination is low, but the potential that human intrusion may lead to the identification of a Recognized Environmental Condition.
3. Phase I Environmental Site Assessment is used when there are known or suspected Recognized Environmental Conditions or involves Termination of Federal Government Operations.
4. Phase II Site Investigation identifies the nature and extent of contamination.
5. Phase III Clean up includes site characterization and cleanup.

Table 3.42 includes known sites of concern within the planning area as of January 2009. These sites include hazardous material concerns, trespass structures, unauthorized solid waste disposal and sites currently under remediation.

Table 3.42. Contaminated sites of Concern Within the Planning Area

Site Name	Location	Site Activity
Alder Creek	CRM[a], T. 27N., R. 19E., Sec. 7	Unauthorized occupancy
American Creek	FM[b], T. 3S., R. 32E., Sec. 7	Active Mine with hazmat concerns
Fort Egbert	CRM, T. 1S., R. 33E., Sec. 7	Closed landfill (unauthorized)
Fortyfive Pup	FM, T. 8S., R. 29E., Secs. 29-30	Active mines
Fortymile River	FM, T. 8S., R. 33E., Sec. 2	Unauthorized occupancy
Fortymile River/Smith Bench	FM, T. 8S., R. 33E., Secs. 31-32	Active and old mine with hazmat concerns
Franklin Creek Mine	CRM, T. 28N., R. 18E., Sec. 34	Active mine
Little Miller Creek Mine	FM, T. 6S., R. 33E., Sec. 16	Active mine
Moose Creek	FM, T. 7S., R. 34E., Sec. 20	Unauthorized occupancy
Mosquito Creek	CRM, T. 27N., R. 17E., Sec. 35	Active and old mine, reclamation in progress
Mosquito Fork bridge	CRM, T. 26N., R. 17E., Sec. 35	Active and old mine
Napoleon Creek	CRM, T. 27N., R. 19E., Sec. 20	Active mine
O'Brien Creek	FM, T. 6S., R. 32E., Secs. 33-34	Active mine
Preacher Creek	FM, T.10N., R. 9E., Sec. 31	Suspect AML, unauthorized occupancy
Steele Creek	FM, T. 7S., R. 33E., Sec. 31	Physical Hazards
Tanacross Airfield and Administrative Site	CRM, T. 18N., R. 11E., Secs. 4-5; CRM, T. 19N., R. 11E., Secs. 32-33	Reclamation in progress from prior land use
Uhler Creek	FM, T. 8S., R. 31E., Sec. 20	Active mine
Wade Creek (couch)	CRM, T. 27N., R. 19E., Sec. 24	Solid waste

[a]CRM = Copper River Meridian

[b]FM = Fairbanks Meridian

3.5.2. Social and Economic Conditions

This section summarizes demographic and economic trend information, and describes key industries in the planning area that could be affected by BLM management actions. Local industries most likely affected by BLM land management policies and programs are travel, tourism and recreation, and mining.

3.5.2.1. Economics

3.5.2.1.1. Regional Overview

The planning area includes the Fairbanks North Star Borough, the Southeast Fairbanks Census Area, and a portion of the Yukon-Koyukuk Census Area. There is no census-area-level of local government. The Southeast Fairbanks Census Area is one of the least populated census areas in the state. It is home to 1 percent of the Alaska population at a density of 0.2 persons/square mile (Alaska average is 1.2 persons/square mile).

Fairbanks has the largest population, and is a “gateway community,” trade and transportation center for the region. Fort Wainwright personnel are included in Fairbanks' population. Fairbanks has commercial airline service connecting cities outside the region. Regional or charter air service provides the only year-round access to other communities in the planning area. Delta Junction and Tok are also gateway communities, due to their location on the Alaska Highway. The Fairbanks North Star Borough includes communities along the Richardson Highway, or adjacent to the city of Fairbanks, such as Moose Creek, a census community with a population of 731 in 2012 (ADLWD 2013a).

Two other military reservations are partially within the planning area. These are Fort Greeley near Delta Junction with a population of 529, and Eielson Air Force Base east of Fairbanks with a population of 2,793 in 2012.

Deltana, estimated population 2,313, is the largest community outside the Fairbanks North Star Borough. The “community” is a 562 square mile unincorporated area, without a developed community business center. It consists of a collection of farms and residences generally east of Delta Junction.

There are 35 communities within the planning area (Map 1). Tok is one of the larger, with a population of 1,287 (ADLWD 2013a). The smallest communities range in population from Chicken (7) to Livengood (12), Healy Lake (13) , and Dot Lake (17).

Five villages within the planning area have no road access to state highways. These are Beaver, Birch Creek, Chalkyitsik, Stevens Village, and Fort Yukon. All but Birch Creek are located along the Yukon River. The village of Circle is also located on the bank of the Yukon River, but is connected to the Alaska Highway System.

Few communities are incorporated. Property taxes are collected in North Pole and Fairbanks. Fairbanks also taxes hotel beds, tobacco, liquor, and real property. Fort Yukon and North Pole have a sales tax.

Fairbanks and adjacent communities are market economies. The remainder of the planning area is a mixed subsistence-market economy. Villages such as Beaver, Birch Creek, Chalkyitsik, Fort

Yukon, and Stevens Village are most dependent upon natural resources for subsistence. Nearly all other communities have road access and participate to a higher degree in the market economy.

Economic change agents in the planning area include the opening and operation of the Pogo Mine, the passage of ANCSA and ANILCA. In addition, operation of the TAPS, military reservations near Fairbanks and Delta Junction, the Alaska Fire Service, and tourism provide employment and income. With the growth of major population centers (Southcentral Alaska and Fairbanks), visitation and use of area resources has increased dramatically in the last 20-30 years. Population in the area has grown over the last three decades, although migration from the area has also increased.

Market basket surveys conducted by the UAF Cooperative Extension Service in 2011 reported food costs for families of four (UAF 2011). The market basket for a family of four in Delta Junction cost over 33 percent more than Anchorage and 37 percent more than the same basket in Fairbanks. Cost of living surveys are not conducted in rural villages, but their costs are higher than communities along the highway system.

Energy is very expensive in the region. Bradley Lake hydroelectric, Cook Inlet natural gas, fuel oil, and coal fired generation provide electricity along the Richardson Highway at a cost about two-thirds higher in Fairbanks and Delta Junction than in Anchorage (GVEA 2009). Diesel generation provides electricity in remote areas, as well as to communities along the Elliott, Taylor, Dalton, Steese and Alaska Highways, resulting in even higher cost. The Alaska Power Cost Equalization Program provides some relief rural users, for example, in Fort Yukon the equalization factor mitigates the cost from $0.63 per KWH to $0.13 per KWH. Rural communities rely on fuel that must be barged, flown, or trucked (in winter) to villages for power generation and supplemental heat (Alaska Energy Authority 2013).

Community profiles for all villages, towns, and cities in the State are available at the Alaska Department of Commerce and Community Development, Community Database Online at http://commerce.alaska.gov/cra/DCRAExternal.

3.5.2.1.2. Demographic Overview

The population of the planning area is approximately 110,000, including rural residents living outside communities. According to the Alaska Department of Community and Regional Affairs, the Alaska Native population varies widely between communities in this region. All of the smaller non-traditional Native communities have Alaska Native populations. Alaska Native residents comprise 0 and 12 percent of the Alcan Boundary and Tok populations, respectively. Traditional Native communities are 50 to 100 percent Alaska Native. The remaining communities have Alaska Native populations of less than 10 percent Table 3.46, "Minority Populations in the Planning Area". In comparison, Alaska Natives comprised nearly 15 percent of the state's population (U.S. Census 2010, U.S. Census 2013), a larger percentage of Native Americans than in any other state. (Hunsinger and Sandberg of the Alaska Department of Labor and Workforce development reported the native population as 17 percent of the Alaskan population in their article in the April, 2013 Alaska Economic Trends Magazine.) The balance of the race distribution in the planning area and the state is primarily white, comprising as much as 70 percent of the state population. The Alaska Native population has doubled in the last 40 years.

Table 3.43. Growth of the Alaska Native Population, 1990–2010

Location	Population by Year[a]			Current Population	Percent Growth
	1990	2000	2010	2012	
Alaska	85,698	98,043	104,871	108,249	27.4
Anchorage Municipality	14,569	18,941	23,130	24,300	66.8
Fairbanks	5,330	5,714	6,879	7,206	35.2
Matanuska-Susitna Borough	1,939	3,264	4,901	5,485	183.9
Southeast Fairbanks Census Area	770	785	808	814	5.7

[a]U.S. Census Bureau, Census 1990, 2000, 2010.

Overall, the population growth in the three boroughs and census areas touching the planning area is lower than the growth rate for the state, and far below the growth rate of southcentral Alaska. Between 1990 and 2010, Alaska population grew by 29 percent, while Fairbanks Star Borough grew by 18 percent, and the Southeast Fairbanks Census Area fell by almost 2 percent. The median age of the population in these census subdivisions in 2010 ranged from 31.7 years to 35.9 years, close to the state median of 33.8 years (ADLWD 2011).

Out migration is evident in the Yukon-Koyukuk Census Area. The Fairbanks Northstar Borough and Southeast Fairbanks Census Area are some of the seven locales in Alaska showing net in-migration during the period 1990-2010. Immigration from Russia as well as new employment at the Pogo Mine contributes to this change (ISER 2008).

Table 3.44. Population Growth of Communities within the Planning Area

	Population[a]					
Community	**(2010)**	**(2000)**	**(1990)**	**(1980)**	**(1970)**	**(1960)**
Alaska	710,231	626,932	550,043	419,800	308,500	230,400
Fairbanks North Star Borough	97,581	82,840	77,720	53,983	45,864	43,412
Southeast Fairbanks Census Area	7,029	6,174	5,913	5,676	4,308	2,926
Yukon-Koyukuk Census Area	5,588	6,510	6,714	7,873	7,045	6,599
Big Delta	591	749	400	285	0	0
Delta Junction	958	885	652	945	703	0
Deltana	2,251	1,570	na	na	na	na
Dry Creek	94	128	106	0	0	0
Fort Greely	539	461	1,299	1,635	1,820	0
Delta Area	**4,433**					
Eilson AFB	2,647	5,400	5,251	5,232	6,149	0
Ester	2,422	1,680	147	149	264	81
Fairbanks	31,535	30,224	30,843	22,645	14,771	13,311
Fox	417	300	275	123	0	0
Harding/Birch Lakes	299	216	27	na	na	na
Livengood	13	29	na	na	na	na
Moose Creek	747	542	610	510	0	0
North Pole	2,117	1,570	1,456	724	265	358
Pleasant Valley	725	623	401	0	0	0
Salcha	1,095	854	354	319	0	0
Two Rivers	719	482	453	359	0	0
Fairbanks Area	**42,736**					
Tanacross	136	140	106	117	84	102
Tetlin	127	117	87	107	114	122
Tok	1,258	1,393	935	589	214	129

	Population[a]					
Community	**(2010)**	**(2000)**	**(1990)**	**(1980)**	**(1970)**	**(1960)**
Northway	71	95	123	73	40	196
Northway Junction	54	72	88	0	0	0
Northway Village	98	107	113	112	0	0
Healy Lake	13	37	47	33	0	0
Dot Lake	13	19	70	67	42	56
Dot Lake Village	62	38	na	na	na	na
Tok area	**1,832**					
Alcan Border (Boundary)	33	21	27	0	0	0
Central	96	134	52	36	26	28
Chicken	7	17	0	0	0	0
Eagle	86	129	168	110	36	92
Eagle Village	67	68	35	54	0	0
Eagle Area	**289**					
Beaver	84	84	103	66	101	101
Birch Creek	33	28	42	32	45	32
Chalkyitsik	69	83	90	100	130	57
Circle	104	100	73	81	54	41
Fort Yukon	583	595	580	619	448	701
Stevens Village	78	87	102	96	74	102
Yukon River	**951**					

[a]Source ADLWD 2103a

3.5.2.1.3. Employment and Income

As elsewhere in Alaska, public employment is very important to the economy of the planning area. The largest employers are the Fairbanks North Star Borough School District, the University of Alaska Fairbanks, the Federal Department of Defense and three military bases.

Banner Health, the operator of Fairbanks Memorial Hospital and Medical Center, is the largest private source of employment in the planning area. Tanana Chiefs Conference, providing social and health services, is the second largest. The Fort Knox Mine, owned and operated by Fairbanks Gold Mining, Inc., a subsidiary of Kinross Gold Corporation, is the third largest employer in the planning area and in the state as well. Another private employer with a large payroll is Pogo Mine, a joint venture with Sumitomo Metal Mining Co. Ltd. and Sumitomo Corporation of Japan. Teck Cominco has a 40 percent interest in the mine and is the operator. In an effort to bolster the local economy the Pogo Mine developers entered into a Payment in Lieu of Taxes Agreement with the community of Delta Junction. Under the agreement, payments of 1.25 million dollars were paid to the town annually from 2005 to 2007. As of March 2013, 310 people were employed (ADNR 2013). Fairbanks has an estimated 1,300 mining-related jobs in September 2011 (ADLWD 2011). Fort Greely is located just south of Delta Junction, and provides substantial employment in the area.

ANCSA corporations, subsidiaries, and non-profits, and various tribal organizations have invested in services and provide employment for local residents and shareholders. Doyon, Limited, the ANCSA regional corporation in the planning area, provides diverse employment including oil field services and construction. Tanana Chiefs Conference and the Council of Athabascan Tribal Governments are also important employers.

Non-resident employment in the planning area is similar to that in other areas of the state, except for the North Slope Borough and in areas of heavy seafood processing, where the

percentage of non-local and non-Alaskan residents is very high. Private sector non-local resident employment ranges from a low of 24.3 percent in Fairbanks North Star Borough, to 54.1 percent in the Southeast Fairbanks Census Area, to 54 percent in the Yukon-Kuskokwim Census Area. Non-Alaska residents also comprise a significant portion of the workforce: 17.7 percent in Fairbanks North Star Borough, to 21.4 percent in the Southeast Fairbanks Census Area, to 23 percent in the Yukon-Kuskokwim Census Area (Hadland 2011). Alaska statewide has 20.1 percent non-resident employment. The two largest metal mines in the Planning area Fort Knox and Pogo employ 9.8 percent and 36.8 percent non-resident employees.

Unemployment in the planning area is considerably higher than in urban centers in Alaska, and higher than the state average. According to State of Alaska data for September 2011, unemployment ranged from a low of 5.9 percent in the Fairbanks Area to 11.2 percent in Southeast Fairbanks Census Area, and 14.7 percent in the Yukon-Kuskokwim Census Area, while the state average at that time was 6.6 percent (ADLWD 2013b).

Labor force participation rates are low in Bush Alaska and higher along road systems. Census data shows Northway, and Birch Creek, for example, with lower participation rates. This underscores the relative scarcity of jobs and emphasizes the role and importance of subsistence activities.

Per capita income in the planning area is generally lower than the Alaska average. Figure 3.4 shows per capita income for Fairbanks North Star Borough, Southeast Fairbanks Census Area, Yukon/Kuskokwim Census Area, "County Region" an aggregate of all three, compared with the United States. The Per Capita income in Alaska in 2011 was $46,624. Villages off the road system report the lowest income. In the Fairbanks North Star Borough 7.8 percent of individuals were below poverty level in 2011 (US Census Bureau 2013). In the Southeast Fairbanks Census Area 10.4 percent of families were below poverty level in 2011. In the Yukon-Koyukuk Census Area, 23 percent of the population was below poverty level in 2011. In comparison, 9.5 percent of families in Alaska were below the poverty level in 2011 (from U.S. Census, State and County QuickFacts 2012 online at http://quickfacts.census.gov/qfd/states/02000.html). In 2013, the individual poverty level income in Alaska was $14,350, while for a family of four the guideline was $29,440. More information on low income populations can be found in section 3.5.2.2.3.



Figure 3.4. Comparison of Per Capita Income 2012 (EPS)

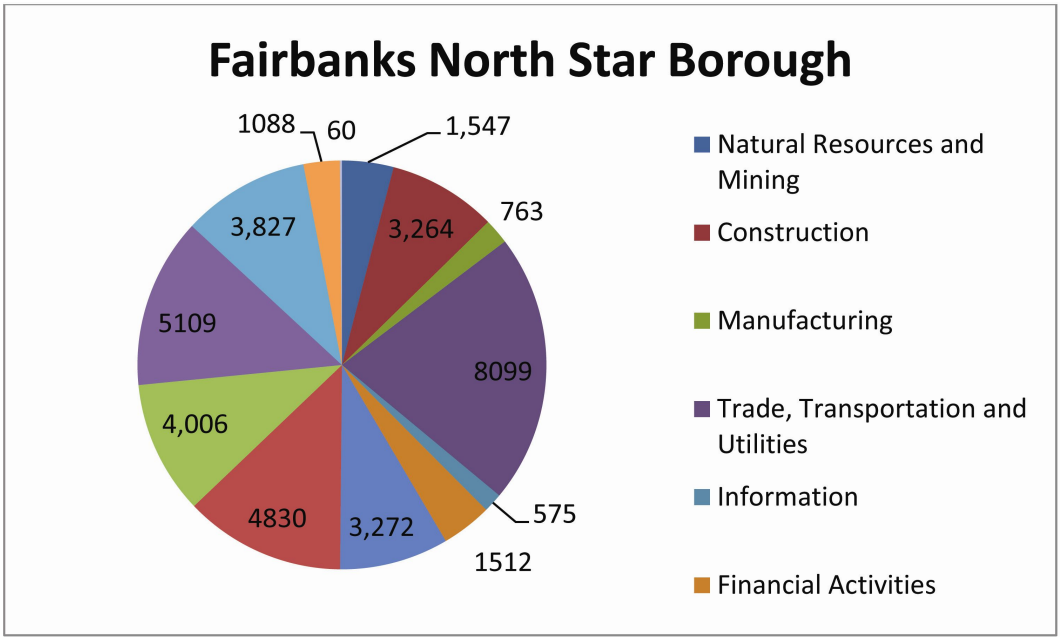


Figure 3.5. Employment by Industry Fairbanks North Star Borough (ADLWD 2011)

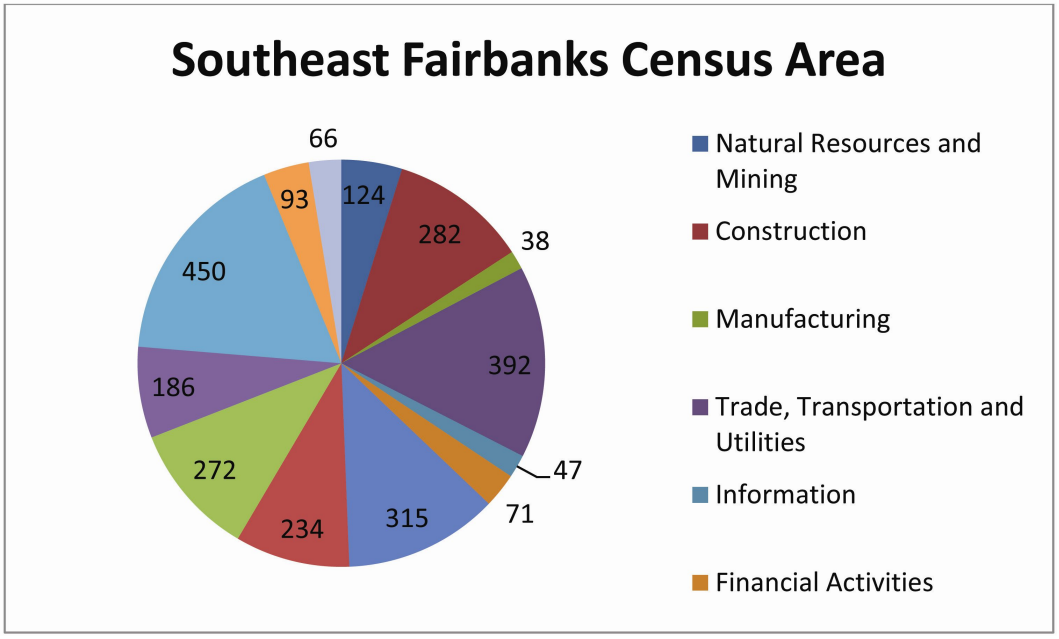


Figure 3.6. Employment by Industry Southeast Fairbanks Census Area

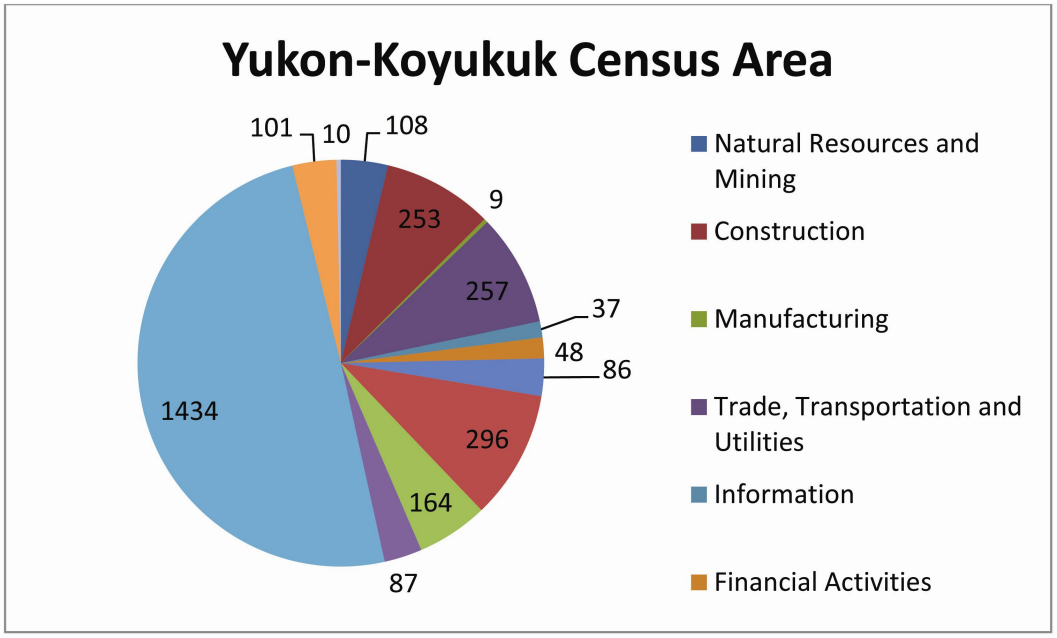


Figure 3.7. Employment by Industry Yukon-Koyukuk Census Area

Government jobs provide a disproportionate employment particularly in rural areas. See Figure 3.7 for a comparison of government employment in the planning area to the rest of the United States.

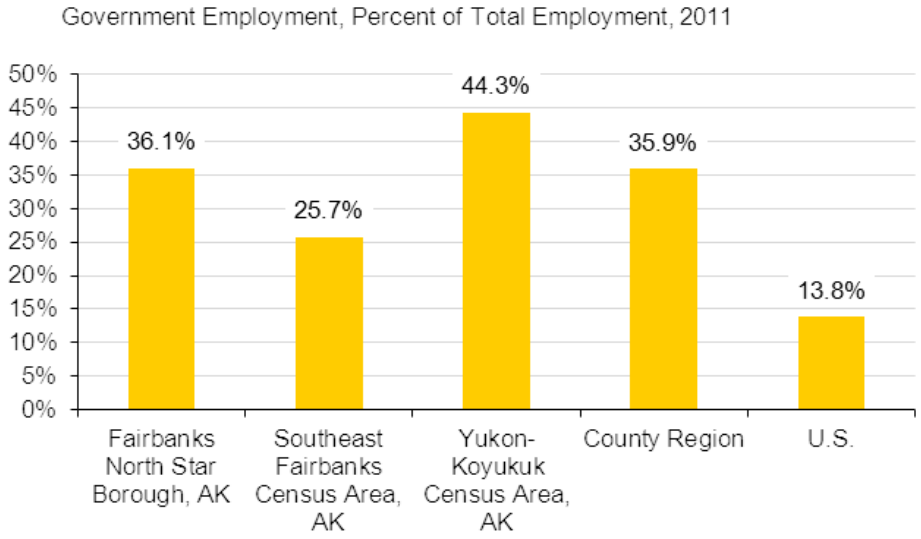


Figure 3.8. Government Employment

3.5.2.1.4. Revenue

Local government revenue in the planning area is influenced by the exemption of ANCSA village corporations and regional corporations from certain forms of property taxation. Communities and boroughs are empowered to levy and collect tax revenues if they are incorporated political subdivisions. Several villages or towns, and the Borough levy sales taxes and specific use or

product taxes. The Fairbanks North Star Borough collects, property, bed, alcohol, tobacco, and oil and gas tax; the city of Fairbanks collects property, bed, alcohol, and tobacco tax; North Pole collects property and sales tax, and Fort Yukon collects sales tax. The city of Delta Junction collected a payment in lieu of property tax by agreement with Pogo Mine owners from 2005–2007.

Table 3.45. Per Capita Tax Revenues in Dollars

Municipality or Community[a]	Property Tax	Sales Tax	Other Taxes	Total Taxes Reported	Per Capita Revenue
Anchorage	$486,105,549	0	$45,714,068	$531,819,617	$1,654
Fairbanks North Star Borough	$96,567,220	0	$3,871,559	$100,438,779	$1088
North Pole	$959,554	$2,452,041	0	$3,411,595	$454
Fairbanks	$13,932,572		$5,530,914	$19,463,486	$258
Fort Yukon	0	$154,028	0	$154,028	$258

[a]Source: ADCCE 2013

Table 3.45 lists collections by cities and boroughs that levy taxes. The column labeled "Other Tax" aggregates collections for items such as liquor, tobacco, and bed use. Anchorage is listed for comparison.

3.5.2.2. Environmental Justice

Executive Order (EO) 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires that each federal agency consider environmental justice to be part of its mission. Its intent is to promote fair treatment of people of all races, so no person or group of people bears a disproportionate share of the negative effects from the country's domestic and foreign programs. Specific to this planning process, the EO and BLM policy requires the BLM is to identify and address as appropriate all actions that cause disproportionately high and adverse impacts to federally recognized tribes, and minority and low-income populations.

3.5.2.2.1. Federally Recognized Tribes

In Alaska, the villages recognized under ANCSA were designated as tribes by the Department of the Interior in 1993, and were confirmed by Congress pursuant to the Federally Recognized Indian Tribe List Act of 1994 (P.L. 103–454; 108 Stat. 4791, 4792). The planning area includes 12 federally recognized tribes:

- Beaver Village
- Birch Creek Tribe
- Chalkyitsik Village
- Circle Native Community
- Village of Dot Lake
- Native Village of Eagle
- Native Village of Fort Yukon
- Healy Lake Village
- Northway Village
- Native Village of Stevens
- Native Village of Tanacross
- Native Village of Tetlin

In addition, EO 13175, "Consultation and Coordination with Indian Tribal Governments," requires the BLM to consult with tribal governments on federal matters that significantly or uniquely affect their communities. The BLM initiated consultation with the federally recognized tribes in the planning area by certified mail at the beginning of the planning process. Only two tribes have responded, stating that they wished to participate in consultation. Although the remaining tribes did not respond to the request for consultation, the BLM has continued to send them information on the RMP and EIS, including a copy of this Draft RMP/EIS for review.

3.5.2.2.2. Minority Populations

U.S. Council on Environmental Quality (CEQ) guidelines for evaluating the potential environmental effects of projects require specific identification of minority populations when either: 1) a minority population exceeds 50 percent of the population of the affected area; or 2) a minority population represents a meaningfully greater increment of the affected population than of the population of some other appropriate geographic unit as a whole (CEQ 1997). Table 3.46 lists all of the communities within the planning area by municipality type, population, and percentage of the population that is a recognized minority (U.S. Census Bureau 2011).

Table 3.46. Minority Populations in the Planning Area

Borough/Community	Government Type	2010 Population	Percent Minority
Fairbanks North Star Borough	Second Class Borough	97,581	17.3
Beaver	Unincorporated	84	98.8
Big Delta	Unincorporated	591	3.9
Birch Creek	Unincorporated	33	100.0
Boundary (Alcan Border)	Unincorporated	33	3.2
Central	Unincorporated	96	4.3
Chalkyitsik	Unincorporated	69	85.5
Chicken	Unincorporated	7	0.0
Circle	Unincorporated	104	89.8
Delta Junction	Second Class City	958	8.6
Deltana	Unincorporated	2,251	5.1
Dot Lake	Unincorporated	13	25.0
Dot Lake Village	Unincorporated	62	91.1
Eagle	Second Class City	86	8.2
Eagle Village	Unincorporated	67	43.1
Fort Yukon	Second Class City	583	92.1
Healy Lake	Unincorporated	13	84.6
Livengood	Unincorporated	13	25.0
Northway	Unincorporated	71	87.7
Northway Junction	Unincorporated	54	75.0
Northway Village	Unincorporated	98	97.5
Stevens Village	Unincorporated	78	93.2
Tanacross	Unincorporated	136	88.6
Tetlin	Unincorporated	127	93.4
Tok	Unincorporated	1,258	14.9

Based on the census data, numerous minority populations within the planning area are well above the 50 percent threshold specified in the EPA guidelines. In most communities, where the minority population is greater than 50 percent, it is primarily composed of Alaska Native or American Indians, with few to no other minority groups represented.

3.5.2.2.3. Low Income Populations in the Planning Area

Low-income populations are identified using the statistical poverty thresholds from the Bureau of the Census data, per CEQ guidelines. In the United States as a whole, a total of 12.4 percent of the population lives below the poverty level. For the Eastern Interior RMP, any community that is greater than the national average of 12.4 percent in terms of poverty rate will be considered a low-income community, given the relatively small populations of the individual communities within the planning area. As a result, 12 communities within the planning area are considered low-income (Table 3.47). None of the individual communities which comprise the Fairbanks North Star Borough fall below the low-income threshold, and are not considered low-income environmental justice populations.

Table 3.47. Low Income Communities In the Planning Area

Community	Percent Individuals below Poverty Level[a]
Beaver	36.6
Birch Creek	43.8
Chalkyitsik	32.0
Circle	60.7
Dot Lake Village	53.6
Eagle	16.9
Eagle Village	39.0
Fort Yukon	17.7
Northway	51.9
Northway Junction	44.8
Northway Village	72.0
Stevens Village	47.4

[a]Source ADLWD

3.5.2.2.4. Outreach and Potential Environmental Justice Issue Identification

The BLM issued a NOI in the *Federal Register* February 29, 2008 initiating the scoping period for the Eastern Interior RMP. Scoping meetings were held in several communities. Environmental justice considerations for the RMP were gathered through: 1) requests for comments via certified letter to all federally recognized tribes; 2) "interested party" letters that were sent to communities within the planning area, as well as individual stakeholders and stakeholder groups; and 3) notices in local newspapers requesting comments and announcing scoping meeting locations and times.

Major concerns expressed at these meetings and in responses to BLM's request for information include:

- The need for additional research in the Black River region regarding subsistence use, hunting, and fishing, and including the use of Traditional Ecological Knowledge—a recommendation was made to look at the Council of Athabascan Tribal Governments land use documents for the planning area;
- Mineral entry—opening new areas to mining; also keeping areas closed to mining;
- Access, including creating transportation routes or corridors, and limiting access to OHVs;
- Fire protection, maintaining a natural fire regime, problems as a result of erosion after wildland fires;
- Water quality issues, especially with regard to the headwaters of the Black River, which is the primary water supply for the community of Chalkyitsik;
- Protection for historic hunting and trapping trails;

- Allowing new trapping cabins to be constructed, and allowing for the reconstruction of trapping cabins that have burned down due to wildland fires;
- Continued trail improvement throughout the planning area;
- The protection of subsistence resources, including the Fortymile caribou, moose, salmon, whitefish and pike.

The EPA issued a Notice of Availability in the *Federal Register* March 2, 2012 initiating the public comment period on the Draft RMP/EIS. Public meetings were held in communities throughout the planning area. A supplement to the Draft RMP/EIS was released for public comment on January 11, 2013. Another series of public meetings were held in the planning area. The public comment period for both the Draft RMP/EIS and supplement closed on April 11, 2013. The BLM received comments in writing, at public meetings, and through government-to-government consultation. Major concerns expressed at these meetings repeated many of those heard during scoping, particularly in regard to the Upper Black River Subunit. Comments are discussed in more detail in Chapter 5.

3.5.2.3. Sociocultural Systems

This section focuses on the cultural differences that exist in the planning area. A socio-cultural system is a complex cultural structure consisting of a definable population within a determinable territory, characterized by shared and interrelated ways of life including beliefs, norms, values, and technologies, which are shared within the population and passed on from generation to generation. This system comprises the fundamental traditions, ideas, behavioral patterns, and tools that humans use to adapt to their surroundings, and form the basis of each unique way of life and culture.

Background awareness of certain traditional and historical aspects is important to understand the effects of more recent events and trends on local inhabitants and use of public lands in the region, and the effects of future actions. Relevant history of the area is compiled in the BLM report "Alaska's Upper Yukon Region: a History" (Ducker 1982), and is summarized here.

Humans have lived in the area for more than 11,000 years. In the eighteenth century, the population was estimated at 6,000 to 7,000 Athabascan Indians. The nomadic existence of bands limited "settlements" to seasonally-occupied fish camps and winter villages at certain river valleys or confluences. For most of the year, small family groups traveled through regions procuring food from seasonal sources. When the initial fur-trading post was established in the upper Yukon basin in 1846, locals began trading for Euroamerican goods, including firearms, foodstuffs, and cloth. As these goods became more necessity than luxury, and firearms made hunting less of a group activity, the traditional lifestyle changed to the extent that a village was established near the post with nearly year-round habitation. This semi-nomadic pattern remained until the various gold stampedes began in 1886 and the US Army established Fort Egbert. The number of Euroamericans was previously limited to a few at fur-trading posts and occasional travelers. With the gold miners and military came the first non-native communities, some reaching populations in the hundreds as long as the promise of gold held. These communities required firewood, cabin timbers, fish, and meat from the surrounding environment. It was expedient to acquire these from Native sources, and more villages were established near the non-native communities to take advantage of available jobs. In addition, the newly-arrived boats transporting goods and people on the Yukon River needed locally-experienced pilots for navigation and large quantities of wood for fuel, so the Alaska Natives found additional sources of income. As the gold rushes faded, many miners moved away, but some stayed and competed not just for town and river jobs, but

also in fur trapping. Knowledge of English and the American legal system gave the non-natives advantages over their Native competitors.

By 1915, Alaska's non-voting delegate to the U.S. House of Representatives, James Wickersham, urged the chiefs of seven Tanana Valley villages to take title to a small amount of land in anticipation of the Alaska Railroad completion and waves of white settlers taking whatever land they chose. The chiefs could pursue individual allotments under the 1906 Alaska Native Allotment Act or could seek reservations for villages. The seven Tanana chiefs rejected those options in favor of continuing the status quo, but asked that their people be educated so that they could better compete for contracts and jobs. Missionaries had been in the area, but had not opened schools. The council's decision was echoed through Alaska over most of the next fifty years and left most Natives without reserved lands, but brought educational opportunities to Native children. As schools were established, families began to settle nearby to stay together through the year. This reinforced the villages while the non-Native villages and posts along and near the Yukon River were largely emptied and many abandoned. Non-Natives moving to the area homesteaded or continued to operate dispersed mining claims and fur trap lines, particularly away from the Alaska Highway.

Some reservations were established in Alaska despite the 1915 meeting noted above. Metlakatla, on Annette Island in Southeast Alaska, is the only Congressionally designated reservation, and the only designated reservation remaining after ANCSA. All others were created by Executive or Secretarial Order, including those in the areas of Arctic Village/Venetie and Tetlin for those villages. Unfortunately, reservation status was used to disenfranchise residents and did not always protect subsistence and other resources for the benefit of Alaska Natives. For these reasons, reservations were rarely sought and occasionally rejected by villages.

This status was maintained until TAPS easements were complicated by Native ownership claims and ANCSA was passed by Congress. In 1971, ANCSA 17(d)(1) withdrawals prevented homesteading and mineral entry in anticipation of settling Native land claims. The Act terminated reservations (other than Metlakatla) and allowed Native village and regional corporations to select defined amounts of land for transfer to the benefit of Alaska Natives. As the result of ANILCA in 1980, large tracts of lands previously managed for multiple uses by the BLM transferred from general management to limited use. These included the Yukon-Charley Rivers National Preserve, the Tetlin and Yukon Flats NWRs, the Steese National Conservation Area, and the White Mountains NRA.

3.5.2.3.1. Occupational and Interest Groups

Discussions of groups and individuals are included to facilitate the assessment of social effects. Concerns of the following groups in relation to the managed lands will be assessed: rural subsistence users, Alaska Natives, recreationists, miners, and those who prioritize resource protection. It should be noted that these groups are not mutually exclusive and examples of individuals and households that fit into many categories are likely to be present.

Rural Subsistence

Subsistence is an important part of the prehistory, history, culture, and economy of the study area. ANILCA established a preference for rural residents hunting on all federally managed land in Alaska and a similar preference for fishing in ANILCA-created conservation units (See

Subsistence section). . Subsistence is separate from sport hunting and fishing, where the products supplement a diet based on non-local foods. Fairbanks has been identified as non-rural.

There are many challenges facing the rural population that relies on subsistence food sources today. Challenges include competition with other users, high fuel costs, changes in seasonal migrations, and changes in climate affecting subsistence resources. Increasing transportation fuel costs may shift consumption to heavier reliance on subsistence foods, but more importantly increases the cost of subsistence tools and equipment. This is particularly true in Alaska, where transportation can account for more than half of the delivered cost of a product. Increasing heating fuel costs result in greater use of local firewood sources. Changes in land ownership restrict access to public land used for subsistence activities, particularly where BLM is transferring title from the system of public lands.

Alaska Natives

The planning area is the traditional homeland of five groups of Athabascan Indians: the Gwich'in, Han, Tanana, Tanacross and Upper Tanana. Each of these groups represents a distinctive culture characterized by different languages, territories, and unique adaptations to the natural environment. As a whole, the groups are referred to generally as Athabascan Indians due to similarities in the individual languages that represent an overarching shared language phylum (VanStone 1974) and common ancestral group in the long-distant past.

Given their location in Interior Alaska, many of the Athabascan groups in the planning area were the last to be contacted by Euroamerican explorers, trappers, and goldseekers. As a result, many of the communities retain a very traditional lifestyle, preserving their cultural values, beliefs, and practices by maintaining a close relationship with the land, placing great value on subsistence use and local resources. The following description of each Athabascan group in the planning area highlights the major differences between the cultures, focusing on those aspects that are relevant to the current planning effort.

Gwich'in

Referred to as Kutchin in the past, the Gwich'in occupy the northern portion of the planning area. Their traditional territory is generally bounded by the Brooks Range in the west, the arctic coastal plain to the north, the Yukon River to the south, and extends eastward into Canada to the Peel and Mackenzie Rivers (Slobodin 1981). Current communities within the planning area correspond to the remaining bands: Chalkyitsik (Draanjik Gwich'in or Black River Band), Fort Yukon and Circle (Kutcha Gwich'in or Yukon Flats Band), and Birch Creek (Tennuth Gwich'in or Birch Creek Band). Beaver, established during the Chandalar gold rush, has a mixed population of Gwich'in and Koyukon Athabascans, and Inupiat Eskimo (ADCRA 2008). Steven's Village was founded by three Koyukon Athabascan brothers at the turn of the century, but the majority of the current population is Gwich'in (ADCRA 2008).

The Gwich'in are "people of the deer," (Slobodin 1981) in that they have a heavy reliance, both in terms of subsistence and ideologically, on caribou. Other important resources include: moose, Dall sheep, black bear, salmon, whitefish, lake trout, pike, burbot, geese, ducks, swans, beaver, hare, muskrat, tree squirrel, ground squirrel and porcupine. In addition to those furbearers listed above, fur from weasels, wolves, wolverine, and lynx are also utilized for both personal use and trade. The Gwich'in, like the neighboring Han and Koyukon Athabascan Indians, are organized within a clan system comprised of three matrilineal clans (Slobodin 1981).

Hän

The Hän occupy the mid-eastern portion of the planning area, located along the upper Yukon River in both Alaska and Canada, including the Fortymile River area. Currently, the only two communities within the planning area that have a Hän population are Eagle and Eagle Village. The Hän in Alaska maintain close ties with their kin in Canada, most of who live in or near Dawson, Yukon Territory (Crow and Obley 1981). The Hän have been and are more reliant on fish, especially king, coho, and chum salmon, than they are on meat as the basis of their food supply (Osgood 1971; Crow and Obley 1981). However, caribou, moose, hare and other small game, fresh water fish, migratory waterfowl and eggs, berries and ptarmigan were also important subsistence resources (Simeone 1982).

Tanana

The traditional territory of the Tanana encompasses the western portion of the planning area, located along either side of the Tanana River. The current communities of Fairbanks, North Pole, Salcha, and Delta Junction all fall within this territory. Today, while there are numerous Athabascan Indians living within these communities, there are no recognized Tanana villages within the planning area.

Tanacross

Tanacross is the ancestral language of the Mansfield-Ketchumstuk and Healy Lake-Joseph Village bands of Athabascan Indians (Simeone 1982). The ancestral territory of the Tanacross encompassed an area bounded by the Goodpaster River to the west, the Alaska Range to the south, the Fortymile and Tok Rivers to the east, and the Yukon Uplands to the north. Within the planning area, the communities of Healy Lake, Dot Lake, and Tanacross are predominantly populated by Tanacross people. Caribou are of primary importance to the Tanacross, as are moose, ducks, Dall sheep, marmot, ground squirrel, and whitefish (McKennan 1981). Salmon do not range this far up the Tanana River, and are not a reliably utilized resource by the Tanacross.

Upper Tanana

The traditional area of the Upper Tanana is comprised of the remainder of the Tanana River, with the boundary at Tetlin to the west, the Wrangell Mountains to the south, the East Fork of the Fortymile River to the north, and the White River (in Canada) to the east (McKennan 1981). Historically, the Upper Tanana were divided into four bands, two of which are located within the planning area: the Lower Nabesna band and the Tetlin-Last Tetlin band (Simeone 1982). The contemporary communities of Tetlin, Northway, Northway Village, and Northway Junction are all Upper Tanana. Like the Tanacross, caribou are a highly utilized resource by the Upper Tanana, as are hare, moose, Dall sheep, ducks, muskrat, geese, swans, cranes and whitefish (Simeone 1982).

Recreationists

Recreation is a component of many lifestyles in the planning area and is an important element of the overall quality of life for residents. Recreational activities on the public lands include camping, hiking, biking, boating, non-subsistence hunting and fishing, skiing, birding, OHV, and other activities. In addition to local recreation use, tourists from all over the world come to this area, with outdoor recreation as an important component of their travel.

Recreationists represent diverse groups of people, and changes in recreation management affects participants in various activities differently. An example of this is the interaction of motorized and

non-motorized activities. While snowmobile riders seek open access to all public lands, skiers and dog team drivers may seek access to areas free from snowmobile use. On the water, canoeists and rafters may seek areas free from motorized boats. Non-hunting recreationists may be hesitant to use areas during hunting seasons. Common concerns raised during scoping included restricted access to public lands resulting from changing land ownership patterns and sustainability of trails.

Hunting and fishing may be undertaken for one of several purposes (sport, personal use, or subsistence), and results in serious competition for declining wildlife in some parts of the planning area. Increased recreational hunting has had an impact on subsistence users. Local residents indicated that caribou harvest quotas on the Taylor Highway were met after only a couple of days, due to the large number of hunters from Anchorage and Fairbanks. Special hunts were required for subsistence.

Miners

Mining is a historic and current use of some of the public lands within the planning area. More detailed information is provided in the Mineral Occurrence and Development Potential Reports (BLM 2009a,b). Most of BLM lands in the planning area is closed to mineral entry (other than the navigable river bottoms open to state claims). The harsh climate of Interior Alaska creates difficulties with year-round operations. Changes in land ownership may affect access to mining claims. In areas open to mining, it is a popular activity as evidenced by claims and participation.

During scoping, the Fortymile Mining Association identified concerns about access, the ANCSA 17(d)(1) withdrawals, navigability determinations on the Fortymile River, and the need for long-term camping permits for those working state mining claims. The Alaska Miners Association is an additional occupational organization representing mining interests beyond those of the Fortymile Mining District. The Alaska Miners Association has identified access and opening the Steese National Conservation Area to mineral entry as issues or concerns to be addressed in the Eastern Interior RMP.

Groups and Individuals who Prioritize Resource Protection

People living both within and outside the planning area, along with a variety of local and national organizations, have shown interest in this plan regarding protection of natural resources. Interested groups include: the Alaska Wilderness League, Alaska Chapter of Wilderness Watch, Alaska Quiet Rights Coalition, Northern Alaska Environmental Center, Defenders of Wildlife, The Wilderness Society, Alaska Center for the Environment, and many others. These groups and their members generally advocate for the protection of natural resources, scenic quality, and a Primitive recreational experience on public lands. These groups generally support designation of special areas such as wild and scenic rivers, areas of critical environmental concern, or wilderness areas.

3.5.2.3.2. Attitudes and Beliefs

Since ANILCA was enacted, the BLM has conveyed millions of acres of lands to the State of Alaska and Native corporations. This land conveyance has reduced the amount of BLM lands available for multiple-use purposes. In 1986, all public lands in Alaska were permanently closed to homesteading. These events have affected the local social patterns and activities and brought new users to the region.

It is at the community level that the disparity of income and ethnicity result in differing uses of (and relationship to) public lands in the planning area. Alaska Natives comprise more than

90 percent of the population of Beaver, Birch Creek, Chalkyitsik, Stevens Village, Tanacross, and Tetlin. While these villages are comparatively new, the inhabitants are on ancestral lands reaching back thousands of years. Alaska Natives represent less than 10 percent of the population of Central, Delta Junction, Dot Lake, and Eagle (ADCRA 2008 Community Database Online). People brought to the area by prospects of fur, gold, and other resources, established these communities less than 150 years ago. These resources were sold for money, so brought a greater reliance on market economies than subsistence, although subsistence hunting, fishing, and trapping are still hallmarks of most rural communities in Alaska.

Subsistence, in fact, defines a key set of attitudes mentioned in scoping meetings and elsewhere. For Alaska Natives, subsistence encompasses lifestyle, culture, and heritage. It is the traditional way, a choice made to stay close to the land and close to community. Other rural non-native residents living in the villages or in a remote cabin setting can experience a similar subsistence lifestyle with mutual support of surrounding subsistence users. The land and its resources can define the social relationships between communities, villages, tribes, and remote subsistence families. The community of Eagle has summertime access to Chicken by road, yet Chicken has no year-round residents, so there is limited social connection, and negligible economic interaction. Before the road was finished (1953), Eagle was a commercial center on the Yukon River, supplying the miners and others in the Fortymile region, including Chicken. While commercial river traffic has dropped, the Yukon River is still a primary transportation corridor for recreation and subsistence users.

Other than in Fairbanks, there was concern expressed during scoping that visitors and newcomers do not understand or appreciate the area. Newcomers are reported to bring city attitudes, failing to understand or respect local customs and traditions of others living in the area. Visitors using motorized transport (boats and OHVs) may not respect others hunting or fishing in an area and trespass on Native Allotments and private lands. Others leave wasted meat at small airstrips, rather than pay to fly it out. Visitors and newcomers use other people's trapping cabins, but do not take care of them or replenish stores of food and firewood. Someone from outside the area may buy a mining claim and clear the land before they have done any exploration to know where to dig; then run out of money and leave an eyesore for everyone and a bad name for mining. There are also reports that users unfamiliar with the area tear up trails using inappropriate motorized transport, use the trails in the wrong season, or through carelessness. Yet some scoping comments from Anchorage and Fairbanks indicate the attitude in urban areas, possibly including areas outside of Alaska, is that public lands in the planning area currently lack sufficient access, and this reduces their access to recreation, mining, fishing, and hunting opportunities.

3.5.2.3.3. Quality of Life

In many cases, social effects of land management decisions are described in terms of effects to quality of life; these effects could include the amount and quality of available resources such as recreation opportunities; or resolution of problems related to resource activities, such as population growth.

3.5.2.3.4. Socially Significant Places

The planning area has many socially significant places. Larger scale socially significant places in the planning area include the Black River, the Fortymile, and the White Mountains.

During scoping, the Black River and the Salmon Fork were identified as an important subsistence area for Chalkyitsik and other Yukon Flats communities. During scoping, these areas are described as “crucial to the livelihoods of the people who live there now, as it has been for thousands of years.”

History is a significant component to the Fortymile River drainage. The first large mining stampede in Alaska occurred in the Fortymile River. “The miners were there before the BLM got there” was one comment received during scoping. The Fort Egbert Historical Society has worked with the BLM in maintaining and sharing the history of the Fort Egbert, established in 1899, which is adjacent to the first incorporated town in Interior Alaska.

The White Mountain NRA provides a sense of place to the more urban Fairbanks area. “The White Mountains is in Fairbanks backyard” and “Its probably one of the most visible things around Fairbanks that people participate in...” were two comments received during scoping.

3.5.3. Subsistence

Subsistence in Alaska is the traditional way of life for many residents of the state and is central to the customs and traditions of many cultural groups. Subsistence resources are the fish, wildlife and plant species used by Alaskans to provide food, clothing, shelter, and fuel, and for producing artwork and other customary uses. A subsistence lifestyle is the harvest of wild resources in a traditional way that includes seasonal timing, use areas and processing, distribution and consumption of the harvests. The core of many Alaska Native cultures within the Eastern Interior is the inseparable elements of land, environment, people and resources. Subsistence is an integral part of the rural mixed economic system. The combination of subsistence and commercial wage activities provides the economic basis for rural community life. Analysis conducted by Wolfe and Walker (1987) indicates that subsistence harvests are a prominent part of the economy and social welfare of most rural Alaska regions. Subsistence, as discussed in this chapter, refers to the use of fish, wildlife, forest and woodland products and other vegetative resources, by federally qualified subsistence users. Federally qualified subsistence users are residents of the State of Alaska, as defined in 50 CFR Part 100 § 100.4, and whose primary, permanent home is within an area determined to be rural by the Federal Subsistence Board through the process in 50 CFR Part 100 § 100.15.

3.5.3.1. Federal Subsistence Management Program

ANILCA Title VIII establishes a priority for the "customary and traditional uses" of these subsistence resources by all rural residents of Alaska on federal public lands. The law provides the opportunity for rural residents to continue to engage in a subsistence way of life. State of Alaska law recognizes a subsistence preference for all residents of Alaska (Alaska Statute 16, Title 16 and Alaska Administrative Code, Title 5).

A dual fish and wildlife management system was created when it was determined that the State of Alaska Constitution did not allow for a rural preference for harvest of fish and wildlife. The Secretaries of Interior and Agriculture assumed management of the ANILCA subsistence mandate on federal public lands. The resulting dual system resulted in overlap between the State of Alaska and the federal government management of subsistence uses. The Alaska Board of Fish and the Alaska Board of Game pass regulations that are enforced by the State for resident and non-resident trapping, hunting and fishing on all Alaska lands and waters. The Federal

Subsistence Board passes hunting, fishing, and trapping regulations that are enforced by the federal government on federal public lands and waters in Alaska.

Opportunities for the harvest of subsistence resources are often the same in a given area for all residents of the state. This occurs when seasons and bag limits in federal and state harvest regulations align. Federal harvest seasons for some species are more liberal to coincide with traditional harvesting patterns and when the resource allows for extended opportunity. These seasons apply only on federal public land and to qualified rural residents.

Subsistence use of renewable resources on federal public lands is the priority consumptive use (ANILCA Title VIII §802(2) and may be restricted in order to assure the continued viability of a fish or wildlife population or the continuation of subsistence use of that population. In some cases the Federal Subsistence Board will determine which fish stocks and wildlife populations have been customarily and traditionally used by specific communities or areas for subsistence purposes. The determination process identifies the communities or areas that meet the eight factors for customary and tradition use (50 CFR Chapter 1 Subchapter H Part 100 § 100.16 Customary and traditional us determination process).

ANILCA Title VIII § 802(2) includes criteria to allow further limits on the subsistence harvest of fish and wildlife when it is necessary to restrict taking to assure the continued viability of a fish or wildlife population or the continuation of subsistence uses of such populations. Where allocation on an area or community basis is not achievable subsistence opportunity may be limited on an individual basis through action by the Federal Subsistence Board (50 CFR Chapter 1 Subchapter H Part 100 § 100.17).

3.5.3.2. Subsistence Harvest Levels

Eighteen recognized villages are within or immediately adjacent to the planning areas and qualify as rural for subsistence use: Chalkyitsik, Fort Yukon, Birch Creek, Beaver, Stevens Village, Livengood, Circle, Central, Healy Lake, Delta Junction, Dot Lake, Tanacross, Tok, Tetlin, Northway, Eagle, Village of Eagle, and Chicken. Residents of many other rural areas and villages also have preference for subsistence uses in the planning area. Section 804 of ANILCA further defines priority criteria when it is "necessary to restrict" the subsistence harvest of certain populations of fish and wildlife in order to protect their viability or to continue uses. This customary and traditional use determination process has been applied to identify specific communities' and area's use of specific populations within the Eastern Interior (Section 3.5.3.1 Federal Subsistence Management Program). These determinations have been passed into regulation and are codified in the Code of Federal Regulations(36 CFR Part 242 and 50 CFR Part 100).

Customary and traditional use determinations are summarized in the annually published *Subsistence Management Regulations for the Harvest of Wildlife on Federal Public Lands in Alaska and Subsistence Management Regulations for the Harvest of Fish on Federal Public Lands in Alaska* booklet. Under these determinations, rural residents of areas or villages, other than those listed as within or immediately adjacent to the planning areas, may participate in hunts as federally qualified subsistence users. Residents of the Fairbanks North Star Borough are not considered rural residents under ANILCA, and therefore do not qualify as federal subsistence users.

Resource harvest data is available from the ADF&G Community Profile Database. Table 3.48, "Subsistence Harvest Data for Eastern Interior Communities." lists the most current and complete

harvest information by community available for the planning area. Representative years were used for the data in the table.

Table 3.48. Subsistence Harvest Data for Eastern Interior Communities.

Community[a]	Pounds of Resources Harvested by Village [b]				
	Birds and Eggs	Non-Salmon Fish	Salmon	Land Mammals	Vegetation
Beaver Creek	4, 058 (48.87)	6,580 (79.25)	34,406 (414.37)	15,504 (186.72)	219 (2.64)
Birch Creek	128	1,838	626	2,955	ND[c]
Chalkyitsik	546	75	ND	5072	ND
Central	ND	ND	ND	ND	ND
Circle	350	272	12,167	8,043	ND
Chicken	ND	ND	ND	ND	ND
Delta Junction	ND	ND	ND	ND	ND
Dot Lake	148 (2.27)	2,094 (32.05)	1,329 (20.34)	3,485 (53.34)	499 (7.64)
Eagle	ND	ND	ND	ND	ND
Fort Yukon	20,906 (33.37)	75,965 (121.26)	380,744 (607.77)	145,955 (232.98)	2,156 (3.44)
Healy Lake	ND	ND	ND	ND	ND
Livengood	ND	ND	ND	ND	ND
Stevens Village	1,761 (19.57)	9,155 (101.72)	82,949 (921.66)	8,456 (93.96)	164 (1.82)
Tanacross	498 (5.34)	8,231 (88.33)	3,598 (38.61)	10,252 (110.02)	709 (7.61)
Tetlin	668 (5.77)	14,354 (123.96)	287 (2.48)	9,000 (77.72)	462 (3.99)
Tok	5,363 (4.96)	37,352 (34.55)	38,147 (35.28)	76,827 (71.05)	3,582 (3.31)
Northway	3,136 (9.68)	41,873 (129,24)	4,684 (14,46)	38,309 (118,24)	2,088 (6.44)
Village of Eagle	ND	ND	ND	ND	ND

[a]Source: ADF&G, Community Profile Database—most representative year. Version 3.11, March 2001. (Magdanz et al. 2004.)

[b]Per capita data, shown in parenthesis, given where available

[c]ND = No data

Harvest data for Fortymile caribou and moose in Unit 20(E) are available by village. Table 3.49, "Harvest by Village for Fortymile Caribou" summarizes data from registration permit hunts for Fortymile caribou by villages within the planning area. All villages outside the planning area are lumped under "other." Fall and winter hunting seasons are lumped by year.

Table 3.49. Harvest by Village for Fortymile Caribou

Community	2008	2007	2006	2005	2004
Central	6	6	12	0	6
Chicken	2	0	1	1	2
Delta Junction	2	12	7	11	4
Eagle	11	26	19	19	3
Northway	0	1	0	1	0
Tok	64	80	100	103	85
Other	53	25	22	25	10
TOTAL	**117**	**150**	**161**	**160**	**110**

3.5.3.3. Subsistence Use Patterns

Subsistence use patterns vary widely throughout the four subunits. Patterns of use have changed over time as the use of seasonally occupied camps has diminished. During the mid-20th century centralization of communities began to occur with advances in transportation technology (USFWS 2010a), economic advantages of access to new roads, and compulsory school attendance

(Martin 1983, Caulfield 1983, Marcotte 1991, Halpin 1987, Haynes et al. 1984). State and federal hunting regulations have contributed to further changes in seasonal rounds by creating open and closed seasons for harvest of fish and wildlife resources. Rural residents continue to harvest fish, wildlife, and vegetation resources as a major part of their diet.

Seasonal rounds are affected by weather, regulations, condition of animals, and resource availability. For example, residents of the village of Dot Lake historically harvested moose in July, which provided the best timing for drying meat (Martin, 1983). Subsistence hunters from Dot Lake also prefer the meat at this time of year, citing that the layer of fat is thicker and greasier and the meat is more tender. Winter hunting for moose was also important. Regulations now allow moose hunting primarily in the fall, which for many villages is outside the traditional seasonal harvest round.

Traditionally, people of the upper Yukon River move to fish camps in July when salmon begin running up rivers and streams. A second pulse of activity at fish camps begins during mid-August for communities that harvest fall runs of chum salmon (Andrews 1986). Fall chum salmon is the major fish species used by residents of the upper Yukon River (Andrews 1986). Fishing for whitefish and pike begins after break-up of waterbodies (Case 1986). People of the Upper Tanana (Tanacross, Northway, Tetlin, and Tok) moved to the Copper River in June and July to harvest from the runs of sockeye and Chinook salmon (Haynes et. al. 1984). Sharing and trade of salmon from Copper River Basin residents to Upper Tanana communities persists. The use of Copper River salmon continues to have an important cultural and social meaning to families of the Upper Tanana and is considered an "important dimension of their ongoing relationship with neighbors to the south" (Haynes et. al. 1984).

3.5.3.3.1. Subsistence Use Areas

Little data is available on places or areas significant to and for subsistence use. ADF&G's, Division of Subsistence has conducted studies investigating patterns of use; such as seasonal cycles, use areas, and resources harvested. Other agencies and organizations have collected similar data or developed maps of subsistence use areas for specific areas or purposes. Many of these maps were developed during preparation of technical reports by ADF&G's, Division of Subsistence and represent a snapshot of use areas during a specific time or may represent historic use areas (Maps 94, 95, 96, 97 and 98). Resource distribution and subsistence use areas change over time and these maps are viewed as the minimum use areas. Important use areas may be outside the areas captured on the maps. Information on subsistence use areas gathered during the scoping period is important for this reason.

This section discusses subsistence use areas for the following villages: Beaver Creek, Birch Creek, Chalkyitsik, Circle, Dot Lake, Eagle, Eagle Village, Fort Yukon, Northway, Stevens Village, Tanacross, Tetlin, and Tok. Information on use areas of other villages in or adjacent to the planning area is not available. Use of place names and band names are those used by the authors of the cited studies and may not be consistent. Data on subsistence use areas are not available for Central, Chicken, Delta Junction, Healy Lake, or Livengood.

Data on use areas for Circle, Eagle and Eagle Village are from Caulfield (1979). Use areas for Beaver are from Sumida and Alexander (1985, 1989). Data on use areas for Birch Creek, Chalkyitsik and Fort Yukon are primarily from Caulfield (1983), but also Sumida and Alexander (1985) and Sumida and Anderson (1990). Use areas for Dot Lake, Tanacross, Tok, Tetlin and

Northway are primarily from Marcotte (1991) but also Case (1986), Halpin (1987) and Martin (1983).

Birch Creek, Chalkyitsik, and Fort Yukon

Birch Creek

Birch Creek village is situated on Birch Creek, the headwaters of which are within the south unit of the Steese National Conservation Area. Historically, people in this area moved seasonally into the White Mountains to harvest caribou and sheep and to the Birch Creek, the Yukon River, and many lakes and creeks to harvest fish, moose, waterfowl and other resources. People of this area continued to live a mobile life until the early 1950s when Birch Creek Village became a more permanent residence for area people. Birch Creek and the Yukon River continued to be important use areas during 1970 through 1982, the years of the Caulfield study (1983).

Chalkyitsik

The Black River, including those portions surrounded by BLM-managed lands, is the focus of much of the resource harvest activities of Chalkyitsik residents (Caulfield 1983). During the scoping period for this plan, residents of the village of Chalkyitsik (Dr' aanjik Gwich'in) indicated that the Black River and Salmon Fork areas are important subsistence use areas for them. Like most communities in the planning area, life for the Dr' aanjik Gwich'in was highly mobile. From autumn until spring the people lived in the headwaters of the Black River, trapping furbearers and harvesting moose, caribou, sheep, and whitefish. After break-up, they floated downriver to fish for the summer. The current village site of Chalkyitsik was a traditional fishing camp. Nelson (1973) documented that by 1969-70 most Dr' aanjik Gwich'in had moved from seasonal camps to the present village of Chalkyitsik.

Fort Yukon

Fort Yukon is located at the convergence of the Porcupine and Yukon rivers and has been a gathering place for the Gwichyaa Gwich'in since aboriginal times. Fort Yukon became a center of commerce in the region during the 1870s when gold was discovered throughout the Klondike, Fortymile and Birch Creek drainages. It remains a center of commerce and transportation in contemporary times, and has a more mixed economic base of employment and subsistence than other communities in the region (Caulfield 1983).

The subsistence use area for this community includes portions of the Steese and the Upper Black River subunits. The use areas documented by Caulfield (1983) overlap with BLM-managed lands for bear and moose hunting on the scattered lands around Circle and trapping around the confluence of Grayling Creek with the Black River, which is primarily refuge and Doyon, Limited, lands.

Eagle Village, Eagle, and Circle

Caulfield (1979) describes subsistence use areas both historically (1847 to 1970) and from 1970 to 1977 for Circle, Eagle, Eagle Village and Yukon River residents. Lands immediately adjacent to the villages are primarily Native corporation or village-selected lands, except for Circle, where low priority selections will probably be relinquished to BLM. Yukon Charley Rivers National Preserve and Yukon Flats NWR are major blocks of federal land surrounding these communities (Map 1).

Eagle is located on the Yukon River, 12 miles downstream from the Alaska border with Yukon Territory, Canada. Eagle Village is on a bluff three miles upriver from the larger town of Eagle. Eagle and Eagle Village are largely surrounded by Native corporation and State land. The Eagle/Eagle Village School is located in Eagle Village. Caribou, moose and salmon have been documented as the major subsistence resources for these villages (Maps 94 and 95).

Eagle Village

In 1977 when Caulfield (1979) collected subsistence use data for Eagle Village, residents were predominantly Han Athabascan with kin ties to Peel River Kutchin. Elders said that the village was established there because of nearby fishing eddies and access to abundant caribou. As early as the 20th century, the Han spent winters trapping in the Fortymile River, as well as other areas. The American Summit area has been and continues to be a significant area for harvest of caribou from the Fortymile herd by residents of Eagle and Eagle Village. Caulfield (1979) documents the importance of the Taylor Highway for gaining access to caribou hunting along American Summit. The BLM manages little land in the American Summit area and is unlikely to retain any selected lands in this area. Sheep hunting by villages in the Glacier Peaks area west of Eagle has been documented by Caulfield (1979). This area is currently state-selected or state-managed. High priority areas selected by the state will likely be conveyed to the State of Alaska during the life of the plan.

Eagle

Eagle was established in the late 1800s to support gold rush activities in the area (http://www.eagleak.org/). Eagle became a judicial, commercial, mining, and military center for the Upper Yukon River area. Caulfield (1979) reports that about half the residents in Eagle participated in subsistence use activities. Most subsistence resource use consisted of cutting firewood, fishing for salmon, hunting moose, bear or sheep and running traplines in the winter. Use areas identified by residents of Eagle are similar to those used by Eagle Village, where there are few BLM-managed lands. During public comment meetings, residents of Eagle added that an area of BLM-managed lands north of the Seventymile River are high value for trapping and are consistently used for this subsistence activity.

Circle

The village of Circle is located on the Yukon River at the terminus of the Steese Highway. Based on census statistics from 2000, the village continues to be predominantly Native Alaskan. Caulfield (1979) reports that use of subsistence harvest remains high in Circle. Data from the ADF&G Community Profile Database for 1993 to 1997 (Table 3.48, "Subsistence Harvest Data for Eastern Interior Communities.") documents continuing high levels of dependence on subsistence resources by residents of the village. Fishing for salmon adjacent to and below the current village was described by Caulfield (1979) as a major focus of summer. Moose and bear use areas were accessed by riverboat along the Yukon River, upriver as far as the Kandik River and down river as far as Birch Creek. Fortymile caribou were an important subsistence resource and were frequently harvested around Medicine Lake and along the Steese Highway near Central. During the mid-1960s the Fortymile caribou population declined enough that the herd stopped using this part of their range. As the herd size has slowly increased over the past decade, they are occupying more of their historic range, but still do not reliably use the Medicine Lake area. Based on registration permit data, no Fortymile caribou have been harvested by residents of Circle in the past six years (prior data was not reviewed).

Upper Yukon River

Caulfield also documents the nearly complete dependence on subsistence resources by families scattered along the Yukon River between Eagle and Circle. Many of these families were in trespass on federal lands and most have left the area over the past 15 years.

Beaver

Beaver is on the Yukon River and was established in 1910 by a diverse population that included Eskimo families from the arctic coastal plain and the Kobuk River, Koyukon and Gwich'in Athabaskan Indians, Japanese- and Euro-Americans. The village is located within the boundaries of the Yukon Flats NWR. Salmon and moose are important subsistence resources to residents of the community. Sumida (1989) documents subsistence uses for the community. No subsistence uses of specific resources on BLM-managed lands within the planning area has been documented, however, the Beaver Tribal Council includes the Mount Schwatka area and a portion of the Victoria Creek drainage within the White Mountains NRA, as designated subsistence areas for Beaver (Sumida 1989) (Map 96).

Stevens Village

By 1900 the present location of Stevens Village was documented as a settlement (Sumida 1988). The village is located near the Dall River 27 miles upstream from the Yukon River bridge on the Dalton Highway. In 1939, a tribal government with a constitution and by-laws was formed by the village under the Indian Reorganization Act of 1936. By the 1930s, resources important to the village were reported to be in drastic decline and the timber supply was nearly depleted from years of harvest for steamboat traffic.

The village is within the Yukon Flats NWR and the White Mountains Subunit. Much of the traditional harvest areas for the village are within the NWR boundaries, not on BLM-managed lands in the planning area. Salmon, freshwater fish, and moose are important resources for the community (Maps 94 and 95).

Upper Tanana Region

Dot Lake

Dot Lake is located off the Alaska Highway 60 miles southeast of Delta Junction and 48 miles northwest of Tok. The site of the current community was originally used as a winter trapping camp by Upper Tanana region Athabascans. A construction camp for crews constructing the Alaska Highway was built at Dot Lake during the early 1940s. The first permanent settling was in 1946, followed by other Athabaskan families from around the area. Abundant local resources, the church and school, and economic advantages of being located on the highway were reported as the draw to settle at Dot Lake (Martin 1983). It is likely that residents of Dot Lake currently participate in harvest of Fortymile caribou and other subsistence resources on BLM-managed lands in the Fortymile Subunit (Maps 94 and 95).

Tanacross

Tanacross is located 12 miles northwest of Tok and is surrounded by state and Native corporation land. Residents of the area of present-day Tanacross began settling seasonally at the original site (Tanana Crossing) in 1902 when the military telegraph line from Fort Egbert (Eagle) to Fort Liscum (Valdez) was built and a maintenance station was established at Tanana Crossing

(Marcotte 1991). By 1939, Alaska Natives from the Mansfield and Ketchumstuk area permanently settled at the Tanana Crossing site. In 1943, the village formed a tribal council under the Indian Reorganization Act of 1936. Due to periodic flooding of the river on the north bank and the better access to the highway on the south bank, the village was relocated directly across the Tanana River in the early 1970s. BLM-managed lands in the Fortymile Subunit, including both remote lands and those accessible from the Taylor Highway, are important to residents of Tanacross for the harvest of moose, caribou, waterfowl, bear, and berry picking and trapping.

Tok

Tok is located on the Alaska Highway, 92 miles from the Alaska border with Yukon Territory, Canada. Tok originated as a camp for crews constructing the Alaska and Glenn Highways in 1942. It was established as a townsite in 1946. Tok became a transportation hub and regional center. BLM-managed lands in the Fortymile Subunit are important to for subsistence use by residents of the community. Residents harvest bear, caribou small game, and moose and many operate extensive trap lines in the Fortymile area (Marcotte 1991).

Tetlin

The current site of Tetlin became a settlement for the Tetlin and Last Tetlin Band in the late 1920s (Marcotte 1991). The village is located along the Tetlin River between Tetlin Lake and the Tanana River and is connected by road to the Alaska Highway. Unpublished data from the ADF&G indicates that the Tetlin subsistence use area includes large portions of the area accessible from the Taylor Highway and the Mosquito Flats, which includes BLM-managed lands.

Northway

Northway is located on the Nabesna River 55 miles south east of Tok. Access to the community is off the Alaska Highway by the seven-mile long Northway Road. People of the Nabesna and Chisana river areas began settling in the area in the 1940s when a post office, state school and a Federal Aviation Administration and airport station were established at the current town site. BLM-managed lands in the Fortymile Subunit are within the contemporary subsistence use area for residents of the Northway community. Case (1986) documents that residents harvest caribou, moose, vegetation and timber resources, and trap in this area.

3.5.3.3.2. Subsistence Activities

Wage employment opportunities are very limited in most villages (Caulfield 1983, Martin 1983). Dependence on wild resources for food, shelter, and clothing is extremely high. Use includes the harvest of moose, caribou, sheep, black and brown bear, grouse, ptarmigan, hare, porcupine, squirrels, Chinook and chum salmon, other freshwater fish, and waterfowl for meat; trapping of furbearers for pelts; and collecting of berries, roots, mushrooms, edible greens, birch bark, spruce root, firewood and house logs. Furs, fish, and some vegetation are also harvested commercially providing limited income. Craft items are made from skin, hides, pelts, bone, teeth, and antler and provide some income to villagers. Customary sharing and barter are recognized by ANILCA and provided for in federal regulations.

Resources are not equally available to all rural residents in and adjacent to the planning area. For example, communities along the Yukon River have more access to salmon than do communities along the upper Tanana. Some upper Tanana residents travel to the Copper River to harvest

sockeye salmon (Haynes et al. 1984, Case 1986, Marcotte 1991). Residents of Dot Lake have limited access to caribou, as caribou do not normally migrate near the village (Martin 1983).

Fuel prices in villages are higher than in hub communities. For the villages that are on main highways, such as the Alaska Highway, fuel prices are closer to those of Fairbanks. During June 2007 gasoline in Delta Junction was $0.12 higher than Fairbanks (Grewe and Caldwell 2008). Communities on less traveled roads, such as the Steese and Taylor Highways experience higher fuel prices. Villages accessible only by air experienced prices over twice the per gallon cost in Fairbanks. Prices for gasoline in Arctic Village were $4.11 per gallon higher than in Fairbanks. As early as March 2007, at meetings of the Eastern Interior RAC in Arctic Village, federal subsistence RAC members and villagers were reporting that due to the price of gasoline they were not able to travel to distant resources as they had in the past and harvest success was declining (USFWS 2007b). Cost of gasoline has become a major factor in how far subsistence hunters can travel to catch animals and gather resources.

In some areas, there is little federal land around or within reasonable hunting, trapping or fishing distance of some communities. For example, Dot Lake, Tok, Tanacross, and Delta Junction residents must travel up to 100 miles to reach areas where Federal Subsistence Management Regulations apply. Rural residents can harvest fish and wildlife under state hunting and fishing regulations, but are not allowed a preference for these over other residents of the state.

3.5.3.4. Non-Market Values of Subsistence Resources and Activities

Hunting and gathering of fish, wildlife, and vegetative resources have values that extends beyond economic worth. For many communities, hunting and gathering have shaped the culture and tradition of the people and the customs have been shared through generations. Customary trade and sharing within and between families is important to the ongoing relationships with neighbors inside and outside of the planning areas. Movements and timing of activities occur on seasonal rounds, dictated by availability of resources; and more recently by hunting, fishing, and trapping regulations, and employment and school schedules (Case 1986).

The customs and traditions within and between the planning subunits is rich and varied. These customs and traditions have been passed from generation to generation, yet they continue to change in response to technology, resource availability, and regulations.

Chapter 4. Environmental Consequences

4.1. How to Read This Chapter

Chapter 4 presents the potential impacts to the natural and human environment in terms of environmental, social, and economic consequences that are projected to occur from implementing the alternatives presented in Chapter 2. Chapter 4 contains the following main sections:

- 4.2 Introduction
- 4.3 Impacts Common to all Subunits
- 4.4 Impacts Specific to the Fortymile Subunit
- 4.5 Impacts Specific to the Steese Subunit
- 4.6 Impacts Specific to the Upper Black River Subunit
- 4.7 Impacts Specific to the White Mountains Subunit

The Introduction section includes analysis assumptions, defines the types of effects that will be projected throughout the impact sections, and discusses the availability of data and BLM's cumulative effects analysis.

The section "Impacts Common to all Subunits" and the four sections describing impacts specific to each of the different subunits are broken down by resource or resource use. The order of these sections does not reflect their level of importance. In some instances, a discussion of the environmental consequences for a given subject may be addressed completely under a description of Impacts Common to All Alternatives, in which case there will be no further enumeration. Where there are impacts that vary between alternatives, these are broken down by alternative.

During analysis, each resource specialist considered management activities resulting from the following programs: Air, Cave and Karst, Cultural and Paleontological, Fish and Aquatic Species, Non-Native Invasive Species, Soils, Special Status Species, Vegetative Communities, Visual Resource Management, Water, Wilderness Characteristics, Wildland Fire, Wildlife, Forest and Woodland Products, Lands and Realty, Renewable Energy, Minerals, Recreation, Travel Management, Special Designations (including Areas of Critical Environmental Concern and Wild and Scenic Rivers), Social and Economic Conditions, and Subsistence. If no impacts were identified the programs are not discussed further. In cases where impacts may potentially occur, the impacting resource or resource use is discussed in more detail.

Standard operating procedures resulting from federal laws, regulations, and policies would continue to be followed under all alternatives. These standard operating procedures constitute day-to-day implementation of policy and management, and may result in certain projects being mitigated, redesigned, or dropped from consideration. Since standard operating procedures (SOPs) and Fluid Mineral Leasing Stipulations have been included in Alternatives B, C, D, and E as design features, many impacts are reduced or eliminated up front.

4.2. Introduction

4.2.1. Analytical Assumptions

Assumptions were made to facilitate the analysis of impacts. These assumptions set guidelines and provide reasonably foreseeable projected levels of development that would occur on BLM-managed lands during the life of the plan. These assumptions should not be interpreted as

constraining or redefining the management objectives and actions proposed for each alternative and described in Chapter 2.

Placer mining is projected to be the largest industry in the planning area. Placer mining activities were separated into four categories for analysis: Exploration, Suction Dredging, Small Placer Mine Operations, and Large Placer Mine Operations. Many of the attributes that dictate the size, cost, efficiency, fuel usage, and impacts of the four mining categories were derived from a Reasonable Foreseeable Development – Mine Cost and Impact Model report (2009) authored by Scott Stebbins, Mining Engineer with Aventurine Engineering, Inc. These attributes were assumed to be representative of the industry. Mr. Stebbins has extensive experience developing mining cost estimations and is considered an expert in the field.

The BLM Greenhouse Gas and Climate Change 2015 NEPA Toolkit (http://ghgtoolkit.blm.gov/) was the primary tool used in analyzing GHG emissions from current and projected placer-mine operations in the planning area. The toolkit is a comprehensive tool and resource designed for use by BLM resource specialists to estimate total annual greenhouse gas emissions and output summary reports for documentation of reference data and computations. The estimate level of GHG emissions are assumed to be a reasonable proxy for assessing potential climate change impacts, and provide decision makers and the public with useful information for a reasoned choice among alternatives.

Specific data on greenhouse gas emissions from wildfire in the planning area was unavailable due to a lack of detailed vegetation inventory information and associated historic burn severity inventory. While general statewide emissions estimates from the past for Alaska are available (ADEC 2015), more refined, higher resolution estimates for wildfire emissions specific to the planning area are not available at this time.

4.2.1.1. General Assumptions

- Sufficient funding and personnel would be available to implement RMP decisions.
- Implementation of decisions would be in compliance with valid existing rights, federal regulations, BLM's policies, and other requirements.
- Facility and recreational developments would be maintained as appropriate.
- Discussion of impacts is based on best available knowledge. Knowledge of the planning area and professional judgment, based on observation and analysis of conditions and responses in similar areas, are used to predict environmental impacts where data is limited.
- Acreage figures and other numbers used in analysis are approximate projections for comparison and analytic purposes only. Acreage figures do not reflect exact measurements or precise calculations.
- State and Native entitlements would be met during the life of the plan. BLM-managed lands would be reduced by 250,000 to 300,000 acres over the life of the plan, mostly in the Fortymile Subunit. Most of the State-selected lands in the Upper Black River Subunit would likely remain under BLM management.
- The life of the RMP would be 20 years or more.
- State- and Native-selected lands are segregated from mineral entry and would become available for mineral entry or leasing only when they either are conveyed or are returned upon rejection of land selection. If subject lands are additionally affected by ANCSA 17(d)(1) withdrawals, then the withdrawal would need to be modified or revoked as well.
- The BLM would maintain a government-to-government relationship with federally recognized tribes.

4.2.1.2. Resource Assumptions

4.2.1.2.1. Air

Air quality is pristine or nearly so, except for seasonal influences such as smoke, wind-blown dust, and arctic haze. Smoke from wildland fires would occasionally exceed EPA limits for airborne particulates. Despite these seasonal influences, the planning area is still considered an attainment area as it meets the standards of the Clean Air Act. It is assumed that there would be no non-attainment areas on BLM-managed lands during the life of the plan.

4.2.1.2.2. Climate Change

It is assumed climate change will occur during the life of the plan and through adaptive management the BLM would mitigate impacts to resources to the extent practicable.

Following Council on Environmental Quality (CEQ) 2014 guidance, throughout parts of Section 4, climate change and GHG emissions will be addressed and discussed as distinct issues: Discussion of the first issue, projected climate change due to global conditions, focuses on potential impacts to BLM resources due to a changing climate regime. Discussion of the second issue, GHG emissions, is focused on assessing GHG emissions associated with current and future BLM-authorized activities in the planning area. Guidance from the CEQ 2014 recommends agencies focus their GHG emissions analysis on the projects and actions with the greatest impacts by providing a reference point of 25,000 metric tons of CO2e-equivalent emissions on an annual basis below which a quantitative analysis of GHG emissions is not recommended unless it is easily accomplished (CEQ, 2014).

While there are difficulties in attributing specific climate change impacts to any given project or activity and quantifying those impacts, it is important to note projected GHG emissions can serve as a proxy for a proposed action's climate change impacts.

For the purpose of this plan the net contribution to atmospheric carbon from effects of climate change is expected to be minimal. Increased wildland fire frequency and to a lesser extent, thawing permafrost, would likely contribute carbon but increased temperatures, length of growing season, and expanded growth of forests in former permafrost rich areas would all act as carbon sinks. Release of carbon from thawing of permafrost soils remains a concern. However, Schurr et al. (2009) found areas that thawed over the past 15 years had more annual losses of old carbon than minimally thawed areas, but had overall net ecosystem carbon uptake as increased plant growth offset these losses.

4.2.1.2.3. Cultural and Paleontological Resources

The BLM would continue to mitigate impacts to significant cultural resources from authorized uses through avoidance and, if necessary, data recovery. New cultural resources would continue to be found and evaluated for eligibility to the National Register of Historic Places. Eligible cultural resources would continue to be treated similarly and equally in terms of type, composition, and importance, but many would continue to deteriorate through natural agents, unauthorized public use, and vandalism. The BLM would consult with Native and village corporations and tribes on traditional cultural properties and values that are of concern to them. The demand for uses of lands on which cultural resources occur could increase slightly.

The BLM would mitigate impacts to significant paleontological resources from authorized uses through avoidance and specimen recovery. Geologic formations with exposures containing vertebrate and non-vertebrate fossils would continue to be impacted from natural agents, unauthorized public use, and vandalism. The demand for use of both vertebrate and non-vertebrate fossils could increase slightly during the life of the plan.

4.2.1.2.4. Fish and Wildlife

Fish

Increases in human population and consumption would increase the demand on sport, subsistence, and commercial fisheries. International and national trends to protect and manage wild fish stocks would likely continue. The BLM would continue to manage and protect important spawning, rearing, overwintering, and migratory fish habitat. The BLM would cooperate with the ADF&G to preserve the genetic integrity of Alaska's wild stock of resident and anadromous fish populations. Improvements or protection of riparian habitats would indirectly improve or protect aquatic habitats and fisheries. Degradation of riparian habitats would indirectly degrade aquatic habitats and fisheries. Management opportunities for maintenance or improvement of fish habitat conditions would occur in Conservation and Restoration Watersheds. There is a direct correlation between the amount of quality habitat and fish populations.

Potential impacts to the quality of aquatic habitat would increase. Lifting of mineral withdrawals in some areas would result in increased mining activities under some alternatives. Placer mining within an active stream channel would adversely affect fish and fish habitat.

Some fish species, especially anadromous species, move seasonally or migrate between BLM-managed lands and non-BLM lands, and impacts on fisheries populations as a result of this RMP may occur on non-BLM lands. All of the anadromous fish streams and the extent of anadromy have not yet been identified.

Wildlife

The BLM would minimize impacts to wildlife species. Wildlife habitats would remain in natural condition over most of the area. Effects of management actions on wildlife are often not predictable or quantifiable.

The size, diversity, and viability of species populations is dependent upon the quantity and quality of habitat. Habitat can be lost or impacted directly (e.g., vegetation removal) or indirectly (e.g., disturbance caused by human activity).

Habitat conditions will vary due to natural processes, even in the absence of human-caused changes. Climate change will result in increased stress on some species of wildlife. Habitat quality or availability may decrease for some species; other species may see an increase in availability of habitat due to changes in the vegetation associated with climate change. Management actions may benefit one species while having an adverse, or beneficial, impact on another.

Activities on non-BLM lands may impact wildlife populations occurring on BLM lands, particularly migratory species. Conversion of BLM-managed lands to private lands (conveyance) would increase hunting pressure on the remaining BLM-managed lands. Development of

non-BLM lands would increase, and access to lands surrounding BLM-managed lands would improve.

4.2.1.2.5. Non-Native Invasive species

The number and type of non-native invasive plants would increase during the life of the plan, but would be concentrated around areas of human activity (e.g., rivers, trails, roads and mines). Increases in introduction and spread of non-native invasive plants may be accelerated by longer growing seasons (climate change). Waterways may be vectors for spread of non-native plants. The demand for control of non-native invasive plants would increase as public knowledge of the economic and ecological detriments of these plants increases.

4.2.1.2.6. Soil Resources

Climate change would affect soils through changes in permafrost extent, soil temperature, and soil moisture, with subsequent changes in evapotranspiration, runoff, wildland fire frequency, and vegetation.

4.2.1.2.7. Special Status Species

The BLM Alaska Sensitive Species List will change periodically. Although no threatened or endangered species currently occur in the planning area, additional species could be listed as threatened or endangered in the future. Inventory may identify additional Special Status Species on BLM-managed lands, and will likely result in the expansion of known ranges and numbers of populations. Knowledge of the distribution and abundance of these species will grow, likely resulting in removal of some species from the list. Identification of new rare species from understudied species groups will likely occur.

National demand for the protection of species listed under the Endangered Species Act, as well as for species not yet listed but of concern, would likely increase. There are numerous BLM Alaska sensitive species known or suspected to occur in the planning area. Demand for protection of these species would increase as inventory indicates specific habitat niches or requirements, and as increased visitor use or development places demands on associated habitats.

4.2.1.2.8. Visual Resources

Scenic resources would remain in demand from local residents who want to maintain scenic quality, local businesses that depend on tourism, and an increasing level of recreational users within the planning area. Increasing tourism would increase the value of scenic views, undeveloped landscapes, and open spaces.

4.2.1.2.9. Water Resources

Throughout parts of Chapter 4 the discussion of water resources impacts is intended to be inclusive of all surface and subsurface waters in the planning area as well as wetlands and floodplains unless specified otherwise. During the life of the plan water resource demands are expected to increase as a result of increasing recreation use, increases in human population, and increases in mineral exploration and development. Through adaptive management BLM would mitigate adverse impacts water resources to the extent practicable. Water quality requirements and

standards would be achieved by the use of SOPs (Appendix A, Standard Operating Procedures and Fluid Mineral Leasing Stipulations).

4.2.1.3. Resource Use Assumptions

4.2.1.3.1. Forest and Woodland Products

There may be requests for biomass from BLM related to biomass heating of combined heat and power (CHP) projects in some of the villages within the planning area. While most resources close to the villages are not controlled by BLM there may be BLM lands involved in the long run for some communities. These situations will be dealt with on a case-by-case basis. A few (three to five) small biomass projects could occur during the life of the plan, most likely in the Fortymile Subunit.

Large commercial timber sales would be unlikely. Forest product sales would be small (four permits in 10 years). Permits will be required for firewood and other vegetative uses in accordance with the Alaska BLM forestry program guidance. Most sites will be less than one quarter acre in size.

4.2.1.3.2. Lands and Realty Actions

Land conveyances to the State of Alaska and Native corporations would be completed. An estimated 260,000 to 325,000 acres in the Fortymile Subunit would be conveyed to Doyon, Limited (Doyon 2015). There would be a limited demand for land ownership adjustments to improve the manageability of federal and non-federal lands. Lands identified for disposal along the Alaska Highway that are not conveyed, would be disposed of. Lands identified for acquisition in the Steese National Conservation Area would be acquired. Most federal mining claims would continue to be maintained as valid claims or would be transferred to state claims and would not be available for disposal.

There would be continued demand for land use authorizations such as rights-of-way, leases, and permits under all alternatives. Demand for use authorizations would fluctuate with economic growth and development, but would generally be low. Based on applications over the past five years, it is anticipated that no more than 30 applications would be received annually.

Withdrawal reviews would be completed within ten years of plan approval. All withdrawal recommendations would be completed. No new mining claims would be located on lands recommended for withdrawal. ANCSA 17(d)(1) withdrawals would be modified to remove the withdrawal from approximately 13,000 acres of isolated federal mining claims outside of the Steese National Conservation Area and WSR corridors.

4.2.1.3.3. Leasable Minerals

Coal

No coal development would occur on BLM-managed lands, because a decision on leasing for coal is deferred. The RMP would need to be amended before coal leasing could be authorized.

Coal resource inventory and exploration (43 CFR 3480) could occur in the Eagle Coal Field, on BLM-managed lands in the Fortymile Subunit. Coal exploration activities would be minimal due to the lack of high potential coal lands, lack of transportation infrastructure, and the fact that a large part of the Eagle Coal Field is located within the Yukon-Charley Rivers National Preserve. Coal exploration includes drilling, excavating, and geological, geophysical or geochemical surveying operations. Exploration of coal requires an exploration license (43 CFR 3410). Each license would include requirements to protect the environment and associated natural resources, and ensure reclamation of the lands disturbed by exploration.

Coalbed Natural Gas, Geothermal, Non-Energy Leasable Minerals, and Oil Shale

No exploration or development of coalbed natural gas is anticipated. The only lands with potential for this resource have been explored and were not found to be economical.

No exploration or development of geothermal resources is anticipated. The only hot springs on BLM-managed land is Big Windy Hot Springs, within the Steese National Conservation Area. It is not located near a population center or infrastructure, and is within a Research Natural Area.

No exploration or development of non-energy leasable minerals or oil shale is anticipated because of low occurrence of these types of minerals on BLM-managed land.

Oil and Gas

In areas recommended open to oil and gas leasing, leasing would not occur without further NEPA analysis. Interest from industry is expected to be limited for all subunits due to the lack of high potential areas on BLM-managed lands. Seismic exploration could occur in the Steese or Black River subunits on high potential lands, but is unlikely during the life of the plan. The following assumptions apply to all action alternatives.

- Roadless exploration, in the form of seismic surveys, would occur after the tundra is frozen. Only approved low-impact tundra travel vehicles would be used. Field sampling and reconnaissance would occur in the summer using helicopter support.
- Approximately 130 to 212 2D or 3D seismic line miles would be shot every five years in the Yukon Flats Basin. Less than 20 miles of this would be on BLM-managed land.
- Woody vegetation would be cleared on 14-foot wide survey lines using mechanized mulchers.
- Vibroseis would be the energy source used for seismic exploration. The vibrator pads would be mounted on trucks with low pressure tires.
- Seismic crews would be supported by ground vehicles and aircraft, and housed in a remote camp.
- If explosives are used, narrow profile, tracked drills would be used for drilling 20 to 60 foot deep, 3.5 inch diameter holes where explosive charges would be placed and detonated. The augered material would be placed back in the hole prior to detonation.

4.2.1.3.4. Locatable Minerals

The following information is excerpted from the Eastern Interior RMP Reasonable Foreseeable Development Scenario for Locatable Minerals and Leasable Hardrock Mineral Resources in the White Mountains Subunit (BLM 2015). This Reasonable Foreseeable Development (RFD) Report is a mechanism to analyze the effects that discretionary planning decisions have on

mineral development based upon five alternatives for each of the four planning subunits. The RFD is available online at www.blm.gov/ak/eirmp.

RMP alternatives recommend that mineral withdrawals be lifted ('opened') to varying extents. Generally, to analyze the assumed increase of mining activities on opened lands, we compare the level of mining activities of neighboring lands of similar character that are currently open to mining activities. Mining activities are separated into four categories for analysis: Suction Dredging, Mechanical Placer Mines, Hardrock Exploration Projects, and Large-Scale Lode Mines. These categories were devised by looking at the number, size, and type of operations in the region as a whole, with data collected through the review of multiple mine plans, reclamation bond inventories, and lists of permits issued by various agencies. From this review, hypothetical mining models are created that reflect locally common mining methods and equipment.

The primary attributes that dictate the size, cost, efficiency, and impacts of the four modeled mining activities are listed as assumptions in their respective sections. Many of the assumptions are derived from a Reasonable Foreseeable Development – Mine Cost and Impact Model report (2009) authored by Scott Stebbins, Mining Engineer with Aventurine Engineering, Inc. Mr. Stebbins has extensive experience developing mining cost estimations and is considered an expert in the field.

The areas recommended to be "Opened" to mineral entry by lifting withdrawals, in Alternative E, is similar to the areas proposed in Alternative B with respect to the amount of acres with High or Medium locatable mineral potential. The amount of foreseeable mining-related developments in Alternative E and Alternative B are estimated to be equal.

Mining Claims, Mining Plans of Operation, and Notices

According to BLM records, at one time there were as many as 16,000 active federal mining claims in the planning area, starting when the BLM took over the administration of all federal mining claims in 1979. Federal mining claims in areas that are now state lands have been relocated or converted to state claims, and hundreds of claims once located in the White Mountains National Recreation Area and the Steese National Conservation Area were abandoned and/or closed. There are currently no active federal claims in the White Mountain National Recreation Area and only 103 remaining placer claims in the National Conservation Area. There are currently about 15,200 state mining claims as well as a few score of mining leases and prospecting sites on State managed lands in the planning area.

Table 4.1. Mining Claims and Mining Plans of Operations or Notices in the Planning Area

Planning Subunit	Active Federal Mining Claims (July 2014)	Closed Federal Mining Claims (July 2014)	Active State Mining Claims (Dec 2013)	Current Federal Plans or Notices (July 2014)[a]	Closed Federal Plans or Notices (July 2014)[b]
Fortymile	352	8,341	12,449	35	106
Steese	218	5,171	1,703	10	102
Upper Black River	0	42	0	0	0
White Mountains[c]	172	2,695	959	5	20
Total	**742**	**16,249**	**15,111**	**50**	**229**

[a]Authorized Plans of Operation and Notices

[b]Closed or Pending Plans of Operation and Notices

[c] located outside of the White Mountains National Recreation Area

Suction Dredge Operations

Suction dredging generally provides a relatively low-capital mining method for exploiting active streams systems with shallow bedrock. Suction dredging, performed according to the stipulations of state and federal permits, usually causes minor levels of disturbance relative to mechanical placer mining methods. Where salmon spawning takes place, the dredging season is limited to early summer after the salmon fry have migrated out of local streams and before spawning salmon have returned from the ocean.

The number of suction dredging operations expected under each alternative is outlined in the Table 4.2. Assumptions for suction dredge operations include:

- A crew of two would use a six-inch dredge operated by two, 11 horsepower motors.
- Operations would continue for approximately 90 days, moving 20 cubic yards of material. Processed materials would flow directly back into the active channel.
- A single floating vessel would contain the pump used to recover gravel, the air source for the diver, and the sluice used to recover gold.
- The camp would be 0.2 acres in size and up to 400 gallons of fuel may be stored at the camp.
- Operators would transport fuel from Fairbanks via ground transportation.
- Operators would access the site by four-wheel drive trails in most cases.
- There will be no casual-use level suction dredging. All suction dredgers will need to file an APMA/Plan of Operations.

Table 4.2. Anticipated Number of Suction Dredging Operations on Mining Claims

Subunit	Alternative (# suction dredging operations)				
	A	B	C	D	E
Fortymile	6	10	14	18	10
Upper Black River	0	0	0	0	0
Steese	1	1	9	12	1
White Mountains	0	0	0	0[a]	0

[a]Suction dredge operations on mineral leases in the White Mountains are discussed in Appendix M.3.1

Mineral Exploration Activities

Once mining claims are located, mineral exploration companies may establish a local camp and perform helicopter supported field sampling and mapping programs. If the exploration is successful, a drilling or trenching program would be conducted. Drilling would occur on temporary pads which are dismantled and removed after drilling is complete. Surface disturbance for drilling or trenching would be approximately two acres per year, which is completely reclaimed each year. Exploration projects would last for five years, resulting in a total of 10 acres surface disturbance. Disturbance from the camp would be approximately 0.4 acres.

It is assumed that over the life of the plan, one drilling program in the Steese Subunit may proceed to a mine pre-feasibility study where multiple drills are brought in. In this event, 10 acres would be disturbed per year over a five-year project life. The camp associated with a pre-feasibility would disturb up to 2.5 acres and helicopter use would increase to six hours per day.

Table 4.3. Anticipated Number of Mineral Exploration Operations

Subunit	Alternative (# mineral exploration operations)				
	A	B	C	D	E
Fortymile	1[a]	3[a]	4[a]	5[a]	3
Steese	1	1	2[b]	2	1[b]
Upper Black River	0	0	0	0	0
White Mountains (Livengood)	1	1	1	1	1

[a]Increased from Draft EIS

[b]Decreased from DEIS

Small-Scale Placer Mining

On average, site surface impacts would be approximately 4.4 acres per placer operation. Disturbance from the camp would be approximately 0.4 acres of this. Placer mines may operate as a Notice Level operations under 43 CFR 3809.13, but otherwise would require a Plan of Operations under 43 CFR 3809.10. If the claims occur in a WSR corridor, the Steese National Conservation Area, or an ACEC, they would require a Plan of Operations even for exploration. On average, an estimated one acre would be mined and one acre reclaimed each year. Approximately 4.4 acres would be continually disturbed for each operation. The life of each mine would be 10 to 20 years and a total of 20 to 30 acres would be disturbed during the life of the mine.

Table 4.4. Anticipated Number of Small-Scale Placer Mining Operations

Subunit	Alternative (# small-scale placer mines)				
	A	B	C	D	E
Fortymile	27	31	33	40 [a]	31
Upper Black River	0	0	0	0	0
Steese	7	8	15	24	8
White Mountains (Livengood)	3	3	3	3	3

[a]Increased from DEIS

Large-Scale Placer Mining

On average, site surface impacts would be approximately five to 20 acres per placer mine and be subject to regulations found in 43 CFR 3809.10. Four acres would be mined and four acres reclaimed each year, with 16 acres continually disturbed for each project. A total of 60 to 80 acres would be disturbed and reclaimed during the life of the mine (10 to 20 years). Reclamation would occur before the bond is released.

Table 4.5. Anticipated Number of Large-Scale Placer Mining Operations

Subunit	Alternative (# large-scale placer mines)				
	A	B	C	D	E
Fortymile	2	3	3	3	3
Steese	2	2	4	4	2
Upper Black River	0	0	0	0	0
White Mountains (Livengood)	1	1	1	1	1

Large-Scale Lode Mines

Two lode mines may be developed primarily on state or private land. The Money Knob prospect includes 400–500 acres of federal mining claims. These are described in section 4.2.4 Cumulative Effects.

4.2.1.3.5. Salable Minerals

Demand for gravel, rip-rap and other salable minerals would increase slightly as road maintenance and construction continue on state highways and BLM roads. Currently there are 11 active or pending material sites, totaling 160 acres of authorized disturbance. Existing material sites are located near existing roads, as the largest need for materials is road maintenance. Most of the BLM-provided materials are authorized under free-use permits to the ADOT or federal government, or as mandated under the TAPS authorization. These assumptions apply to all alternatives.

- No more than 200 acres of BLM-managed land would be required to meet material demands over the next 20 years; 100 acres each in the Fortymile and White Mountains subunits.
- No new significant federal material sites are anticipated away from existing roads.
- Demand for material would generally be met from production on state lands.
- The future construction of a gas pipeline would increase demand for materials. This demand would mainly be met from state lands. The BLM could be directed to make materials available for pipeline construction; however, this is unlikely in the planning area due to the lack of BLM-managed lands near the potential pipeline corridor.
- To date, sales from split-estate lands in Fairbanks, and contract sales out of the Eagle community gravel pit have accounted for the majority of the sales in the Fortymile Subunit. Use of split-estate lands in Fairbanks, is expected to diminish.

4.2.1.3.6. Recreation

The demand for recreational use and recreational visits would increase by ten to fifteen percent over the life of the plan, due to general population increases and increases in recreation-related technology, leading to increased resource damage and conflicts among recreation users. Anticipated increases would occur for both non-motorized and motorized activities. If recreation use levels or user/resource conflicts increase to the point that significant administration actions are needed, a recreation management plan would be developed to address the issues.

Special Recreation Management Areas would contain Recreation Management Zones (RMZs), each of which would be managed for specific activities, experiences, and benefits (Appendix H, *Recreation Management Zones*), in one of six prescribed recreation settings, described in Table 2.5, "Recreation Setting Character Matrix for the Eastern Interior Planning Area".

4.2.1.3.7. Renewable Energy

Considering such factors as the amount and intensity of sunlight, wind velocity, proximity to roads and electric transmission facilities, and population size, no applications would be received to permit or lease commercial construction of solar or wind facilities on BLM-managed lands under any alternative. The BLM may construct small solar or wind facilities to support BLM administrative sites and facilities. Biomass projects are addressed under section 4.2.1.3.1.

4.2.1.3.8. Travel Management

All Subunits

Demand for legal and physical access from all users would increase. Public easements reserved by Section 17(b) of ANCSA would become more important as Native corporation entitlements are met. Demand for roads and transportation rights-of-way would increase slightly. Road development is contingent upon the economic viability of resource development, primarily minerals, and the needs of the State to plan and carry out transportation access.

The use of OHVs (including snowmobiles) for recreational and subsistence purposes would increase. Changes in OHV design and technology would continue, enabling OHV users to range into areas that were once thought to be inaccessible. Most impacts described in this analysis result from OHVs used during snow-free months. Where impacts are specific to snowmobiles, they are described as such.

Travel Management plans for the Fortymile and Steese subunits would begin within five years of the signing of the RODs. In these areas, summer OHV use would be limited to existing routes (Alternatives B and C) and size (all Alternatives) until the Travel Management Plan is developed. The BLM will conduct additional impact analysis during travel management planning.

Fortymile Subunit

Alternatives A and D: The Fortymile Subunit would see significant growth in travel-related land use and activity participation. Since OHV use accounts for the majority of travel-related activities, the demand for this activity would be of greatest concern. Given its current rate of user increase (about ten percent per year) use in the Fortymile is expected to double within the next 10 years. Existing routes would be repaired to sustainable standards and some new sustainable trails may be constructed. This would result in an increase in visibly affected ground area of about twenty-five percent over the next 10 years.

An increase in non-motorized modes of travel are also forecasted. An estimated 10 miles of sustainable, non-motorized trails would be constructed over the life of the RMP.

Alternatives B and C (Existing Routes): Based on an estimate that about twenty-five percent of use occurs off of the existing routes identified for these alternatives, use would initially decline by twenty to thirty percent and then grow at a rate of about five percent per year. Use would be double the current level in 20 years and then begin to stabilize. This would result in an increase in visibly affected ground area of about five percent over the next 10 years. Federally qualified subsistence users engaged in subsistence activities can access lands with seasonal limitations for casual users by obtaining a free-use permit.

Alternative E: The Fortymile Subunit would see significant growth in travel-related land use and activity participation. Since OHV use accounts for the majority of travel-related activities, the demand for this activity would be of greatest concern. Given its current rate of user increase (about ten percent per year) use in the Fortymile is expected to double within the next 10 years. Existing routes would be repaired to sustainable standards and some new sustainable trails may be constructed. This would result in an increase in visibly affected ground area of about twenty-five percent over the next 10 years. The prohibition on airboats and hovercraft in the non-navigable, wild, segments of the Fortymile WSR would be removed. While it is not measured, some level of

this type of access is already occurring. This type of use could increase by about 20 to 25 percent over the life of the RMP on the Mosquito Fork above Ingle Creek and the section of the North Fork below the Kink. Use on the sections of the North Fork above the Kink will be limited due to the natural river obstacles and is not likely to see much change.

Steese Subunit

Alternatives A and D: The Steese National Conservation Area would see continued growth in travel-related land use and activity participation. Since OHV use accounts for a sizeable portion of travel-related activities in the National Conservation Area, demand for this activity would continue to grow in the future. Existing routes would be repaired to sustainable standards and some new sustainable trails would be constructed. This would result in an increase in visibly affected ground area of about ten percent over the next 10 years.

The growth of non-motorized modes of travel are also forecasted. An estimated 20 miles of sustainable, non-motorized trails would be constructed over the life of the RMP.

Alternatives B and C (Existing Routes): Based on an estimate that about fifteen percent of use occurs off of the existing routes identified for these alternatives, use would initially decline by ten to twenty percent and then grow at a rate of about five percent per year. Use would be double the current level in 30 years and then begin to stabilize, resulting in an increase in visibly affected ground area of about five percent over the next 10 years. Federally qualified subsistence users engaged in subsistence activities can access lands with seasonal limitations for casual users by obtaining a free-use permit.

Alternative E: The Steese National Conservation Area would see continued growth in travel-related land use and activity participation. Since OHV use accounts for a sizeable portion of travel-related activities in the National Conservation Area, demand for this activity would continue to grow in the future. Existing routes would be repaired to sustainable standards and some new sustainable trails would be constructed. This would result in an increase in visibly affected ground area of about ten percent over the next 10 years. The prohibition on airboats and hovercraft in the non-navigable segments of Birch Creek WSR would be removed. There is no current recorded use of hovercraft and airboats however, it is estimated that this type of use would increase over the life of the RMP. No more than 20 percent of users would likely engage in that activity. Low water levels in upper Birch Creek may limit the increase in these types of use.

Upper Black River Subunit

All Alternatives: With advances in recreational vehicle technology, this subunit could experience an increased level of land use and activity participation related to OHVs and access for subsistence use. However, this increase would be limited due to the features of topography, soils, vegetation, permafrost, lack of any defined trails, and the remoteness of the area.

White Mountains Subunit

Alternatives A and D: Trends and field observations show increasing use and demand for travel-related activities and access in the White Mountains National Recreation Area. Popularity of the White Mountains roads and trails, local population numbers, and OHV (including snowmobile) ownership are all currently on the rise. Use would continue to increase at current rates (five percent per year). Existing trails would be repaired to sustainable standards. An

estimated 100 miles (five miles/year) of sustainable, multiple-use trails would be constructed over the life of the RMP. The ground area visibly affected by OHVs would increase by about twenty percent over the next 10 years. Under Alternative D, 112 miles of trail would be open to UTV use.

The growth of non-motorized modes of travel are also forecasted. An estimated 80 miles (four miles/year) of sustainable non-motorized trails would be constructed.

Alternatives B and C (Designated Trails): Based on an estimate that about twenty percent of use occurs off the trails identified as "designated" for these alternatives, use would initially decline by at least twenty to thirty percent and then grow at a rate of about five percent per year. Use would be double the current level in 30 years and then begin to stabilize. The ground area visibly affected by off-highway vehicles would increase by about five percent over the next 10 years. Sustainable trails would be constructed at a rate of two miles per year (40 miles over the life of the RMP), and violations would increase. Under Alternative C, 27 miles of trail would be open to UTV use.

Alternative E Increase in use levels would be similar to Alternatives A and D with the differences listed below. Trends and field observations show increasing use and demand for travel-related activities and access in the White Mountains NRA. Popularity of the White Mountains roads and trails, local population numbers, and OHV (including snowmobile) ownership are all currently on the rise. Use would continue to increase at current rates (five percent per year). Existing trails would be repaired to sustainable standards. An estimated 100 miles (five miles/year) of sustainable, multiple-use trails would be constructed over the life of the RMP. The ground area visibly affected by OHVs would increase by about twenty percent over the next 10 years.

- Larger UTVs would be allowed on 27 miles of trail similar to Alternative C. This is less than the 112 miles of trail in Alternative D, so the use of these types of vehicles is projected to be somewhat lower than Alternative D.

- It is reasonably expected that by lifting the prohibition on hovercraft and airboats on Beaver Creek WSR that little change or conflict would occur. Launching boats with motors exceeding 15hp would still be prohibited in Nome Creek valley. These types of watercraft would have to come upstream on Beaver Creek from the Yukon River all the way across the Yukon Flats NWR which is unlikely.

- The BLM will compete a travel management plan within five years of the ROD. This process will include additional site-specific impact analysis.

4.2.1.4. Special Designation Assumptions

Designated Areas of Critical Environmental Concern and Research Natural Areas would be managed to maintain the values for which they were designated. Eligible rivers would be managed to protect water quality, free-flowing nature, and Outstandingly Remarkable Values from the time the Draft RMP is published until a suitability decision is reached with the publication of the ROD. Rivers found to be suitable for designation as WSR in the ROD would be managed to protect water quality, free-flowing nature, and Outstandingly Remarkable Values until such time as Congress acts on proposed designation legislation.

4.2.1.5. Social and Economic Assumptions

Public Health and Safety

Public health and safety issues would receive priority consideration in the management of BLM-managed lands. Hazmat and AML sites of concern would continue to be identified and cleaned up. The Tanacross Administrative and Airfield hazmat sites would be remediated.

The draft alternatives would not result in any public health impacts requiring impact analysis in this EIS.

Social and Economic

The population within the planning area will likely increase by ten to fifteen percent during the life of the plan, based on population trends since 1960. No change in borough status or boundaries is assumed. A large project (e.g., construction of a natural gas pipeline) would result in increased population growth in the region. Population trends, and increased recreational and subsistence demand trends, will influence social aspects of the planning area.

The economic impact analysis is based on changes resulting from proposed decisions in this RMP. Other factors that would affect the local economy, such as population growth, tourism trends, taxes, or resource extraction on other lands, are assumed to be the same for all alternatives.

The social groups defined in this RMP are to facilitate the discussion of social impacts. These groupings greatly simplify members' beliefs and values. For example, some miners engage in subsistence activities and are concerned about resource protection. Recreation users may engage in both motorized and non-motorized activities. The social impact analysis focuses on groups that have been identified as most likely to be affected by this plan.

The proximity of BLM-managed lands to the small communities of Central, Chicken, Circle, Eagle, and Eagle Village suggests that effects may be more significant to these locations than communities located away from the public lands, or larger communities with more diverse social patterns and resource alternatives. However, impacts to affected groups at the local, state, and national levels have been considered.

Subsistence

The BLM would continue to have a major role in the management of subsistence resources on public lands over the life of the plan. The demand for subsistence resources would increase. Competition for resources would increase, especially those that receive high use from all resource users, because more lands would be private and recreational use of BLM-managed lands would increase.

As land conveyance to the State of Alaska and Native Corporations is finalized, over selections would be relinquished to BLM. Harvest of wildlife resources would then be regulated by federal subsistence and state regulations. The acres of federal public lands managed for federal subsistence purposes in the Upper Black River and Fortymile subunits would increase.

Tribal members use Native, village corporation, and BLM-managed lands for traditional subsistence activities, and would continue to do so. Subsistence use by other federally qualified

residents in the planning area would continue on federal public lands. Federal public lands for the purpose of subsistence use are defined in 50 CFR Part 100, § 100.4(1) and (2).

Federally qualified subsistence users are residents of the State of Alaska, as defined in 50 CFR Part 100 § 100.4, and whose primary, permanent home is within an area determined to be rural by the Federal Subsistence Board through the process in 50 CFR Part 100 § 100.15. In Alternatives B, C, and D, federally qualified subsistence users engaged in subsistence activities in areas closed to OHV (research natural areas) would have access by snowmobile with a free and readily available permit. In Alternative B in the Steese Subunit, where casual use of OHV is limited federally qualified subsistence users engaged in subsistence activities would be allowed access with the same free and readily available permit. In other areas and alternatives OHV restrictions would apply to all users.

Permits for subsistence use would be to an individual, issued annually, and allow for applicable methods of access. Notice of availability of the free permits would be posted at BLM offices, online, and on kiosks on BLM-managed lands. Permits would be obtained by calling, mailing, or in person. After processing the permit would be sent by mail, email, or picked up in person.

Subsistence use in the White Mountains and Steese subunits has been low and would continue to be low (Chapter 3, Affected Environment 3.5.3. Subsistence). OHV use for subsistence purposes in these subunits would be low. In areas where subsistence use of OHVs is allowed, but casual use is not, subsistence use may increase. Use for subsistence purposes is high in the Fortymile and Upper Black River subunits (Chapter 3, Affected Environment 3.5.3. Subsistence). OHV use for subsistence activities in the Fortymile subunit would be high. The entire Black River drainage is and would continue to be important to local residents for traditional harvest of resources for subsistence purposes. Access to the Upper Black River by OHV for subsistence purposes during snow free seasons would be nonexistent to very low since the area is extremely difficult to traverse overland and few trails exist.

4.2.2. Types of Effects

Direct, indirect, and cumulative impacts are considered in effects analysis, consistent with direction provided in 40 CFR 1502.16. Direct impacts are caused by an action or by implementation of an alternative and occur at the same time and place as that action or implementation. Indirect impacts also result from an action or implementation of an alternative, but usually occur later in time or removed in distance from the action or implementation.

4.2.3. Incomplete or Unavailable Information

The best available information pertinent to the decisions to be made was used in development of this RMP. Data has been acquired from both BLM sources and outside sources. Some information was unavailable for use in developing this plan, usually because inventories have either not been conducted or are not complete (such as comprehensive trail inventories in the Steese, Fortymile, and Upper Black River subunits, subsistence use data for some communities; and, information on some populations of fish and wildlife). This is why some impacts are projected in qualitative terms or are described as unknown. Available data is sufficient to make a reasoned choice among alternatives. Subsequent project-level analysis will provide the opportunity to examine site-specific data necessary to determine the appropriate application of the RMP decisions.

Specific data on greenhouse gas emissions from wildfire in the planning area was unavailable due to a lack of detailed vegetation inventory information and associated historic burn severity inventory. While general statewide emissions estimates from the past for Alaska are available (ADEC 2015), more refined, higher resolution estimates for wildfire emissions specific to the planning area are not available at this time.

Specific data on greenhouse gas emissions from wildfire in the planning area was unavailable due to a lack of detailed vegetation inventory information and associated historic burn severity inventory. While general statewide emission estimates from the past for Alaska are available (ADEC 2015), more refined, higher resolution estimates for wildfire emissions specific to the planning area are not available at this time.

4.2.4. Cumulative Effects

Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR Section 1508.7). Guidelines for cumulative effects analysis have been outlined and clarified in the Council on Environmental Quality's (CEQ's) Considering Cumulative Effects Under the National Environmental Policy Act (CEQ 1997b).

The cumulative effects analysis for this EIS incorporates the principles outlined by CEQ (CEQ 1997b) and BLM's NEPA Handbook (H-1790-1). In this analysis the geographic scope and time frames for past, present, and foreseeable future actions are described for federal and non-federal land uses and activities in the region of the planning area. Cumulative effects are analyzed for only those resources or issues that had direct or indirect impacts.

Geographic Scope: The Eastern Interior Planning Area (Map 1) is the general geographic scope for the cumulative effects analysis. Within this area, the BLM manages 6.5 million acres (twenty-one percent) of the land. In addition to this area, military lands occur immediately adjacent to the planning area, adding another 1.6 million acres. Geographic scope varies, and is further described in the respective subsections below.

Time frame: A general time frame for this analysis begins in the 1880s, when mining and community development became widespread in Interior Alaska, to 30 years in the future (2040). Forecasting beyond 30 years would be highly speculative. Specific time frames for resources and issues will be discussed in the respective subsections below.

4.2.4.1. Activities Considered in the Cumulative Case

The following sections describe activities that were considered in the cumulative effects analysis.

4.2.4.2. Past and Present Land Use and Activities

Land Use

BLM-managed land: Past and current land use on BLM-managed lands in the planning area (Map 1) are considered for this analysis. This information is described in detail in Chapter 3 of this EIS.

National Wildlife Refuges: The Yukon Flats and Tetlin National Wildlife Refuges (NWR) were established in 1980 by ANILCA. ANILCA also enlarged the Arctic NWR. The 28 million acres covered by these three refuges are managed to conserve fish and wildlife resources, fulfill international treaty obligations of the United States with respect to fish and wildlife resources and habitats, provide continued subsistence use, and ensure water quality and quantity within the region. Activities taking place on the refuges include hunting, fishing, recreational use, and subsistence harvest, as well as research and management activities. Oil and gas exploration has occurred on the Yukon Flats NWR (USFWS 2008a). Past seismic surveys have totaled about 514 miles. Approximately 7.16 million acres of the Arctic NWR is designated Wilderness by ANILCA.

National Park Service Lands: The Yukon-Charley Rivers National Preserve was established in 1980 by ANILCA. The purpose of the 2.5 million-acre preserve is to protect and conserve natural and cultural resources to ensure that they can be used and enjoyed for future generations. There are no roads or settlements in the preserve, and the area is accessed primarily by boat, aircraft, or snow machine. The preserve includes approximately 5,100 acres of mining claims and a seven mile right-of-way for a state road to the Coal Creek mining area. Intermittent mining activity occurred from the 1880s through the 1970s. Since the establishment of the preserve, the lands have been managed primarily for conservation and wilderness values.

State Lands and State Managed Resources: The planning area includes nearly 11.4 million acres of state lands and 1.6 million acres of BLM-managed lands have been selected by the state. Most of the state lands in the planning area are managed under guidelines outlined in the Tanana Basin Area Management Plan (ADNR 1991), the Tanana State Forest Management Plan (ADNR 2001), and the Upper Yukon Area Plan (ADNR 2003), although some tracts have no management plan. Other management areas include the Chena River Recreation Area (ADNR 2003) and numerous recreation areas and public access sites.

The state lands are managed for multiple use with priorities varying according to resource values for particular subunits. Primary land uses include forestry, agriculture, minerals management, recreation, fish and wildlife habitat, heritage resources, recreation and tourism, settlement, public access, transportation, and low-value resource management. Uses prioritized to conserve valuable resources in some areas while allowing resource use in other areas.

ADF&G is responsible for management of fish and wildlife resources and its management activities apply to all lands. The mission of the ADF&G is to protect, maintain, and improve the fish, game, and aquatic plant resources of the state, and manage their use and development in the best interest of the economy and the well-being of the people of the state, consistent with the sustained yield principle. Core services include: provide opportunities to utilize fish and wildlife resources; manage fish and wildlife resources for a harvestable surplus and sustained yield; provide information on fish and wildlife resources; involve the public in management of fish and wildlife resources; protect the state's sovereignty to manage fish and wildlife resources; and protect important fish and wildlife habitat during permit and project review (www.adfg.alaska.gov).

Native Lands: Alaska tribes received land selection rights through ANCSA. Approximately 3 million acres have been transferred to Native corporations, and an additional 900,000 acres are selected. Doyon, Limited, is the major land holder in the planning area. Doyon, Limited's, management objectives include mineral development, oil and gas exploration, real estate, and tourism, as well as traditional uses, subsistence, and conservation. Native village corporations owning land include Stevens Village, Beaver, Birch Creek, Fort Yukon, Chalkyitsik, Dot Lake,

Healy Lake, Eagle Village, Northway, Tetlin, and Tanacross. Doyon, Limited holds ownership interest in approximately 1.2 million acres in the planning area and anticipates receiving title to an additional 325,000 acres in the Fortymile Subunit during the life of the RMP (Doyon 2015).

Past and Present Activities

Oil and Gas Leasing and Exploration: Minimal oil and gas exploration has been conducted in the Steese and Upper Black River Subunits since 1954. Exploration has consisted of activities such as the airborne magnetometer studies, seismic surveys, well drilling, and borings. Three exploratory wells (Louisiana Land and Exploration Wells No. 1, 2, and 3) were drilled in the Kandik Basin in the Upper Black River Subunit in 1980. All three were abandoned as dry holes. Two shallow stratigraphic borings were drilled near Fort Yukon (USFWS 2008a). A coalbed natural gas test well revealed unfavorable results, as coal with only minor amounts of biogenic methane were encountered. Approximately 418 line miles of reconnaissance 2D seismic lines have been conducted in the area (BLM 2009a). Some of these lines are still visible from the air. No development or production of oil and gas has occurred in the planning area.

Placer Mining: The first significant discovery of gold in the planning area was in 1887 on Franklin Creek, a tributary to the Fortymile River, and gold has been mined in the Fortymile region continually since. In 1893 gold was found on Birch Creek which lead to the development of the Circle Mining District and in 1902 Felix Pedro discovered gold which lead to the development of the Fairbanks Mining District. Total historical production from the entire planning area is roughly 13.5 million ounces of gold, including about 2.5 million since 2001 (BLM 2009b). In 2010 the Eastern Interior region produced 766,000 ounces of gold primarily from the Fort Knox and Pogo lode gold mines (Szumigala et al. 2011). In 2007 there were 95 placer operators reporting production from the eastern interior (Szumigala et. al., 2008), in 2013 there were 138 placer operators reporting production (Athey, et. al., 2014). Placer mining is occurring on both federal mining claims and state mining claims in the Fortymile, Steese, and White Mountains subunits. There are no federal mining claims on BLM-managed lands in the Upper Black River Subunit, nor are there any state mining claims.

Suction Dredging: Suction dredging is ongoing on state land. Over the past seven years the number of suction dredging operations permitted by the state has remained relatively constant, despite the price of gold increasing an average of $100 per year for the same period. In 2011, there were 21 EPA small dredge permits and 44 state suction dredge APMAs in the planning area. Fifty-five of these were located in the Fortymile Subunit. There were no state suction dredging permits in the Upper Black River Subunit and only one in the White Mountains Subunit (BLM 2014a)

Lode Mining: Historically, lode mining occurred in the Cleary Hill Mine area north of Fairbanks.

The Pogo Mine, on state land in the Fortymile Subunit, has been in production since 2006 and operates 24 hours per day. The property consists of 1,281 state mining claims covering approximately 41,880 acres (Sumitomo Metal Mining Pogo LLC 2014). Pogo has produced 2.8 million ounces of gold (Athey et. al., 2014), has 4.6 million ounces in reserves and resources, and is mining at a rate of approximately 340,000 ounces gold a year. The underground mine is 38 miles northeast of Delta Junction, and is accessed by a 49-mile road from the Richardson Highway. Power is supplied via a 50-mile power line paralleling the road. The life of the mine is planned through 2019, but may be extended (Bradner 2014). The total footprint of the mine is about 1,185 acres, including the road and power line ROW. The mine site occupies 425 acres.

The Fort Knox Mine is an open-pit gold mine, located primarily on state and private land 26 miles northeast of Fairbanks. It was permitted in 1994 and operates 24 hours per day. Power is supplied by the regional grid, via a 29-mile power line. It has been the largest producer of gold in Alaska since its commissioning. The mining claims encompass approximately 48,600 acres. As of the end of 2014, it has produced 6.4 million ounces of gold. Fort Knox produced approximately 359,000, 421,641, and 379,453 gold equivalent ounces in 2012, 2013, and 2014 respectively (www.dnr.alaksa.gov/mlw/mining/largemine/fortknox). Mining activities are expected to end in 2020 (Kinross Fort Knox 2014).

The True North Project is located 11 miles from the Fort Knox Mine on state and private land. It was in operation from 2001 to 2004 and produced 11.7 million tones of ore which was hauled nine miles to the Fort Knox facility for processing. Total footprint for Fort Knox/True North was approximately 737 acres. As of the end of 2005, 530,000 ounces of gold were produced from True North. In 2009, Fairbanks Gold Mining, Inc. made a decision to forego further mining and exploration on True North, and began final reclamation. In 2010, 149 acres were graded, growth media was placed on 52 acres, and 272 acres were scarified, seeded, and fertilized. As of summer 2014 the True North site was essentially fully revegetated. Post-closure monitoring and maintenance activities continue.

Northern Rail Extension: On July 6, 2007, Alaska Railroad Corporation filed a petition to construct and operate 80 miles of new rail line from North Pole to Delta Junction. On January 6, 2010 the Surface Transportation Board issued a Decision to grant Alaska Railroad Corporation's request. Phase One construction of the rail line began in August 2011. The rail line will extend Alaska Railroad Corporation's existing freight and passenger rail service to the region south of North Pole (Surface Transportation Board 2008). The approved route parallels the southwestern boundary of the Fortymile Subunit, between Fairbanks and Delta Junction. The majority of the approved route is outside of the planning area.

Development of Infrastructure for Communities: Although human settlements have existed in Alaska for thousands of years, it was not until the 1890s that permanent westernized communities began to be developed in the Interior. Fairbanks has been the largest community in the planning area since the early 1900s. The population of the greater Fairbanks area, including Ester, Fox, and North Pole, was estimated to be approximately 97,581 in 2010 (U.S. Census). Other communities in the region include Fort Yukon, Birch Creek, Beaver, Big Delta, Delta Junction, Circle, Central, Chalkyitsik, Chicken, Dot Lake, Healy Lake, Eagle Village, Eagle, Livengood, Northway, Tetlin, Tanacross, Tok, and Stevens Village. According to the 2010 census data approximately 7,505 people lived in these communities combined.

Major transportation routes include the Alaska, Richardson, Taylor, Steese, and Elliott highways. A line of the Alaska Railroad runs from Fairbanks to Eielson Air Force Base. The Trans-Alaska Pipeline System, constructed during the 1970s, runs along the edge of the planning area from the Yukon River to Delta Junction and through the Donnelly Training Area.

Military Activities: Army lands include Fort Wainwright, Tanana Flats Training Area, Yukon Training Area, and Donnelly Training Area. Eielson Air Force Base is situated 35 miles southwest of Fairbanks, adjacent to Yukon Training Area. These areas have been used for military training since the 1940s. Fort Greely's 7,000 acres was transferred from the Army to the Space and Missile Defense Command in 2002. The Cold Regions Test Center is situated immediately to the south of Fort Greely. U.S. Army Alaska has experienced over one-hundred-twenty percent growth in

assigned troop strength since 2003. Current levels are lower than historical levels during the 1950s and 1960s (U.S. Army Alaska 2004).

Research, Monitoring, and Land Management: Research, monitoring and land management are frequent activities on non-BLM lands in the study area. Specifically, fixed-wing aircraft and helicopters are used to transport personnel and equipment, and to conduct surveys. Remote areas are also accessed by boats during the summer and snow machine during winter to conduct research, monitoring and other land management activities.

Recreation: Recreational use of fish, wildlife, and other natural resources are important aspects of the human interaction with the environment in Interior Alaska. Statewide, ADF&G provides users with more than one-half million fishing and hunting licenses each year. The mission of the ADF&G is to manage fisheries to a sustained yield; conduct quality research; enhance fisheries; maintain and increase angler access; improve fish habitat; and provide information and education to the public (ADF&G 2010). Approximately 150,000 people visit Chena River State Recreation Area annually (www.dnr.alaska.gov/parks/units/chena).

Subsistence: Subsistence use of fish, wildlife, and other natural resources (such as wood and berries) are important aspects of the human interaction with the environment in Interior Alaska. Between forty-eight and seventy percent of rural Alaska residents rely on subsistence or personal use harvest of wildlife; and seventy-five to ninety-eight percent utilize fisheries resources (ADF&G 2012). These uses occur on both federal and state lands.

4.2.4.3. Reasonably Foreseeable Future Land Use and Actions

Future Land Use

BLM: Alternative land use scenarios for BLM-managed lands are discussed in Chapter 2 and analyzed in Chapter 4 of this EIS. Conveyance of lands to the State of Alaska and Native corporations is ongoing. On a statewide basis, ninety-eight percent of the Native conveyances and ninety-five percent of the state conveyances have been completed.

Yukon Flats National Wildlife Refuge: This analysis assumes no land exchange with Doyon, Limited, and that management of Yukon Flats NWR would continue as it has during recent decades. While oil and gas development is not reasonably foreseeable on the refuge lands, some exploration from Doyon, Limited, lands could be allowed on the NWR (USFWS 2010a). Wilderness characteristics would be preserved on approximately 8.5 million acres within the refuge under the Minimal Management Category.

Tetlin National Wildlife Refuge: A land use plan for the Tetlin NWR was completed in 2008 (USFWS 2008b). Future actions would include improved public access; and restoring fisheries management to maintain natural diversity based on historic distributions of fish. Wilderness characteristics would be preserved on approximately 564,000 acres or eighty-three percent of the refuge managed under the Minimal Management Category.

Arctic National Wildlife Refuge: The Record of Decision for the Arctic NWR Revised Comprehensive Conservation Plan was signed in April 2015. It recommends designation of 12.28 million acres as Wilderness (USFWS 2015). Until Congress makes a decision, the 12.28 million acres will be managed under the Minimal Management Category. Wilderness characteristics would be preserved on ninety-eight percent of refuge lands. The portion of the refuge adjacent

to BLM-managed lands in the Upper Black River Subunit is recommended for designation as Wilderness. The Atigun, Hulahula, Kongakut, and Marsh Fork Canning rivers are recommended for inclusion in the National Wild and Scenic Rivers System. The types of activities and management actions in the refuge would remain similar to the previous 30 years. Disturbances of fish and wildlife habitats and populations would be minimized. Opportunities for trapping, hunting, fishing, and other public uses would be maintained, as would scientific research and wildlife observation opportunities.

Yukon-Charley Rivers National Preserve: The types of activities and management actions in the preserve would likely remain similar to the previous 30 years. Primary activities will include research, monitoring, and management; subsistence; and recreation. Demand for low impact use for recreation would probably increase proportionally with surrounding other federal and state lands. With a mandate to protect resources and ensure sustainability, impacts from resource uses are not likely to increase substantially. Demands for subsistence resources would remain relatively stable. Mining could occur in the future, because there are placer claims within the preserve. Access is limited, however, and large-scale or widespread mining activities in the preserve are not reasonably foreseeable. Wilderness characteristics would be preserved on 1.8 million acres determined suitable for wilderness designation. At this time there are no plans to develop in the preserve or to create additional wilderness.

Military Lands: The amount of military land in Interior Alaska is not likely to change within the next 30 years. Land use, however, would change with construction of new facilities at Fort Wainwright, Eielson AFB, the Space and Missile Defense Command at the former Fort Greely, and at the respective training areas (e.g., construction of the Battle Area Complex and associate facilities at Donnelly Training Area) (U.S. Army Alaska 2007).

State Lands and State Managed Resources: Management of state lands and resources would continue under State Area Plans and ADF&G management regimes. Land use for recreation, subsistence, and tourism would increase as local, state, and national populations grow. Activities on state lands and for state-managed resources will continue and increase in proportion to population growth and tourism. ADF&G education, nongame management and research, and wildlife viewing opportunities are expected to increase. Future actions will address human-wildlife conflicts, subsistence management, and predator management. Demands on fish and game resources for recreation and subsistence could increase between ten and fifteen percent over the next 20 years.

Native Lands: Continued oil and gas exploration on Doyon, Limited, lands is likely, but any subsequent development would be speculative. An important aspect of Doyon, Limited's, mission is to develop resources and its lands were selected for this purpose. For example, Doyon, Limited, is seeking mining exploration on its lands, especially in the Fortymile Subunit where placer gold claims are encouraged and available, and mineral materials sales would continue (Doyon 2009).

Future Activities

Oil and Gas: No oil and gas leasing is anticipated during the life of the plan. Seismic exploration could occur on high potential areas within the Steese and Upper Black River Subunits under some alternatives. Continued exploration on Doyon, Limited, lands is likely.

Placer Mining and Suction Dredging: Placer mining, including large, small and suction dredge operations would continue to occur on state and Native corporation lands at the current rates.

Placer gold production, statewide, doubled in response to an increase in gold prices in 2006. Since 2006 placer gold production has remained relatively flat (Szumigala et al. 2009). Increases in gold prices sparking increased interest in placer mining would be tempered by eventual depletion of the more accessible resources.

Lode Mining: The Pogo Mine has been in operation since 2006 and is expected to continue through at least 2019. Under the current mining rate current reserves of 1.9 million ounces are sufficient for 5.6 years, and that the mine life can be extended with 2.7 million ounces of resources and additional discovery and delineation of new resources by active exploration. Reclamation has been ongoing, and would continue concurrently with mining, and through closure of the mine and beyond.

Additional reserves remain at the Fort Knox Mine, and mining is expected to continue until 2020. Discovery of new resources could extend the mine life, and there is active exploration ongoing. Leasing could be extended for up to 55 years. Reclamation would occur after the operations have ceased, although reclamation of areas that will not be disturbed again is ongoing.

The deposit known as Money Knob could be developed into a large-scale lode mine during the life of the RMP. This measured and indicated resource was estimated to be about 15.7 million ounces of gold at a cut-off of 0.0082 ounces per ton (International Tower Hill Mines Website, September 2013). It lies on state, private, and federal lands about one mile north of the Elliott Highway. The area includes approximately 400 to 500 acres of federal mining claims which could be incorporated into an open pit or other surface infrastructure if the deposit continues toward production. Also there are over 100 federal placer mining claims on Livengood Creek which has a long history of mining activity. The mine would be an open pit. Access to the site is from the Elliott Highway. Mine roads currently exist. Total footprint of the mine would be approximately 680 acres (BLM 2014a).

The LWM prospective mine site is located 35 miles northwest of Chicken on Doyon, Limited lands. This resource contains lead, zinc, copper, and silver. This site could be developed into a large-scale lode mine during the life of the RMP. The mine would not be located on BLM-managed lands. Access to the mine would likely come from the Taylor Highway. The mine would be an open pit. Total footprint is approximately 540 acres (BLM 2009c). Although exploration activities were postponed in 2014, it is assumed this mine would e economical to develop during the life of the RMP.

Some other potential resources in the planning area include:

- Golden Summit Project immediately northeast of Pedro Dome has identified resources of 6.52 million ounces of gold – Freegold Ventures website http://www.freegoldventures.com
- LMS project a few miles south of Pogo has published an inferred resource of 275,000 ounces – Corvus Gold website http://www.corvusgold.com/
- On Tetlin Village lands, a few miles south of Tok, Contango Ore discovered mineralization in 2009 and published (in 2014) a resource of 1.1 million ounces in 9.8 million tons of ore (Indicated and Inferred) – Contango Ore website http://www.contangoore.com/pr/pr13_130716.pdf

Infrastructure and Communities: The population growth in Fairbanks and the Fairbanks North Star Borough is expected to be steady. Estimates in 2004 indicated growth from about 90,000 in the Borough to 98,000 in 2018. The number of people in rural areas including villages and small towns (except for Delta Junction and Big Delta) has declined, and these trends of growth in the larger communities and decline in the rural areas and villages will likely continue. No

major new highway projects are planned in the region, but highway upgrades and maintenance would continue. The increased number of people would result in proportionally higher activity levels in the region.

Alaska Natural Gas Pipeline: Two natural gas pipeline projects are in the planning phase. The Alaska Stand Alone Pipeline (ASAP) project would consist of a 727-mile instate, natural gas pipeline, running from Prudhoe Bay to the Cook Inlet area where it would connect into the existing Cook Inlet natural gas delivery system. The ASAP line would parallel the Trans-Alaska Pipeline System (TAPS) corridor south through the northern region of the state. At Livengood the ASAP line would proceed south towards Nenana and continue along the Parks Highway to its destination near Cook Inlet (http://asapgas.agdc.us/). The ASAP project would also have a 35-mile lateral line between the main pipeline and Fairbanks. A supplemental environmental impact statement is currently being prepared for this project by the Army Corps of Engineers.

The second planned pipeline, the Alaska Liquefied Natural Gas (LNG) project, is currently undergoing pre-file review under the Federal Energy Regulatory Commission. The Alaska LNG project is an export project intended to transport natural gas south from Prudhoe Bay to a proposed LNG facility on the Kenai Peninsula in Nikiski, Alaska. The Alaska LNG project corridor is currently being refined, but the final pipeline right-of-way will parallel the ASAP pipeline right-of-way for most of its 800-mile route. South of the community of Trapper Creek the Alaska LNG project proposes two alternative routes for crossing Cook Inlet to reach its terminus at Nikiski http://www.arcticgas.gov/alaska-lng-project).

In addition to the pipelines, ancillary facilities such as compressor stations, temporary access roads, material sites, and construction camps will be needed. More information, along with maps of the proposed projects can be found online at: www.agdc.us (ASAP) and www.ak-lng.com (Alaska LNG).

Military: Withdrawal of additional lands for military use is not expected, but use of land and airspace will intensify. The recent addition of the Stryker Brigade and Aviation Task Force to Fort Wainwright has increased intensity of use on Army training lands and airspace. Use of military operation areas (MOAs) over the planning area will continue to occur up to the levels allowed in the Final EIS for Alaska MOAs (USAF 1995). Air Force flight training would continue with increases in low-level flight activity (helicopters). Addition of the Aviation Task Force and Grow the Army initiatives will result in an addition of approximately 2,000 soldiers, staff, and family to Interior Alaska; while Eielson AFB will lose about 2,300 personnel and staff. Aviation flight training is also expected to increase on training lands in Interior Alaska (U.S. Army Alaska 2009).

Research, Monitoring, and Land Management: Research, monitoring and land management will continue on federal, state, and Native lands. Remote areas will continue to be accessed by fixed-wing aircraft, helicopters, boats, and snowmobiles, depending on season.

Recreation: Demands on resources for recreation could increase between ten and fifteen percent over the next 20 years.

Subsistence: Demands on fish and game resources for subsistence could increase between ten and fifteen percent over the next 20 years.

Climate Change

Climate change is occurring and affecting resources in the planning area, primarily from warming seasonal and annual air temperatures. Average annual temperatures (1949–2005) increased approximately 4 degrees F. at Interior Alaska climate stations, Bettles, Big Delta, Fairbanks, and McGrath. Most of the warming occurred since the mid-1970s, with the greatest seasonal change in winter, approximately 8 degrees F., and spring about 5 degree F, and the least amount of change in autumn, 0.2 degree F. According to climate projections completed by Rupp and Springsteen (2009b) by 2040 average annual temperatures in the planning area may increase as much as 4.6 degree F.

Climate projections by Rupp and Springsteen (2009b) also indicate average annual precipitation in the planning area is expected to increase by about three inches, an 18 percent increase, by 2040. Other projected future climate scenarios predict variable but not extreme changes in precipitation for Interior Alaska (NOAA, 2013). Shulski and Wendler (2007) found there was no substantial change in annual or seasonal precipitation for Interior Alaska climate stations at Bettles, Big Delta, Fairbanks and McGrath from 1949 through 2005.

4.2.4.4. Actions Not Considered in the Cumulative Case

Oil exploration and development could occur in the future on Doyon, Limited, lands within the Yukon Flats NWR, but is considered speculative. The USFWS chose the "No Land Exchange Alternative" in the Record of Decision for the Proposed Land Exchange (USFWS 2010b). This is why the Doyon Exchange was not considered in the cumulative case.

Birch Creek Village has identified a road to provide access from the village to the Elliott Highway as part of their Long Range Transportation Plan. The road would run through Victoria Creek in the White Mountains and would be 108 miles long. The proposed road is considered speculative at this point as no permit applications or funding requests are pending.

4.3. Impacts Common to All Subunits

4.3.1. Resources

4.3.1.1. Air and Atmospheric Values

4.3.1.1.1. Air Quality and Greenhouse Gas Emissions

4.3.1.1.1.1. Air Quality

Summary of Effects

Air quality management objectives and actions are the same for all subunits and alternatives. All authorized public land management activities would meet federal and ADEC air quality standards and regulations. Both prescribed and wildland fire would be managed to minimize degradation of air quality and be coordinated through the Alaska Interagency Wildfire Coordination Group (AWFCG) of which the BLM is a member.

Potential impacts on air quality include fugitive dust from roads and mineral operations, smoke from forest management and residential wood burning, and emissions from equipment and motorized vehicles, all of which could affect human health and air quality related values including visibility. The dominant air pollutant in the planning area is particulate matter from wildland fires. Regardless of alternative, large-scale stand-replacing wildland fires frequently result in substantial and uncontrollable air quality impacts.

As the planning area is sparsely populated with no industrial facilities, it is anticipated that no substantial anthropogenic air pollutants would originate from the planning area during the life of the plan. Long-range atmospheric transport of emissions from other countries (ADEC, 2011a; Law and Stohl, 2007) occurs periodically, and this may also impair air quality and visibility.

Proposed management of the following resources, resource uses, or programs will have no anticipated effects on air quality for all alternatives and subunits, and will not be analyzed further: Cave and Karst Resources, Fish and Aquatic Species, Non-Native Invasive Species, Soil Resources, Special Status Species, Vegetative Communities, Visual Resources, Water Resources, Wilderness Characteristics, Wildlife, Special Designations, and Subsistence.

The Air Quality MOU, signed June 23, 2011, applies to oil and gas well activities on federal lands (USDA, DOI, and EPA 2011). The Air Quality MOU sets forth expectations and agreements for addressing air quality analyses and mitigation measures through the NEPA process related to federal oil and gas planning, leasing, or field development decisions. Since the Reasonable Foreseeable Development scenario projects little or no oil and gas activity within the Eastern Interior proposed planning area, the Air Quality MOU would not apply.

4.3.1.1.1.1.1. Effects Common to All Alternatives

The primary air quality goal under all alternatives is to comply with existing laws and regulations to meet health and safety requirements. Management objectives include minimizing degradation of air quality from prescribed fire. All other authorized activities on public lands would meet Federal National Ambient Air Quality Standards (NAAQS) and ADEC air quality standards and regulations. These management objectives would be accomplished through specific management actions, including the use of SOPs (*Appendix A, Standard Operating Procedures and Fluid Mineral Leasing Stipulations)* and considerations of air quality in the wildland fire decision support system and prescribed burn plans.

Intermittent surface-disturbing activities could directly affect air quality in the short-term by generating fugitive dust, smoke, or motor vehicle emissions. Due to the widely varied specific conditions, timing, and scale of these activities, reliable quantitative estimates of particulate emissions from these activities cannot be determined; however, implementation of resource protection measures, permitting requirements, and emission control strategies, including established SOPs, to mitigate emissions would minimize impacts on air quality.

Effects from Wildland Fire Management

Impacts on air quality from wildland fire and its management activities include smoke and fugitive dust from roads and equipment, which could affect human health and visibility. The spatial distribution of wildland fire smoke would vary depending on several factors including acreage burned, fuel type, and prevailing winds and dispersion conditions. The effects on air quality from smoke and dust caused by wildland fire management activities would vary from short-term and localized, for small wildland fires, to moderate term (weeks) and widespread for large wildland

fires. During times of high fire activity, interagency efforts to manage smoke related issues from wildfires across the state will be coordinated through the Multi-agency Coordination (MAC) group. The MAC group in conjunction with ADEC may determine that new fire starts will be suppressed regardless of fire management option (AIWFMP 2010).

Effects from Forest and Woodland Products

Impacts on air quality from small-scale forest products management activities would be minimal, but could include fugitive dust from use of roads and equipment (e.g., skidders and CATs), road construction, and smoke from slash-pile burning. The effects on air quality from emissions, smoke, and dust caused by the management activities typically would be short-term and localized. Smoke resulting from a slash-pile burning would be mitigated by using the prescribed burn plan addressing smoke management and approved by the Authorized Officer. In the event more than 40 acres of vegetation is burned in a year an open burn permit with associated stipulations would be needed from ADEC. The approved prescribed burn plan would incorporate all needed stipulations from the ADEC permit.

Under all alternatives, economically feasible access to forest product harvest areas on BLM-managed lands would continue to be very limited. Air quality impacts from forest and woodland product management are expected to be short-term, of low concentration, and of limited aerial extent.

Effects from Land and Realty

The construction activities authorized under ROWs or other land use permits (e.g., communication sites, transmission lines) produce emissions. Surface-disturbing activities such as bulldozing and travel on unpaved roads result in fugitive dust, and equipment and vehicle emissions.

Effects from Minerals: Leasable, Locatable, and Salable

Minerals exploration and development activities have the potential to impact air quality. Lands would be open to oil and gas leasing, but leasing would not occur without further NEPA analysis. Interest from industry is expected be limited for all subunits due to the lack of high-potential oil and gas resources on BLM lands. Seismic exploration could occur, but is unlikely. No solid leasable mineral development is anticipated. Impacts from mineral activities include fugitive dust from roads and emissions originating from equipment (e.g., seismic equipment).

Impacts on air quality from development of salable and locatable minerals activities are primarily due to fugitive dust from mining activities, roads, and emissions from equipment operations. Effects would typically be seasonal and localized.

Effects from Recreation

With increased pressures from growing populations and increased OHV popularity, the planning area could see significant growth in motorized recreation activity, particularly OHV use during the life of this plan. The expected increased recreational activity has the potential for degradation of air quality from recreation vehicle emissions associated with high levels of use. Between mid-August and late-September, motorized travel increases significantly during the big game hunting season. Modes of motorized access to backcountry areas include small aircraft, motor boats, OHVs, and four-wheel drive vehicles. Large-scale group activities (such as the Tok to Dawson Poker-Run, with three events per winter and 100 to 200 snowmobiles per event), may have moderate short-term impacts on air quality-related values such as visibility.

Effects from Travel Management

Expected air quality effects would typically be minor and localized for small groups. However, large-scale group activities (such as the Tok to Dawson Poker-Run, described above), may have moderate short-term impacts on air quality, including visibility. Other large-scale OHV group activities should be anticipated.

4.3.1.1.1.1.2. Cumulative Effects for Air Quality

Historically, smoke from wildland fire has been the primary source affecting air quality in the planning area and the poorest air quality conditions have been reported during summer, normally May through August. Otherwise pristine air conditions are typical although occasional atmospheric conditions (inversions) can trap vehicle emissions and particulates from burning wood or oil for heating during winter.

Wildland fire is generally allowed to function in its natural ecological role with wildland fire suppression activities undertaken only to protect life and property, site-specific values, or adjacent higher priority management areas. Other major land owner groups (Native, state, and federal) recognize wildland fire as an essential ecological process and natural agent of change in ecosystems. To better understand expected future wildland fire activity in the planning area, the BLM commissioned the University of Alaska Fairbanks to identify vegetation and fire regime response to projected future climate changes in Interior Alaska (Rupp and Springsteen 2009b). Their simulation results show a general increase in wildland fire activity through the end of this century in response to projected warming temperatures and less available moisture and suggest that boreal forest vegetation will change from a spruce dominated landscape to a more deciduous-dominated landscape. Changes in the projected cumulative area burned suggest that over the next 30-40 years the planning area will experience a rapid increase in wildland fire activity and change in vegetation (Rupp and Springsteen 2009b).

In spite of the shift in vegetation towards less flammable younger age stands and deciduous species, the simulation results indicate that there will be more frequent wildland fires, resulting in an overall increase in area burned annually. Increased wildland fires, over the next 20 to 30 years in particular, are likely to have substantial adverse air quality impacts. The Fire Management Program would adapt management activities as needed in response to changes in climate over the life of the RMP.

As the planning area is sparsely populated with no past, current, or planned industrial facilities, it is anticipated that no substantial anthropogenic air pollutants would originate from the planning area during the life of the plan. However, long-range atmospheric transport of emissions from other countries (Law and Stohl, 2007) occurs periodically and may impair air quality and visibility. Cumulative air quality impacts from resource management programs and activities are not expected to be significant.

4.3.1.1.1.2. Greenhouse Gas Emissions

Summary of Effects

This section provides information on current and projected Greenhouse Gas (GHG) emissions common to all subunits within the planning area. It addresses "*How current and future*

BLM-authorized actions could potentially affect climate change, as indicated by estimated GHG emissions."

As discussed in section 4.2.4.3 *Reasonably Foreseeable Future Land Use and Actions*, no substantial industrial development, fossil fuel development, or changes in land use/land cover are projected to occur from BLM-authorized activities. In particular, no oil and gas leasing or large lode mine development is anticipated during the life of the plan. Hence, no substantial changes are expected in GHG emission levels compared to current GHG emissions under all alternatives during the life of the plan.

GHG emissions associated with local communities (Table 3.6) would continue to be the largest anthropogenic source of GHG emissions in the planning area. In 2010 the Fairbanks and Delta areas contributed the most GHG emissions: 1,893,205 and 196,382 $MTCO_2Eq.$, respectively. The Eagle area, at 12,803 $MTCO_2Eq.$, and Fort Yukon area at 42,129 $MTCO_2Eq.$ contributed the least emissions. The population within the planning area is projected to increase by ten to fifteen percent during the life of the plan, likely resulting in a similar increase in community related GHG emissions.

Seasonal placer mining is the single largest BLM-authorized industrial activity in the planning area. In 2014 active placer operations (exploration, suction dredge, small and large placer mines) on BLM-managed lands contributed, in total, approximately 4,410 $MTCO_2Eq.$ (Table 3.7); less than 20 percent of the 25,000 $MTCO_2Eq.$ annual emissions level, above which quantitative reporting of GHG emissions is recommended by CEQ (2014). For comparison, total GHG emissions for all subunits under Alternative D, the most pro-development alternative, were estimated at 8,007 $MTCO_2Eq.$ annually, well below the 25,000 $MTCO_2Eq.$ reporting limit.

Estimates of GHG contributions from travel and transportation activities, including emissions from OHV use, will be addressed in the forthcoming travel management plans. However for context, based on anecdotal reports from recreation staff, GHG emissions from recreation OHVs would likely be less than half of the annual emissions associated with the placer-mine industry.

A major portion of GHG emissions within the planning area are a result of uncontrolled wildland fires, originating either within or outside of the planning area, and not a result of BLM activities. Based on an annual average of 331,456 acres burned (AICC 2015) within the planning area, annual GHG emissions from wildland fires are estimated at 1,640,243 $MTCO_2Eq.$ Annual emissions from prescribed burns are estimated at 273 $MTCO_2Eq$, based on an average of 518 acres of prescribed burn annually.

4.3.1.1.1.2.1. Effects Common to All Alternatives

As stated in section 4.3.1.1.1.1 Air Quality, proposed management of the following resources, resource uses, or programs would have no major foreseeable effects on GHG emissions in the planning area and will not be analyzed further: Cave and Karst Resources, Forest and Woodland Products, Fish and Aquatic Species, Lands and Realty, Non-Native Invasive Species, Soil Resources, Special Status Species, Vegetative Communities, Visual Resources, Water Resources, Wilderness Characteristics, Wildlife, Special Designations, and Subsistence.

Effects from Locatable Minerals

Estimated GHG emissions for projected placer mine operations were calculated utilizing the BLM Solid Mineral Production Sand and Gravel Mining and Processing Emissions Calculator found

in the BLM Greenhouse Gas & Climate Change NEPA (GHGCC-NEPA) toolkit, an internal, web-based tool (http://ghgtoolkit.blm.gov/) that contains a suite of greenhouse gas calculators for specific resource development activities.

GHG emission calculations were based on the type, quantity, load, and period of equipment used annually for projected placer mine activities outlined in Tables 4.2 through 4.5 of the RMP. Activities in the tables are summarized under four categories: 1) Mining Exploration, 2) Suction Dredge Operations, 3) Small Placer Operations and 4) Large Placer Operations. We determined equipment type, quantity, load, and period of equipment use inputs based on placer mining handbooks (McCulloch et. al., 2003; Entrix, Inc, 1986), the Reasonable Foreseeable Development – Mine Cost and Impact Model report (2009) by Scott Stebbins, Mining Engineer with Aventurine Engineering, Inc. as well as personal communications with experienced Alaska engineers and operators including Chris Roach PE Civil Engineer, Anchorage, July 2015; Don Kiell, Mining Engineer, Fairbanks July 2015, and Dick Loud, Placer Mine Owner/Operator, August 2014.

Average annual GHG emissions for Small Placer Operations were calculated using the GHGCC-NEPA toolkit. For the 3 other mining operation categories GHG emissions were calculated using the Small Placer Operation GHG emission output and an equivalence factor. Based on estimates in the Stebbins 2009 report and input from sources listed previously, equivalence factors are as follows: Large Placer Operations at (4x), Suction Dredge Operations at (0.2x) and Exploration Operations at (0.4x) the average annual GHG emission of a Small Placer Operation. As an example, annual GHG emissions from one Large Placer Operation would be equivalent to the combined annual emissions from four Small Placer Operations.

Total annual GHG emissions from all projected placer mine related activities, including exploration, suction dredge, and small and large placer mine operations for all subunits and under all alternatives are summarized in Table 4.6.

Table 4.6. Estimated Annual Greenhouse Gas Emissions by subunit from projected placer-mine operations.

Planning Subunit	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	GHG ($MTCO_2Eq.$)	GHG ($MTCO_2Eq.$)	GHG ($MTCO_2Eq.$)	GHG ($MTCO_2Eq.$)	GHG ($MTCO_2Eq.$)
Fortymile	2,708	3,419	3,656	4,262	3,419
Steese	1,154	1,228	2,486	3,197	1,228
Upper Black River	0	0	0	0	0
White Mountains	548	548	548	548	548
Subtotals	**4,410**	**5,195**	**6,690**	**8,007**	**5,195**

Annual GHG emission levels from projected placer-mine operations in all subunits varied from about 4,410 $MTCO_2Eq.$ under Alternative A to an estimated 8,007 $MTCO_2Eq.$ under Alternate D. The estimate level of GHG emissions from projected placer operations by subunit and alternative serves as a reasonable proxy for assessing potential climate impacts, and provides decision makers and the public with useful information for a reasoned choice among alternatives. Nonetheless, the total annual GHG emissions levels estimated for projected placer-mine operations for all alternatives and subunits are well below the 25,000 $MTCO_2Eq.$ annual emissions reporting level recommended by CEQ (2014) for quantitative reporting of GHG emissions and will not be analyzed further.

4.3.1.1.1.2.2. Cumulative Effects of Greenhouse Gas Emissions

Because the planning area is sparsely populated with no past, current, or planned industrial facilities, it is anticipated that no substantial GHG emissions or anthropogenic air pollutants would originate from the planning area during the life of the plan.

Current trends in automobile and OHV technology are towards reducing emissions. Thus, although OHV use is projected to increase by ten to twenty-five percent, cumulative impacts to GHG emission levels from OHV travel are not expected to be measurable. Similarly, mining activity is projected to moderately increase, but the associated impacts to air quality and GHG emissions from current and projected activity are expected to be negligible. New mining operations would likely employ equipment with improved emissions.

Long-range atmospheric transport of emissions from other countries (Law and Stohl, 2007; Shaw, 1995) occurs periodically with uncertain cumulative impacts on resources. Based on the low level of projected development, cumulative GHG emission levels from BLM resource management programs and activities are expected to be relatively low.

Estimated GHG emissions for a maximum number (86)of annual wildland fires over the planning area prior to 2015 with an average annual acreage burned (331,456 acres from 1985–2014) were calculated along with the annual average prescribed burn acreage within the planning area (518 acres) using the BLM National Operations Center (NOC) toolkit (BLM NOC, 2012). This toolkit also contains a suite of greenhouse gas calculators for specific resource development activities. The results indicate that for all alternatives, the annual GHG emission level would be 1,640,516 $MTCO_2Eq$. Of this total 273 $MTCO_2Eq$. are contributed from prescribed burns within the planning area and 1,640,243 from wildland fires within the planning area. Fire history statistics were obtained from the Alaska Interagency Coordination Center's fire history data set (AICC 2015).

The BLM NOC toolkit calculates GHG gas emissions estimates as well as emissions estimates for criteria air pollutants, volatile organic compounds, and hazardous air pollutants. This toolkit compliments the BLM GHGCC-NEPA toolkit as another means of estimating air pollutants based upon specific resource activities.

A large majority of GHG emissions are a result of uncontrolled fires originating either within or outside of the planning area and not a result of BLM activities. The percentage of annual prescribed fire acreage burned within the planning area is 0.16 percent of the acres burned (518) resulting from wildland fires.

The amount of estimated annual placer mining GHG emissions for Alternative D, the alternative with the highest $MTCO_2Eq$. value (8,007 $MTCO_2Eq$. from Table 4.6), compared to those contributed by wildland fires (1,640,243 $MTCO_2Eq$.), is extremely small (0.49 percent).

4.3.1.1.2. Climate Change

This section provides information on known and projected climate change impacts common to all subunits within the planning area. It addresses *"How current and future projected climate change, due to regional and global conditions, will impact BLM-managed resources and current and future BLM-authorized actions in the planning area."*

Summary of Effects

The BLM contracted with the University of Alaska, Scenarios Network for Alaska Planning to develop a climate change scenario for the planning area (Rupp and Springsteen, 2009b). The results of this work are summarized in a report available online at http://www.snap.uaf.edu/. The outcomes from this report were used during the development of the Draft EIS, to help describe the existing environment and to analyze impacts of the alternatives. These predictions were also used to help develop Standard Operating Procedures (SOPs) and Fluid Mineral Leasing Stipulations that would be adaptable over time.

The model results of Rupp and Springsteen (2009b) are based on the A1B carbon dioxide emissions scenario (IPCC, 2000), and assume a steady increase in carbon dioxide emissions from fossil fuel combustion over the first several decades of the 21st century, followed by a gradual decline in emissions as several kinds of low-emission energy alternatives become more prevalent. Their climate projections are in broad agreement with other global climate model results for Interior Alaska (Chapman and Walsh, 2007; NOAA, 2013).

Projected changes in climate for the planning area reported by Rupp and Springsteen (2009b) include:

- Annual average temperatures are projected to increase over the coming decades at an average rate of about one degree F per decade from the 1961–1990 historic 30-year average (about 24 degrees F.). Average annual temperature is expected to rise by about 6.4 degree F by 2049 and as much as 9.4 degree F by 2099.
- Average annual precipitation (about 16 inches) is expected to increase to 19.6 inches by 2049 and to 21.1 inches (about thirty percent) by 2099, but it will not be enough to offset increases in potential evapotranspiration in the Eastern Interior, especially in the last half of this century.

These projected future climate changes suggest the recent (1949–2005) warming trend in Interior Alaska (Wendler and Shulski 2009) will continue over the next few decades with similar resource impacts as discussed in section 3.2.1.3.4 Climate Change Impacts.

Current and future projected climate change impacts that affect BLM management actions and resources are primarily related to a warming climate and include thawing permafrost, increased length of growing season, and increased wildfire frequency. The BLM utilizes Adaptive Management as a tool in managing lands and resources to predict, mitigate, implement, monitor, and adapt to climate change impacts as well as in NEPA analysis of current and future BLM-authorized actions in the planning area.

Effects of Thawing Permafrost

Much of Interior Alaska is underlain by discontinuous permafrost—frozen ground with highly variable ice content that restricts water drainage and strongly influences landscape water balance as well as the design and maintenance of infrastructure. Permafrost thaw results in the settling and/or slumping of soil and is one of the serious impacts of a warming climate in Alaska.

Uneven sinking of the ground in response to permafrost thaw causes major issues for various types of infrastructure. Roads, runways, and buildings may shift, break, or collapse as the ground beneath them becomes soft and sinks (Karl et al. 2009).

Landscapes in Interior Alaska are getting drier. On average, lakes have decreased in area in the last 50 years (Roach et. al., 2011) due to a combination of permafrost thaw, greater evaporation in a warmer climate, and increased soil organic accumulation during a longer season for plant

growth. Future permafrost thaw will likely increase lake area where permafrost is continous and decrease lake area in places where the permafrost zone is more fragmented (Avis et. al., 2011).

A continuation of the current drying of Alaskan lakes and wetlands may affect waterfowl management. Interior Alaska provides breeding habitat for millions of migratory birds that winter in more southerly regions of North America and on other continents.

Numerous observations suggest increased surface erosion associated with thawing permafrost and melting ground ice resulting in *thermokarst* development in low gradient areas and increased thermal erosion on hill slopes—detachments of seasonally thawed layers, especially after wildfire (Gooseff et. al., 2009).

Thawing permafrost increases permeability of previously frozen soils and changes the distribution of surface waters across the landscape through increasing or decreasing wetland surface area depending upon site-specific conditions (Hinzman et al. 2005).

Effects of Increased Length of Growing Season

The length of the growing season in Interior Alaska has increased on average from 83 to 123 days (45 percent) over the last century (Wendler and Shulski, 2009). Changes in dates of snowmelt and freeze-up associated with the longer growing season benefit agriculture and forestry and decrease annual use of heating fuels with warmer temperatures. Negative impacts may include reduced water storage, altered timing of the spring break-up, and increased risk of more extensive wildfire and insect outbreaks, as well as disrupted seasonal migration of birds and other animals (Chapin, et. al., 2014).

Effects of Increased Wildfire Frequency

During the decade of the 2000s, an average of 1,890,000 acres per year were burned in the interior sections of Alaska (17 percent of the landscape), which is 50 percent higher than in any previous decade since the 1940s (Kasischke et al. 2010). The increase in fire severity has occurred during a period of warmer spring seasons associated with earlier snowmelt, drying of wetlands, and lengthening growing seasons. Increasing temperatures (more specifically, a decrease in occurrence of extreme cold temperatures) have resulted in increased over-winter survival of bark beetles, and a consequent increase in the number of acres of forest destroyed by these insects. Dead trees combined with warmer, drier conditions leave the forests more vulnerable to wildfires (Karl et al. 2008). It is also thought that deeper active layers in permafrost areas allow fires to persist in the organic horizons of black spruce forests (Kasischke et al. 2010). The increase in fire occurrence has coincided with, and likely has been at least partially driven by, increases in lightning frequency since the 1990s (Faruch et al. 2011). More extensive and severe wildfires could shift the forests of Interior Alaska during this century from dominance by spruce to broadleaf trees (Barrett, et. al., 2011).

4.3.1.1.2.1. Cumulative Effects of Climate Change

The climate model results from Rupp and Springsteen (2009b) show Eastern Interior Alaska is projected to become warmer and drier over the next century. Warmer temperatures and a longer growing season are expected to increase evapotranspiration enough to outweigh a regional increase in precipitation. Their simulation results show a general increase in wildland fire activity through the end of this century in response to projected warming temperatures and less available moisture and suggest that boreal forest vegetation will change from a spruce dominated

landscape to a more deciduous-dominated landscape. In spite of the shift in vegetation towards less flammable younger age stands and deciduous species, the simulation results indicate that there will be more frequent wildland fires, resulting in an overall increase in area burned annually.

Increased wildland fire frequency would likely release carbon to the atmosphere which would be converted to carbon dioxide. Release of carbon from thawing permafrost soils is expected to increase the amount of CO_2, perhaps significantly (Drake, et., al, 2015). However, increased air temperatures, length of growing season, and expanded growth of forests in former permafrost-rich areas would all act as carbon sinks. For the purposes of this plan, the net contribution to the effects of climate change from atmospheric carbon is expected to be very low.

It is assumed that climate change will continue to occur during the life of the plan and through adaptive management the BLM would mitigate impacts to resources to the extent practicable. Changes in climate will likely have profound impacts on the condition and health of wildlife habitat, permafrost stability, wildland fire risk, and contribute to the likelihood of wetlands, streams, and lakes drying.

4.3.1.2. Cave and Karst Resources

Summary of Effects

Impacts to the cave and karst features are expected to be negligible. The significant caves are difficult to access because of their remote locations. Extremely sensitive or fragile resources were not identified during cave inventories. The recreation settings, special area designations, and travel management prescriptions for lands surrounding significant caves would help protect cave and karst features, as would active management of cave and karst resources.

Proposed management of the following resources, resource uses, or programs would have no anticipated effects on cave and karst resources for all alternatives and subunits, will not be analyzed further: Air and Atmospheric Values, Fish and Aquatic Species, Non-Native Invasive Species, Soil Resources, Special Status Species, Vegetative Communities, Visual Resources, Water Resources, Wilderness Characteristics, Wildlife, Forest and Woodland Products, Lands and Realty, Minerals Management, Renewable Energy, and Subsistence.

4.3.1.2.1. Effects Common to All Alternatives

Effects from Cave and Karst Resources

Nationally, management of cave and karst resources has trended toward more regulation to protect sensitive resource values. Additional protection could occur if sensitive resource values were discovered. Although, these protections would generally not be needed because the current and proposed land designations and management provide sufficient layers of protection. Actively managing to protect cave resources would have a minor beneficial effect.

Effects from Cultural and Paleontological Resources

Cultural and paleontological resources are often associated with caves. During cave inventories, no archaeological remains and only a few paleontological remains were found. The potential exists for additional cultural sites and paleontological resources to be found associated with caves, but it is thought to be unlikely. The lack of discovery does not preclude a future chance of discovery; and the occurrence of paleontological or cultural resources would initiate the

protocols for determining if the cave qualifies as a "Significant Cave." Management of cultural and paleontological resources would be beneficial and complementary to cave management.

Effects from Recreation and Travel Management

Possible direct impacts include the removal of cultural or paleontological resources or vandalism. Managing the cave and karst areas for a Primitive to Backcountry RSC setting, as in the Steese and White Mountains subunits, would provide additional protection to these areas. Known cave and karst areas would be managed for minimal trails and facilities, and access would continue to be limited OHV designations. These decisions would likely limit increases in visitation, reducing the potential for damage or vandalism. Effects would be low because of the low number of visitors to the area and because these areas are remote and difficult to access regardless of the OHV designations.

Effects from Special Designations

The significant caves in the White Mountains Subunit are located within Limestone Jags RNA under all alternatives. Caves in the Upper Black River Subunit are within a proposed ACEC under Alternatives B, C, D, and E. Caves in the Steese Subunit are within a proposed ACEC under Alternatives B, C, and D. Designation as an ACEC could potentially confer additional protections on the cave and karst areas. However, this effect would likely be minimal as the remote location of the caves, other proposed management for these areas, and existing designations (e.g., Steese National Conservation Area and White Mountains NRA) provide sufficient protection.

4.3.1.3. Cultural and Paleontological Resources

Summary of Effects

Proposed management of the following resources, resource uses, or programs will have no anticipated effects on cultural and paleontological resources for all alternatives and subunits, and will not be analyzed further: Air and Atmospheric Values, Cave and Karst Resources, Fish and Aquatic Species, Non-Native Invasive Species, Soil Resources, Special Status Species, Vegetative Communities, Visual Resources, Water Resources, Wilderness Characteristics, Wildlife, Renewable Energy, Special Designations, and Subsistence.

There are several categories of cultural resources, including historic and prehistoric archaeological sites, Traditional Cultural Properties, and Native American Sacred Sites. The latter two may or may not have physical manifestations. No Traditional Cultural Properties or Sacred Sites are known in the planning area, nor were any identified during the scoping for this plan. Only those resource uses or programs that can directly or indirectly impact physical objects or arrangements of cultural and paleontological items will be analyzed in this EIS.

Surface and subsurface disturbances can directly and adversely impact archaeological and paleontological sites. Such disturbances can permanently disturb/destroy the fossils, artifacts, features, and architecture found at sites, or else destroy the spatial relationships among them. Any activity that alters or destroys the objects or spatial relationships in a cultural or paleontological site consequently destroys our ability to interpret and understand the past. A variety of resources, resource uses, or programs outlined in this plan have the potential to result in surface and subsurface-disturbing activities, and thus may directly and adversely impact cultural and paleontological sites, regardless of subunit and alternative considered. These include Fire Management, Minerals, Recreation, Travel Management, and Hazmat. Regardless of the actual

amount of acreage involved per subunit or alternative, the actions involved with these programs can and do directly disturb surface and subsurface sites in the following ways: firefighters building firebreaks with mechanized equipment or hand tools; drilling, testing, or open pits associated with mineral development, and the construction of roads to facilitate such actions; construction of trails, boat landings, and other recreational infrastructure; and cleaning up hazardous wastes at historic-era sites. In general, the potential for direct adverse impacts quantitatively increases from Alternative B, to Alternatives C and E, and then to Alternative D. The impacts in Alternative A vary per subunit, alternative, and program, but would generally be less than Alternative D.

Cultural and paleontological sites could be indirectly affected by programs, including Lands and Realty, Forestry, Minerals, Fire Management, and Travel Management, that allow or facilitate access of people onto the public lands; and in particular, to areas that have been previously isolated. One prime example is the construction of new access routes to previously isolated lands. These provide new avenues of access for users of the public land, such as recreation users and hunters. With more users accessing BLM-managed lands, there will likely be an increased number of people finding cultural and paleontological resources and adversely impacting them, either maliciously and intentionally, or else cumulatively and unintentionally. The potential for indirect adverse impacts for most subunits and alternatives increases from Alternative B, to Alternatives C and E, and then to Alternative D. The impacts in Alternative A vary per subunit, alternative, and program, but would generally be less than Alternative D.

4.3.1.3.1. Effects Common to All Alternatives

All undertakings occurring on BLM lands would be evaluated to identify their effects on cultural and paleontological resources, as well as the mitigation of adverse effects on significant sites, as prompted by current federal regulations. Minimally, Level I inventories (literature searches) would occur for all undertakings to assess the potential effects. Level III inventory (intensive on the ground survey) would occur when the potential for cultural resources are considered to be high or surface disturbance is likely. If new cultural resources are found and they cannot be avoided by the undertaking, they would be evaluated for significance, or eligibility to the National Register of Historic Places. A similar process for identifying and mitigating significant paleontological resources would also occur through consultation with experts in the field.

Effects from Lands and Realty

The authorization of new roads, trails, or ROWs, which would causally lead to surface-disturbing activities by other resource users or programs, have the potential to directly and adversely impact cultural and paleontological resources. In addition, there could be an indirect effect on surficial cultural resources; with the creation of new access routes, more people would have access to BLM-managed lands which were previously inaccessible. There would be an increased potential of more people finding surface cultural resources and potentially adversely impacting them, either intentionally or unintentionally.

Land disposal would result in such lands no longer having federal laws to protect any cultural or paleontological resources on them. If the transfer occurs to the State of Alaska, some measure of protection is assumed because the state has its own heritage resource laws. A programmatic agreement currently exists between the BLM and the State of Alaska regarding cultural resources and BLM's responsibilities under "Section 106" of the National Historic Preservation Act [54 USC 306108] ("Programmatic Agreement Under the National Historic Preservation Act for Land Transfers to the State of Alaska"). No such written agreement exists when dealing with the transfer

of lands to private entities such as Native corporations, Native villages, or individuals. Cultural resources become the property of the private entity, and can be used, or not, in whatever capacity at the discretion of the landowner. As a result, transfer of lands out of federal jurisdiction to private entities could result in direct and indirect impacts to cultural and paleontological resources.

In all subunits and under all action alternatives (B, C, D, and E), ANCSA 17(d)(1) withdrawals are recommended for revocation. Withdrawal revocation would have the effect of opening some lands to new locatable mineral entry and mineral leasing. Lifting current withdrawals would indirectly affect cultural and paleontological resources where new lands are opened to surface-disturbing activities (such as mining and road construction) which in turn would have the potential to directly and adversely affect surface and subsurface cultural and paleontological resources. The specific effects from withdrawal actions are discussed more fully under Locatable Minerals.

Effects from Wildland Fire Management

Wildland fire suppression and fuel reduction activities have the potential to directly and adversely affect cultural resources through consumption by fire of surface structures and artifacts made from combustible materials, to disturbance of sub-surface artifacts either directly from fire or else indirectly from resulting tree-throws, to direct disturbance or destruction of surface or subsurface cultural resources from wildland fire suppression activities (e.g., movement of mechanical equipment; creation of firelines down to mineral soil), or indirectly by creating easier access to previously isolated areas by the construction of firelines.

Effects from Hazmat and Abandoned Mine Lands

Hazardous materials are sometimes found at historical-era sites, and their cleanup could adversely affect cultural resources, especially if subsurface disturbance is required as in the case of soil contamination. Abandoned Mine Land sites, by definition, are cultural sites. Cleanup and/or addressing other safety concerns at such sites could adversely affect them, especially if subsurface disturbance is required.

Effects from Fluid Leasable Minerals

In terms of fluid leasable minerals (e.g., oil and gas), all lands are presently withdrawn and there are no existing leases. As a result, there are presently no effects to cultural and paleontological resources. Acreage is technically opened up to leasing in each of the action alternatives, increasing in amount from Alternative B, to E, to C, and then to Alternative D. However, leasing would not occur under any alternative without further NEPA analysis. Interest from industry is expected to be limited on even higher potential areas. If a nomination for a lease does occur, a new NEPA analysis of its impacts on cultural and paleontological resources would be performed at that time. Since it is assumed that no leasing, exploratory drilling, or development will occur during the life of this plan, there would be no effects to cultural and paleontological resources at this time under any of the alternatives in any subunit. Seismic exploration could occur on high potential lands in the Steese and Upper Black River subunits. This seismic exploration would have minimal to no impact to cultural or paleontological resources for any alternative because it would be conducted in the winter using low pressure vehicles.

Effects from Solid Leasable Minerals

In terms of solid leasable minerals (e.g., coal, potassium, sodium, phosphate), all lands are presently withdrawn and there are no existing leases. As a result, there are presently no effects

to cultural and paleontological resources. Acreage is opened up to leasing in each of the action alternatives, increasing in amount from Alternative B, to Alternatives C and E, to Alternative D. Interest from industry is expected to be limited because of low or no occurrence potential, and/or lack of economical access. Since it is assumed that no leasing would occur during the life of this plan, there would be no effects to cultural and paleontological resources under any of the alternatives in any subunit.

Effects from Salable Minerals

Mineral material sales (e.g., sand and gravel), as with all surface-disturbing activities, would have the potential to adversely impact all manner of cultural and paleontological resources. Acreage is closed to salable mineral extraction under each of the action alternatives It is estimated that no more than 200 additional acres of authorized disturbance on BLM lands would be required to meet in-house material demands over the next 20 years, regardless of the alternative selected. These sites would most likely be located near highways, roads, or existing BLM facilities. In sum, there is a potential to directly and adversely impact cultural and paleontological resources by this program, although the effects would likely be limited, due to the limited demand for mineral materials on BLM lands.

Effects from Forest and Woodland Products

Under Alternative A, there are presently relatively few restrictions on the use of timber and forest products in the planning area. All lands (6,523,000) are open to personal use of timber and forest products, to one degree or another, whether by locals or the general public. Commercial use of forest products is allowed everywhere excepting the Steese National Conservation Area and the White Mountains NRA. All lands are open to commercial timber sales excepting the Steese National Conservation Area and the White Mountains NRA; however, there has been no demand for these types of sales. Subsurface cultural and paleontological resources would not be affected by the harvesting of timber and forest products, provided standard stipulations about extraction methods are adhered to. However, there could be an indirect effect on surficial cultural resources; as more resource use permittees access BLM lands, there would be an increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

Personal use of forest products is open to all users throughout the planning area in all of the Alternatives, B through E. Otherwise, Alternatives B through E vary only by the amount of acreage opened up to each of the other general types of personal and commercial use (i.e., personal use and commercial use of timber, and commercial use of forest products). Similar to Alternative A, direct impacts to subsurface cultural and paleontological resources by opening up new acreage to forest and woodland products use, relative to Alternative A, would be limited by employing SOPs that stipulate non-ground disturbing extraction methods. Indirect effects upon surficial cultural resources may increase in Alternatives that allow increased acreage to be opened up to different uses. Similar to Alternative A, increased acreage can equate to increased numbers of users on the land, which can equate to increased potential for adversely affecting surface visible cultural resources. However, even in areas open to these uses, future commercial sales would be unlikely due to the lack of high-value timber in the planning area, and overall limited access.

4.3.1.3.2. Cumulative Effects

Cumulative impacts to cultural and paleontological resources can occur through incremental degradation of the overall resource base throughout the planning area from any of the sources of direct or indirect effects described in any of the Cultural and Paleontological Resources sections presented in this plan. Excepting especially rare or unique cultural site types or paleontological localities, the destruction of any one, two, or three, etc., sites of any particular age or functional type would not likely impact the overall, areal resource base, as there would likely be more of any similar type of site elsewhere in the planning area. However, cultural and paleontological resources are a non-renewable resource and the loss of any one of them is one less from a finite total. There would eventually be a point at which the cumulative overall destruction of sites would limit management options within any defined area, such as the planning area. Any resource, resource use, or program that has direct or indirect adverse effects to cultural resources contributes to this overall loss over time.

A second type of cumulative impact is that which can occur at any individual cultural site or paleontological locality. Many low-level, seemingly minor, impacts that may not be individually adverse to a site can slowly and cumulatively grow into a larger direct adverse effect over time. Examples of these types of activities include walking or camping within, through, or around sites and features. Each individual footstep upon old wooden structural architectural elements may not appear to have an impact upon the site, but quantify that same effect by dozens of separate visitors, and those same structural elements slowly get ground into dust. Likewise, the slow, accrued movement of stones that form parts of tent rings or hearths by repeated visitation will eventually obliterate such features, even if all the original stones are left on site. Similarly, visitors to sites often feel an urge to connect with the past by removing a piece of the site when they leave, like an artifact. Removal of a one, two, or three, etc., artifacts would not likely effect overall site interpretation. However, even if artifacts are not diagnostic or seemingly "important" to overall site interpretation, there would come a point, if enough artifacts are removed, when the cumulative removal of enough artifacts from a site would irreversibly affect any interpretations that can be made about that site. Any resource use or program that promotes increased use and visitation upon public lands may be inadvertently adversely impacting cultural and paleontological sites in this cumulative manner.

4.3.1.4. Fish and Aquatic Species

Methods of Analysis

Indicators: Indicators are used to identify the level of impact. For aquatic resources, fish, and Special Status Species, the indicators used include water quality, riparian vegetation, streambank stability, and stream miles open to locatable mineral entry.

Methods and Assumptions: Potential impacts on aquatic resources, fish, and special status fish from each Alternative are based on interdisciplinary team knowledge of the resources and the planning area and information gathered from the public during the planning process. Impacts were identified using best professional judgement and were assessed according to the following assumptions:

- Healthy riparian areas are critical for properly functioning aquatic ecosystems. Improvements or protection of riparian habitats would indirectly improve or protect aquatic habitats and

fisheries. Adverse impacts to riparian habitats would indirectly degrade aquatic habitats and fisheries;
- Emphasis and management opportunities for maintenance or improvement of fish habitat conditions would occur in designated Conservation and Restoration Watersheds;
- Not all of the anadromous streams or extent of anadromy has been documented within the planning area;
- The lifting of mineral withdrawals will result in an increased number of placer mining operations with the potential to adversely effect fish and aquatic resources;
- All BLM land use authorizations would incorporate appropriate project design, SOPs, and mitigation to not result in any adverse long-term (>20 years) trends for water quality and aquatic habitats at the watershed level (6th level HUC).
- Reconstructed stream channels will be designed by an individual(s) trained and qualified for the task and the channel will be built as designed.
- Reclamation techniques will use an "adaptive management" approach to address potential problems allowing for corrective actions should they become necessary. These techniques will ensure applicable performance standards and required conditions are met at the conclusion of operations.
- The timeframes associated with long- and short-term impacts assume that channel equilibrium is maintained.
- The reasonably foreseeable development scenario for small- and large-scale placer mines (BLM 2015) was used to estimate the number of stream miles that would be open to locatable minerals under each Alternative.

Summary of Effects

Fish and aquatic resources are at the top of a hierarchical framework (pyramid) of stream functions (Harman et al. 2012). Starting at the bottom and working up, these functions include hydrology, hydraulics, morphology, physiochemical, and finally biology (fish and aquatic life). Within this hierarchical framework, higher-level functions are supported by lower-level functions (Harman et al. 2012). For example, the biological component cannot function without the physiochemical function, and so on. Since this is a hierarchical framework, land use activities that diminish one or more of the lower level stream functions in the pyramid will adversely effect fish and aquatic resources. As such, the recovery of lower level functions is necessary to restore biological functions.

More specifically, fish and aquatic resources would be primarily affected by surface-disturbing activities which alter stream channels and floodplain connectivity, remove or impair riparian vegetation and function, or result in soil erosion and sedimentation to fish and aquatic habitat. These activities often include placer mining and road and trail construction that occur within or adjacent to riparian areas or waterbodies. Activities causing extensive stream channel alteration and riparian degradation (e.g., instream mining) will result in unavoidable short (5–10 years) and long-term (10–20 years) adverse impacts to fish and aquatic resources. Activities that disrupt stream channel equilibrium will initiate a series of channel adjustments (e.g., slope and sinuosity) which in turn can adversely impact aquatic resources both up and downstream of the activity. These impacts can persist for decades and may substantially increase the number of stream miles impacted far beyond the impact site.

The potential for and level of impact on fish and aquatic resources is dictated by the success and adequacy of protective measures such as maintaining riparian vegetation in proper functioning condition and application of mineral withdrawals, as well as SOPs and reclamation procedures.

The No Action Alternative (A) would provide the greatest protection to fish and aquatic resources within the planning area because all four subunits are currently closed to new locatable mineral entry.

Alternatives B, E, C, and D open increasingly more acres and stream miles for locatable mineral entry, respectively. Alternative D would have the greatest potential to impact fish and aquatic resources.

4.3.1.4.1. Effects Common to All Alternatives

Proposed management of the following resources/resource uses/programs would have no anticipated impacts to fish and aquatic habitats and will not be analyzed further: Air quality, Cave and Karst Resources, Cultural and Paleontological Resources, Special Status Species, Visual Resources, Renewable Energy, Social and Economic Conditions, and Subsistence.

Effects from Non-Native Invasive Species

Invasive species can adversely effect fish and aquatic resources through habitat change, predation, parasitic behavior, the introduction of disease, competition for food and space, and hybridization sometimes leading to the extinction of native species (Simberloff 2000).

Efforts in Alaska are mostly focused on the prevention of introductions, since much of the state remains unaffected by aquatic invasive species. However, numerous pathways exist in Alaska that could facilitate the introduction of aquatic invasives. These pathways include, but are not limited to, fish farms, intentional movement of species across basins, ship traffic and ballast water discharge, and sport angler gear contamination (Fay 2002). The establishment of introduced invasive species, given Alaska's climate, depend on the species origins. Global climate change may increase the susceptibility (Union of Concerned Scientists 2005) and likelihood of establishment. Several of the high threat species identified by Fay (2002) pose a risk to the aquatic environments and species within the planning area. These high threat species include the New Zealand mudsnail (*Potamopyrgus antipodarum*), zebra mussels (*Dreissena polymorpha*), and Whirling disease (*Myxobolus cerebralis*). Additionally, several aquatic invasive plant species, such as Japanese knotweed (*Polygonum cuspidatum*) and Eurasian water-milfoil (*Myriophyllum spicatum*), also could become established in the planning area and impact aquatic and riparian habitats.

The threat of non-native invasive species within the planning area is very real. In 2010, a substantial infestation of an invasive aquatic plant, *Elodea nuttalii*, was discovered in Chena Slough (Fairbanks area). This was the first time an invasive aquatic plant had been documented in Interior Alaska. It's thought to have been introduced by someone dumping aquarium water into Chena Slough. In other countries species of *Elodea* have "filled up" waterways with dense growths of plant material. *Elodea* adversely effects fish and fish habitat by displacing native flora and fauna, reducing stream flow, increasing sedimentation, and reducing recreational fishing opportunities. If *Elodea* continues to spread in Interior Alaska, it could have significant negative impacts on fish and aquatic resources within the planning area. Elodea is readily introduced and spread by boats, personal watercraft, and float planes. Local experts are currently working on plans to eradicate and stop the spread of Elodea in the Fairbanks area.

The costs associated with controlling invasive species is significant. For example, annual costs associated with Zebra mussels in the U.S. are estimated to be one billion dollars (Pimentel et al. 2005).

Considering the economic and cultural values of fisheries resources in Alaska, the costs associated with controlling aquatic invasive species would be substantial. Martinez et al. (2007) noted that the removal of invasive species may be an extremely expensive and time consuming endeavor that is not always successful. This underscores the importance of prevention in Alaska. Felt-soled wading products are being phased out state-wide in to help prevent the spread of aquatic invasive species. Actions such as Fire SOP, -1e, would reduce the spread of invasive species resulting from wildland fire suppression. The initial introduction of aquatic invasive species into the planning area would have adverse impacts at the local level; however as time progressed long-term, major adverse impacts would be expected as invasives spread across the planning area.

Effects from Soil, Water, and Vegetation Management

Fisheries and aquatic habitat would benefit from the proper management of soils, water, and vegetation. The implementation of numerous SOPs and Stipulations designed to protect soil, water, and vegetation on a project-specific basis would reduce disturbance to fish habitats and would aid in the recovery of aquatic habitat from permitted uses. Land use activities that degrade soil, water, and vegetation resources would be expected to reduce the quality and quantity of aquatic habitats and fisheries.

Effects from Lands Managed for Wilderness Characteristics

Lands that are maintained or managed for wilderness characteristics would be potentially beneficial to the fish and aquatic resources found there. Management restrictions (e.g., conditions of use or mitigation measures) which avoid or minimize impacts to wilderness characteristics would also be expected to benefit fish and aquatic resources by minimizing surface-disturbing activities and decreasing the recovery time from disturbance.

Effects from Wildland Fire Ecology and Management

Wildland fire effects which directly impact fish populations include increased siltation, altered water quality (dissolved oxygen, pH, suspended and dissolved solids, total hardness, turbidity), and water temperature changes. Indirectly, any alteration of the nutrient flow that adversely affects aquatic orgams or results in a reduction in emergent insect production would also affect fish populations, at least temporarily. Thawing of permafrost can lead to altered hydrology, which in turn influences hydraulics, morphology, physiochemical, and biological stream function.

Stream siltation is usually negligible from surface erosion on burned sites in Interior Alaska due to its gentle topographical features. Siltation may be a factor where severe burns occur on steep slopes or even shallow slopes with ice-rich active layers, where wildland fire has severely damaged riparian protection of a banks soil integrity or where heavy equipment is used in suppression activities. Lakes are also potentially vulnerable to wildland fire effects of nutrient concentrations, sedimentation, and erosion of riparian protected shorelines from wave and wind action.

Data on how wildland fire affects stream temperatures and productivity are currently inadequate to accurately assess the effects of wildland fire on anadromous or resident fish habitats. Much of the published work has focused on changes in lake systems (McEachern et al. 2000, St-Onge and Magnan 2000). Analyses of long-term fire effects on stream ecology are currently under way as part of Frostfire, a landscape-scale prescribed research burn in the boreal forest of Interior Alaska conducted in July 1999.

Fish populations have generally shown a positive response during the initial five-year period after wildland fire, where populations can migrate to and from critical habitat throughout the watershed (Gresswell 1999; Minshall et al. 1989).

Fish will generally re-invade burned areas rapidly where movement is not limited by barriers. These new colots generally come from areas upstream of the affected area, from surrounding watersheds and from main stem rivers where migration is not limited. Fish population recovery generally tracks the increase in primary and secondary production that occurs in the early post fire period. Where sediment is continually delivered into the stream, there could be short-term negative effects on the fish and macro-invertebrate communities.

Fuels projects are designed and implemented in a "non-emergency" manner that minimizes impacts to aquatic resources. Wildland fires may still occur in areas where hazardous fuel loads have been reduced, however these fires are typically less intense than crown fires. Severe fires can effectively "bake" the soil, reducing available nutrients to plants during the revegetation process and decreasing the soils ability to absorb water, which results in increased runoff and erosion. Low intensity surface fires are easier to control with lower-impact suppression methods (such as hand-built fire line) that are less likely to adversely affect aquatic resources. In contrast, the severe fires associated with heavier fuel loads often require suppression techniques likely to have greater adverse impacts to aquatic habitats and species.

Careful planning and implementation will minimize the adverse effects of fuels treatments. Some projects involve multiple treatments of the same area. Prescribed fires conducted in the spring (when drainage-bottoms are still snow covered) help to protect riparian vegetation and soils. The primary goal of these projects is to reduce the occurrence, risk, and impacts of wildland fires, not to restore the natural capacity of aquatic species to withstand the effects of natural fires. Removal of vegetation to reduce future fuel loading may be accomplished with minimal impacts in some areas, but in others, sensitivity to ground disturbance from loss of vegetation can cause increased erosion, compacted soils, and a loss of nutrients (USDA and DOI 2000, Beschta et al. 1995).

Impacts to fisheries from wildland fire and fuels management would be the same under all alternatives. Most of the planning area is in a Limited fire management option designation, which means that the standard response is to monitor wildland fires and only initiate suppression actions if necessary to protect identified values. If wildland fire suppression actions occur, effects to fish and fish habitat could occur from increased erosion and ground-based control (fire breaks), and alterations of water chemistry from aerial applications of fire retardant. Impacts from erosion would vary and could be minimized by rapid rehabilitation after the fire is under control, although improperly located bulldozer line firebreaks could greatly increase local stream sediment loads. The by-products of certain retardants exposed to direct sunlight that were used in the past have resulted in fish kills. To decrease the potential of affecting fish habitats and stream conditions, it is a standard operating procedure of the suppression agencies to avoid dropping retardant near or in waterbodies (SOP FM4).

Effects from Forest and Woodland Products Management

Forest harvest activity within the planning area generally consists of small-scale timber removal for personal use. The removal of trees within the riparian zone would reduce the natural source of large woody debris, reducing habitat complexity for fish. Removing trees within the riparian zone could also result in increased water temperatures and streambank erosion, both of which adversely affect fish and the aquatic habitat. Maintaining appropriately sized buffers (no tree cutting) along streams and riparian areas would greatly reduce impacts to fisheries and aquatic habitats.

The construction of temporary roads providing access to timber sales could increase the sediment supply to nearby streams and lakes. Migration barriers to fish may be created if road culverts are not properly designed, installed, and maintained. However, SOP FA-1 would minimize this effect. If access restrictions and forest SOP 1B (stream buffers) are applied, there would be no significant impacts to fisheries and aquatic habitat.

Effects from Minerals Management

Mining of placer gold deposits is projected to be the primary type of mineral development over the life of the plan. The following sections describe the specific effects of placer mining on fish and factors that influence the condition and quality of aquatic habitats, including channel stability and riparian vegetation.

Suction Dredging

Suction dredging, a type of placer mining, can have both beneficial and adverse effects on fish and aquatic habitat depending on the timing and location of the activity. It's assumed that suction dredging operations would occur under Notice level operations which requires a description of how reclamation will be performed to meet specific performance standards found in BLM's Surface Mining regulations, specifically, the rehabilitation of fish habitat (43 CFR 3809.420 (b)(3)(ii)(E)).

Suction dredging has been shown to locally reduce benthic (bottom dwelling) invertebrates (Thomas 1985; Harvey 1986), cause mortality to early life stages of fish due to entrainment by the dredging equipment (Griffith and Andrews 1981), destabilize spawning and incubation habitat, remove large roughness elements such as boulders and woody debris that are important for forming pool habitat and that can govern the location and deposition of spawning gravels (Harvey and Lisle 1998), increase suspended sediment, decrease the feeding efficiency of sight-feeding fish (Barrett et al. 1992), and reduce living space by depositing fine sediment (Harvey 1986).

Conversely, suction dredging may temporarily improve fish habitat by creating deep pools or by creating more living space by stacking large non-embedded substrate (Harvey and Lisle 1998). In dredged areas, invertebrates and periphyton are known to recolonize relatively rapidly, as long as the disturbance area is sufficiently limited to maintain populations of recolonizing organisms (Griffith and Andrews 1981; Thomas 1985; Harvey 1986). In addition, dredge tailings may increase spawning sites in streams lacking spawning gravel or streams that are armored by substrate too large to be moved by fish (Kondolf et al. 1991). In some cases, the reduction in the feeding efficiency of fish may be offset by reduced visibility and the corresponding reduced risk of predation at moderate levels of suspended sediment (Gregory 1993). It's been suggested that fish feed in the plume of turbid water immediately downstream of suction dredging operations presumably on aquatic insects that have been dislodged from the substrate. If so, that would be a temporary beneficial impact of this activity.

Conventional Mechanized Mining

Conventional mechanized placer mining involves the use of heavy equipment to access gold deposits. One method of mine development is to move the stream into a bypass channel, while the original stream channel is excavated for gold deposits. During this process the streambed, streambanks, and riparian vegetation are removed in order to access gold-bearing fluvial deposits which may extend to the bedrock. This method destroys the existing fish and aquatic habitat and eliminates all biological stream functions. During the reclamation phase of the operation,

the stream is either left in its bypass channel or returned to a newly built channel while the overburden and tailings are contoured to the surrounding topography. Reclamation of the mined area requires the rehabilitation of fisheries habitat as found in BLM's Surface Mining regulations (43 CFR 3809.420 (b)(3)(ii)(E)). Other common methods of mine development occur adjacent to, but outside of the stream channel. Impacts to fish and aquatic habitat can be severe and last for decades under the stream-altering bypass method, where mining outside of the stream channel with the use of an adequately sized stream buffer generally results in minimal impacts.

Stream bypasses and newly established stream channels are often built using generalized criteria with the intent of mimicking the natural pattern and profile of the pre-disturbed stream channel. Following reclamation, stream channels are left to adjust at the pace of natural fluvial processes Figure 4.1, "Stream Following Post-Mining Reclamation and Undergoing Natural Adjustments". During this adjustment period, the stream takes on a form dictated by the amount of runoff and sediment derived from the upstream catchment area. Over a period of time, inflow of sediment to the stream will equal the outflow and a state of equilibrium will be achieved. Once this balance is achieved, the stream is considered to be in a stable form (Leopold et al. 1992); however, this process can take decades or more to achieve after reclamation activities are concluded (Tidwell et al. 2000). An important factor in a stream's ability to achieve a stable state is the recovery of adjacent riparian vegetation (Yang 1996, Karle and Densmore 2001). A healthy and functioning riparian community (Figure 4.2, "Stream Demonstrating Stable Channel and Proper Functioning Condition") stabilizes streambanks and unconsolidated material within the floodplain, reducing the amount of sediment that enters the stream and that must be transported in order to achieve a stable state. In watersheds lacking channel stability and riparian function, sedimentation becomes a factor in the suitability of the habitat for fish.



This stream is undergoing natural adjustments to its form following post-mining reclamation (Fortymile Subunit, Uhler Creek, 2009)

Figure 4.1. Stream Following Post-Mining Reclamation and Undergoing Natural Adjustments



This stream demonstrates a stable channel and riparian community in proper functioning condition (Fortymile Subunit, Uhler Creek, 2009)

Figure 4.2. Stream Demonstrating Stable Channel and Proper Functioning Condition

Influence of Excess Sediment

In their natural environment, the survival of fish and other aquatic species depends upon many factors, including; availability of food, predator avoidance, immune system health, and reproduction. Although sediment is a natural part of the aquatic ecosystem, an increase in fine sediment as a result of ground disturbing activities and stream channel instability has the potential to adversely affect all of these factors. It can also create stressful conditions that could increase aquatic species' susceptibility to disease.

Sediment in streams deposited in spawning gravels can smother fish eggs and reduce the amount of intergravel space available for eggs, juvenile fish, and other orgams. This is especially critical in the winter months, when intergravel space is used as refugia and allows fish and other aquatic species to survive under severe flow and temperature conditions. At other times of the year these interstitial spaces act as a conduit providing developing fish eggs and larvae with cold, oxygen-rich water and larger juvenile fish with cover from predators and high velocity stream flows.

The filling of pools with sediment further limits overwintering and summer feeding sites for juvenile and adult fish (Meehan 1991). Aquatic habitat surveys conducted by the BLM on post-reclamation streams have found that streams often lack the diversity of habitats (pools, riffles, glides) and cover components (undercut bank, overhanging riparian vegetation, large woody debris) that are necessary for aquatic biodiversity and population recovery. Not surprisingly, the lack of habitat diversity has resulted in a reduction of fish densities within post-reclamation stream segments by twenty-six to eighty percent (Kretsinger and Lundeen 1995, Kretsinger 2006).

Direct effects of increased sediment loads on aquatic invertebrates include the loss of` habitat due to scouring of streambeds, displacement of individuals, smothering of benthic communities, loss of interstitial spaces between substrate particles, abrasion of respiratory surfaces, and interference

of food uptake for filter feeders (Beschta et al. 1995, Milner and Piorkowski 2004). Many of the macroinvertebrates that are favored as food by fish (e.g., mayflies, caddisflies and stoneflies) prefer coarse streambed substrates and are impacted by an increase of fine sediments.

Sediment pollution in the form of turbidity is one of the more common forms of pollution in Alaskan waters (Lloyd et al. 1987). It is known to affect freshwater fish in a variety of ways, including: decreased food availability (reduced primary and secondary production), reduced growth and survival, altered migration timing of salmon smolt, reduced feeding efficiency in sight-feeding species, stress, and avoidance (effects summarized in Lloyd et al. 1987). Many streams within the Interior of Alaska where conventional mining methods have been used experience short duration but chronically occurring episodes of elevated turbidity as a result of destabilized stream channels and sheet erosion. Turbidity commonly exceeds the state standard during periods of high flow and as a result of water control issues during active mining operations. Recent inspections of some mine sites noted turbidities levels that were 60 to 300 times greater than that of the state standard due to water control issues (BLM 2009b and 2009c). Elevated turbidity, as a result of placer mining, in the upper Birch Creek watershed led to its listing as an impaired water in 1992 (ADEC 2008). BLM continues to monitor turbidity in upper Birch Creek, and although water quality has generally improved, recent monitoring (2011) revealed turbidity levels exceeding ADEC standards due to upstream placer mining operations.

Riparian Vegetation

Riparian vegetation is directly related to the health and productivity of the aquatic environment. The removal of riparian vegetation results in the loss of a variety of functions normally provided by a healthy functioning riparian community. Many of these functions are related to the stability of the stream channel, but some of the functions are directly related to the maintenance of high quality habitat, as described in Chapter 2. Post-reclamation stream characteristics, which lack the stabilizing influence and other functions normally provided by a healthy and functional riparian community, are typically not suitable to species or life stages of fish and other aquatic orgams that occurred prior to disturbance. Some of the conditions normally encountered following reclamation are disconnected floodplains (further limiting the moisture available to plants); tall, vertical, and unstable streambanks as a result of stream channel incision (streambanks continue to erode and prevent vegetation from establishing); aggravated icing conditions (aufeis) due to the removal of riparian vegetation (which exposes the stream to wind scour and loss of the insulating properties of snow); and the altered stream channel geometry and surface - groundwater interaction. The loss or reduced quality of the habitat is expressed through changes in cover, energy (food) availability, and living space.

Passive reclamation techniques, which are the most commonly employed, rely on time and natural processes for recovery. This technique results in the prolonged recovery (decades) of riparian vegetation and riparian proper functioning condition. Since riparian vegetation is a mid-level function and biological communities (fish) are a top-level function within the stream function pyramid, fish communities experience similar recovery times (decades) under passive reclamation. Accelerated runoff from denuded areas and streams left in altered configurations can trigger headcutting of the streambed, which lowers the streambed and water table, disconnects and dries out the riparian vegetation, destabilizes streambanks, increases erosion, and further accelerates runoff and changes to channel pattern and profile. Unless stopped by some form of intervention or a hard geologic formation, headcutting may migrate upstream and further disrupt the hydrologic function of the stream system (Rosgen 1996).

Accelerated runoff may also result in water velocities that cause involuntary downstream displacement and mortality of juveniles, result in scour-related mortality of eggs and alevins, accelerate streambank erosion, and over the long-term, deplete large woody debris and organic material. The enlargement of stream channels may result in a shallow, braided channel, slow water environment during periods of low flow. This new environment can result in reduced pool size and crowding of fish, loss of spawning habitat, reduced primary and secondary productivity, increased vulnerability to predation, elevated water temperatures, and increased sedimentation (Swanston 1991; Hicks et al. 1991; National Research Council 1992; Strouder et al. 1997).

Rates of revegetation on sites disturbed by placer mining are quite variable and are influenced not only by the natural conditions that define the subarctic environment but the post-reclamation conditions as well. The subarctic environment is characterized by having a short growing season, low temperature, nutrient poor soils, and relatively low precipitation (Chapin et al. 2006), which all act to limit plant growth. These limiting conditions, coupled with post-reclamation conditions, can prolong riparian recovery. Additionally, aufeis, essentially the formation of a glacier within the active floodplain, can develop and persist into July in areas where stream channels have been altered (Figure 4.3, "Aufeis on a Post-Reclamation Stream Channel"). During the period of ice cover soil temperatures are maintained near freezing, effectively reducing the growing season by several weeks or longer.

Under more suitable conditions vegetation can recolonize vigorously within 10 to 15 years following reclamation, but may remain in non-functioning condition for decades if disconnected from the floodplain and subject to vertical, unstable banks (Figure 4.4, "Post-Reclamation Riparian Community Demonstrating Non-Functional Condition"; BLM unpublished mine site observations**).** Under less optimal conditions little or no vegetative cover has been established 50 or more years after the last episode of mining (Arnett 2005; Milner and Piorkowski 2004, Weber and Post 1985). In the absence of human intervention, the time required for riparian areas to attain proper functioning condition after major disturbances is dictated by natural processes and is commonly measured in decades rather than years (Tidwell et al. 2000, Arnett 2005, Viereck et al. 1993; Milner and Piorkowski 2004, BLM 1988a,b,c).

Most of the impacts associated with conventional methods of mining would be alleviated with the use of riparian buffers. Riparian buffers mitigate the potential loss or reduction of riparian resources and the associated fish and aquatic habitat by providing an area of undisturbed land between the natural channel and the mining operation. Fish and aquatic species benefit when stream buffers are used because desired aquatic habitat conditions (Chapter 2) are maintained. The use of buffers has been widely recognized as an effective way to maintain the riparian community in proper functioning condition, provide for a stable stream channel and retain the productive capacity of the natural stream environment (Figure 4.5, "Proper Functioning Riparian Community" (USDA and DOI 2000, Fischer et al. 2000). In 1989, the BLM recommended the use of buffers as a practical means for minimizing disturbance in their handbook "Placer Mining in Alaska, A Guide to Mitigation and Reclamation." In 2000, stream buffers were incorporated into an approved plan of operation (BLM 2000) and most recently, the BLM adopted the use of stream buffers in the Kobuk-Seward Peninsula Management Plan (BLM 2008d).

In summary, placer mining can negatively effect fish and aquatic resources by degrading or eliminating aquatic habitat; reducing available food sources and water quality; reducing available pool habitat; eliminating riparian vegetation and function; creating sparsely vegetated valleys and floodplains with slow rates of natural revegetation and unstable stream channels with highly

erodable beds and banks; altering the longitudinal slope, geometry, and sediment transport rates in streams; and creating undersized or absent floodplains.



This post-reclamation stream has aufeis in mid-June (Steese subunit, 2009)

Figure 4.3. Aufeis on a Post-Reclamation Stream Channel



This post-reclamation riparian community demonstrates vigorous growth 10 to 15 years following reclamation, but remains in non-functioning condition due to the disconnected floodplain and vertical, unstable banks (Steese subunit, 2009).

Figure 4.4. Post-Reclamation Riparian Community Demonstrating Non-Functional Condition

The Effect of Proposed Management Actions in RCAs and ACECs

Over the range of action alternatives, from zero to fourteen percent of the stream miles opened to locatable minerals would fall within watersheds containing ACECs (that meet the relevance and important criteria for fish and aquatic resources) or RCAs. The requirements listed in management of watersheds (Chapter 2, Fish and Aquatic Species) apply in RCAs and ACECs. In addition to these requirements and to meet the management goals in RCAs (Chapter 2, Fish and Aquatic Species Watersheds), the collection of stream-specific baseline hydrological data, active revegetation, and streambank stabilization techniques would be required for actions proposing to alter stream channels (e.g., placer mining). These additional requirements within RCAs and ACECs would improve the chance of obtaining desired future conditions for aquatic habitats within the specified timeframe (less than five years).

A range of success would be expected based on several factors. These factors include the technique used for baseline data collection and the method of stream channel design, the reclamation measures specified for a particular operation, the characteristics of a particular watershed, the quality and quantity of growth medium available for vegetation, and the probability of experiencing a flood that exceeds the capability of the stream channel prior to the establishment of riparian vegetation capable of resisting flood flows. The timeframes listed below for the recovery of desired habitat conditions are a "best guess" situation. That's because we are unaware of any examples where a management prescription like the one required under this scenario was implemented on a placer mined stream in Interior Alaska.

Assuming that baseline data is collected and reclamation is designed using the best available techniques such as those outlined in the Natural Resources Conservation Service's (NRCS, 2007a) *Stream Restoration Design, National Engineering Handbook, Part 654* and all of the factors previously mentioned are favorable, instream habitats may achieve desired future conditions within a short (5 years) time frame. If so, impacts would be considered minor and short-term. However, stream channel design/reconstruction and aquatic habitat rehabilitation is very complex and even more so within the planning area due to the harsh environmental conditions (short growing season, aufeis, etc). Recognizing this complexity, a more realistic outcome may be a strong positive trend toward the desired habitat conditions within five to ten years under this management scenario. It would be essential that reclamation plans incorporate stream channel design based on channel forming discharge (typically 1.5 year recurrence interval) and the floodplain be capable of transporting 100-year flood flows. This would minimize the chance of reclamation failure and partially fulfill the requirements of executive orders 11988 (floodplain management) and 11990 (wetland protection) to restore floodplain and wetland function.



This stream has a proper functioning riparian community providing a diverse composition of aquatic habitat features. (Upper Black River Subunit, 2009)

Figure 4.5. Proper Functioning Riparian Community

Effect of Proposed Management Actions Outside of RCAs

Over the range of action alternatives, from eighty-seven to one-hundred percent of the stream miles open to locatable minerals would not be within RCAs or ACECs (that meet the relevance and important criteria for fish and aquatic resources). The requirements for stream channel design and reconstruction are less stringent in areas outside of RCAs and ACECs (Chapter 2 - Fish and Aquatic Species Watersheds). For example, if stream specific baseline data is not available or easily obtained, more generalized data may be used for designing the reconstructed channel. Also, either the use of active revegetation or anchored rocks/logs to stabilize streambanks, prevent erosion, etc., may be required, but not necessarily both.

A range of success would be expected based on several factors. These factors include the thoroughness of the techniques used for baseline data collection and stream channel design, reclamation measures specified for a particular operation, the characteristics of a particular watershed, the success of restoring stream and riparian functions, and the probability of experiencing a flood that exceeds the design capability. The timeframes listed below for the recovery of desired habitat conditions are a "best guess" situation. That's because we are unaware of any examples where a management prescription like the one required under this scenario was implemented on a placer mined stream in Interior Alaska.

On one end of the spectrum, if the basic steps in alluvial channel design are strictly adhered to (Chapter 2, Fish and Aquatic Species Watersheds and NRCS, 2007a), the morphological characteristics used to design the channel closely resembled those of the pre-disturbed channel, and all of the previously mentioned factors are favorable, a strong trend toward or possibly achieving desired habitat conditions may occur in 10 years. If so, impacts to fish and aquatic resources would be moderate and considered longer than short term, but not long term. Again, realizing the complexity of stream channel design/reconstruction and aquatic habitat

rehabilitation, a more realistic outcome from this level of reclamation would be a positive trend toward the desired habitat conditions in no less than 10 years and may take 20 years or longer. Impacts to fish and aquatic resources under that scenario would be considered moderate to high and long term. This outcome assumes that reclamation plans provide for the proper design and construction of the stream channel and floodplain to ensure floodplain connectivity is maintained.

If reclamation measures similar to those used in the past are employed (see measures previously described under Conventional Mechanized Mining) in conjunction with the application of common bio-engineering techniques (e.g., willow plugs) it is anticipated that unstable channel conditions would persist beyond 20 years dependant on the energy gradient of the system. The outcome of reclamation efforts would likely reflect that of natural succession (Viereck et al. 1993, Chapin et al. 2006) with an overall progression toward later successional stages interspersed by setbacks to earlier stages. The gradual progression over time would lead to the development of desired fish and aquatic habitat conditions but this is not likely to occur within the life of this plan.

Currently there are 33 mines working under an approved Plan of Operations within the planning area. These operations would not fall under the management requirements discussed above unless their current authorization expired or until a substantive modification of an existing Plan of Operations was proposed. Impacts to fish and aquatic habitat by placer mines operating under an existing authorization are projected to be similar to impacts commonly observed from past placer operations as discussed previously.

Effects to Aquatic Special Status Species

Four BLM Sensitive aquatic species are known to occur within or adjacent to the planning area. Effects to these species from mineral development/management would be similar those described above for fish and aquatic resources. Specific effects cannot be estimated due to limited information on the distribution of these species.

The Alaskan Brook Lamprey *Lampetra alaskensis* has been found in the Chatanika and Chena rivers, within the Steese Subunit, but are not yet known to occur on BLM-managed lands. Spawning activity and early life stages (the first four years of life) of the Alaskan Brook Lamprey may be especially vulnerable to disturbance from suction dredging and placer mining.

The Alaska Sallfly *Alaskaperla ovibovis* is a rare species of stonefly known to occur in the West Fork Dennison Fork of Fortymile River, within the Fortymile Subunit.

The Alaskan endemic mayfly *Rithrogena ingali* is known from only a single specimen collected on Birch Creek, within the Steese Subunit. Since it is only identified using characteristics of adults (which are not often collected) it likely occurs more widely.

The mayfly *Acentrella feropagu* has been found very near the northern boundary of the planning area, but has not been documented within the planning area.

Effects from Salable Minerals

Demand for gravel, rip-rap and other salable minerals is expected to increase slightly during the life of the plan. Currently, there are 11 active or pending material sites, totaling approximately 160 acres of authorized disturbance within the planning area. It is assumed that no more than 200 acres of authorized disturbance on BLM-managed lands would be required to meet material demands over the next 20 years, with the acreage split fairly equally between the Fortymile and White Mountains Subunits (Chapter 4, Assumptions for Analysis). There are no known

adverse effects from salable minerals on fisheries and aquatic habitat within the planning area at the current time and none are anticipated.

Effects from Recreation and Travel Management

Recreation use within the planning area is expected to increase over the life of the plan, and the impacts to fisheries and aquatic habitat from recreation may also increase. Impacts to fish and aquatic habitat generally increase with increasing levels of OHV use especially in areas open to off-trail use. Without adequate enforcement, off-trail use may continue and will likely increase given the general increase in OHV use, even in areas that are restricted to designated trails. user-created trail proliferation, with no guidance for proper construction and placement of new trails, can result in increased erosion and sediment impacts.

Potential impacts to fisheries and aquatic habitats from OHV use would result from disturbance to riparian habitats and streambanks. The loss of riparian vegetation and subsequent bank erosion lead to increased stream sedimentation resulting in diminished water quality. Increased sedimentation in streams could affect fisheries in a variety of ways, including direct mortality, reduction in suitable spawning gravels, reduction in summer and winter rearing habitat, suffocation and mortality of eggs, and displacement of individual fish.

Where trails cross streams, soil and vegetation may be altered or destroyed resulting in unstable and eroding streambanks. The impacts to fisheries and aquatic habitat can be minimized if vehicle stream crossings are made at stable sections of the stream (rocky or gravel soils) and crossed as close as possible to a 90 degree angle in shallow riffle areas (SOP Water 5c). Crossing of anadromous streams or rivers with a vehicle requires a fish habitat (Title 16) permit from the ADF&G online at http://www.habitat.adfg.alaska.gov/fhpermits.php. Temporary campsites or development of trails can also lead to the trampling of streambanks and the associated loss of vegetation and streambank erosion. In addition, trails should not be routed or constructed so as to collect and carry overland runoff and sediment to streams.

Aside from placer mining, road maintenance and development poses the second greatest threat to fish and aquatic habitat. Disturbance of soil and rock during road construction creates a significant potential for erosion and sedimentation of nearby streams. Roads greatly increase the frequency of landslides, debris flow, and other mass movement. Culverts, if not designed and maintained properly, often create migration barriers to fish resulting in a loss of habitat. Road construction is a major ground disturbing activity with potential long-term impacts to fish and aquatic resources.

With an increase in recreational use, typical pollutants such as soaps, human waste, and fuels also increase. These pollutants can be introduced into the aquatic environment from accidental spills or when used in close proximity to streams and lakes.

4.3.1.4.2. Cumulative Effects

Cumulative Effects from Climate Change

The Eastern Interior of Alaska is projected to become warmer and drier over the next century. Field data collected in several streams by the BLM within the planning area suggests that water temperatures exceed the State of Alaska water quality threshold for freshwater fish (18 AAC 70.015) (BLM unpublished data, 2009) due to residual impacts from placer mining. Within stream systems exhibiting altered geomorphology and reduced riparian cover, water temperatures may limit fish distribution. Increased water temperature from climate change could further limit fish distribution seasonally, especially within altered stream systems.

Cumulative effects from Locatable Mineral Entry

The BLM is responsible for managing twenty-one percent of the land (6.5 million acres) within the planning area. Within BLM-managed portions are approximately 11,000 miles of streams, 400 miles of which are anadromous representing twenty-one percent and fourteen percent of the total stream and anadromous miles within the planning area, respectively. Consequently, the impacts from activities managed under the action alternatives could play a distinctive role in the cumulative effects occurring within the analysis area. Given the protective measures incorporated into the action alternatives, activities that occur on non-BLM lands, such as placer mining on state-managed lands, have more potential to impact fish and aquatic resources at the planning area scale than lands administered by the BLM.

Stream altering activities in some watersheds within the planning area, such as the Birch Creek watershed, have reduced the available fish habitat and have caused a downward trend in local fish populations (BLM 1988a). This is due at least partly to the adverse cumulative effects that have occurred from past activities. Ongoing activities or adverse conditions that remain in such watersheds may remain for the life of this plan (20 years) due to the decadal time scale of recovery (Tidwell et al. 2000). The intent of the reclamation standards and procedures laid out in the fisheries section is to reduce and or shorten the adverse impacts to fish and aquatic habitat from the effects of placer mining and to reverse this downward trend.

Locatable mineral development has occurred within the planning area and will continue into the future. Stream altering activities will continue to be a potential threat to fish and aquatic resources within the planning area. Fish and aquatic habitat open to locatable minerals are at risk of being lost or degraded during both the short- and long-term. The proposed requirements for stream channel reconstruction combined with other improved reclamation techniques are an attempt to minimize impacts and result in a strong positive trend toward desired habitat conditions within 5 to 10 years in RCAs and ACECs and within 10 to 20 years in all other watersheds, while still allowing for mining. When riparian zones remain in properly functioning condition the fish and aquatic habitat will likely remain in natural and desired conditions. If placer mining continues to occur and in conjunction with current reclamation practices, then fish and aquatic resources will likely continue a downward trend (Arnette 2005, Tidwell et al. 2000, BLM 1988b).

Two large-scale lode mines may be developed within the planning area on state or private land within the life of this plan. One lode mine is known as “Money Knob” and is located near the town of Livengood which is on the western edge of the White Mountains Subunit. It is assumed that ore at “Money Knob” will be extracted using a heap leach facility with the use of sodium-cyanide. This method of mining can have long-term environmental consequences. Water

from precipitation or surface flow can become contaminated when it comes in contact with mining wastes, including waste rock and tailings. Effluent water that contains mineral processing chemicals such as cyanide may also leak from leach pads, well seals and pipes. The result of contaminated effluent water leaking into nearby waterbodies at mine sites in Colorado, South Dakota, Idaho, and New Mexico varies from reductions in viable fish populations to streams that no longer support aquatic life (Roth 2006). The other lode mine is located 35 miles northwest of the town of Chicken in the Fortymile Subunit. It is anticipated that this mine will use flotation techniques in indoor storage bins for ore processing.

Currently, there are approximately 742 valid federal mining claims containing approximately 190 miles of stream which have been mined or have the potential to be mined within the planning area. In addition to the federal mining claims, there are approximately 15,000 state mining claims within the planning area. The number of acres and stream miles affected by state mining claims is not currently available. Impacts on state claims would be additive to the effects from federal claims.

The action alternatives recommend opening 1,400 to 7,900 additional miles of stream to locatable mineral entry. This represents an eighty-eight to ninety-eight percent increase above the number of stream miles within current valid federal claims managed by the BLM (Table 4.7, "Stream Miles and Acres Open to Locatable Mineral Entry, All Subunits"). This is not to say mining is likely to occur on all of those stream miles, but those stream miles would be open to locatable mineral entry (see Locatable Minerals assumptions). Given the substantial increase in acres and stream miles open to locatable mineral entry in this RMP, combined with the recent and significant increase in gold prices, the potential cumulative adverse impacts from placer mining on state and federal claims during the life of this plan could be significant and result in: 1) short- and long-term effects, 2) local and regional reductions in fish and aquatic species, 3) potential reduction in species diversity, and 4) a continued downward trend of both quality and quantity of fish and aquatic resources within the planning area. Improved reclamation techniques, the application of SOPs and BMPs, and the maintenance of riparian vegetation and function would reduce impacts to fish and aquatic resources, but is not likely to reverse the downward trend.

There exists a wide range of potential disturbance to fish and aquatic resources from locatable mineral entry, as shown in Table 4.7 below. In Alternative E (Proposed RMP), all RCAs would be closed to locatables and therefore the highest valued fisheries and riparian resources would likely remain intact during the life of this plan. The more stringent reclamation requirements for RCAs would only apply to valid existing claims that fell within the proposed RCAs. Of the 570 stream miles within RCAs open to locatables in Alternative C, 560 (ninety-eight percent) occur in the Upper Black River subunit. In Alternative E, approximately 26 percent of the total stream miles managed by BLM within the planning area would be open to locatables. Those stream miles (2,876) would be subject to the less stringent requirements for reclamation, as compared to reclamation requirements in RCAs and ACECs. It may take twice as long (twenty years) to achieve desired habitat conditions in non-RCA streams. If the reclamation requirements for RCAs and ACECs were applied to all streams, desired habitat conditions may be achieved in 10 rather than 20 years after mining disturbance. Under Alternative E there would be approximately 1,500 miles of stream open to locatable mineral entry within moderate to high mineral potential areas. Potential adverse impacts to fish and aquatic resources would be the least in Alternative A, progressively increase from Alternative B, E, and C, and be the greatest in Alternative D.

Table 4.7. Stream Miles and Acres Open to Locatable Mineral Entry, All Subunits

ALL FOUR SUBUNITS (BLM-managed Lands)	Alternatives				
	A	**B**	**C**	**D**	**E**
Stream miles	11,000	11,000	11,000	11,000	11,000
Stream miles open to locatables (proposed)	0	1,400	6,500	7,900	2,876
Stream miles open to locatables (proposed) plus miles within current valid federal claims	190	1,600	6,700	8,000	3,066
Stream miles within RCAs in areas open to locatables (proposed)	N/A	20	570	420	0
Stream miles outside RCAs in areas open to locatables (proposed)	181	1,400	6,000	7,500	2,986
Acres open to locatables (proposed)	0	834,000	3.9 million	4.8 million	1.7 million
Acres open to locatables (proposed) plus acres within current valid federal claims	21,000	855,000	3.9 million	4.8 million	1.7 million
Anticipated stream gravel disturbance by suction dredging during life of plan measured in cubic yards	280,000	440,000	920,000	1.2 million	440,000
Potential impacts to fish and aquatic habitat (1–5, 5 = greatest)	**1**	**2**	**4**	**5**	**3**

Cumulative effects from Travel Management

Demand for both legal and physical access from all users will increase during the life of the plan. Demand for roads and transportation rights-of-way on BLM-managed lands will increase slightly during the life of the plan. Road development is contingent upon the economic viability of resource development, primarily minerals, and the needs of the State to plan and carry out transportation access in Interior Alaska. The action alternatives in this RMP recommend lifting the current locatable mineral withdrawals on approximately one to five million acres, which could increase the need for road development for access to new mining claims. OHV use within the planning area is also increasing and the impacts to fisheries and aquatic habitat from OHV trails or cross-country use may also increase. Cumulative impacts from travel management within the planning area have the potential for long-term effects on fish and aquatic resources. The intensity of those impacts vary depending on the location of roads and trails in relation to streams and waterbodies as well as slope, aspect, soil type, and the method in which they are constructed. With the proper use of mitigating measures, SOPs, and best management practices, impacts could be greatly reduced.

Cumulative effects from Activities Outside of the Planning area

Fish populations are not restricted by land ownership or planning area boundaries. Many resident species migrate upstream and downstream annually and throughout their life cycles using aquatic habitat independent of land ownership. Anadromous fish migrate to the ocean as smolts (juveniles) and return years later as adults. Anadromous fish within the planning area migrate well over one thousand miles by the time they return as spawning adults crossing numerous managerial boundaries and varying environmental conditions. Fluctuating ocean conditions, harvest pressure, predation, and disease occurring outside of the planning area are significant factors effecting anadromous fish populations.

Other effects of activities in the planning area could include loss of fish habitat or reduction in habitat quality associated with oil and gas related development, invasive species, recreation, forest management, and realty actions.

4.3.1.5. Non-Native Invasive Species

Summary of Effects

Non-native invasive species (invasive species), which includes plants, animals and pathogens, have resulted in costly environmental and economic impacts throughout North America. Impacts to vegetative communities and fish and wildlife species outside of Alaska include alteration of habitat and riparian function, changes to fire regimes, and competition for resources. Climate and a minimum of roads and other disturbances, such as agriculture, have delayed the introduction and spread of nonnative invasive plants (invasive plants) in Alaska in the past (Carlson and Shepard 2007). Over the past decade of inventory and monitoring the number and distribution of invasive plants has increased, in some areas of the state by a factor of two or more (AKEPIC 2009 http://akweeds.uaa.alaska.edu/). Only some of the increase in species detected is due to increased emphasis on inventory of invasive plants. The emphasis of this analysis is on invasive plants rather than all invasive species.

Any disturbances on the landscape, whether natural, such as wildland fire and flooding events, or human caused, such as right-of-way or trail development, provide an opportunity for invasive plants to become established (Carlson et al. 2008). Pathways for spread often accompany the disturbance. Equipment, watercraft, vehicles and gear used for suppression of wildland fires or land uses, such as mining and recreation, may harbor seeds of invasive plants, which become dislodged at the site of activity.

Invasive animals and pathogens are emerging as a new concern on public lands. Pathways for introduction are often the same for invasive plants, animals and pathogens. Prevention practices, early detection and rapid response, and outreach and education are the best defense against invasive species. Most impacts analyzed in this chapter will be from resources and resource use on invasive plants.

Over the life of the plan, nonnative invasive species are expected to expand at an increasing rate in Alaska, altering plant communities, impacting fish and wildlife habitat, introducing competition for resources and even increasing predation. Climate change predictions, including longer frost-free seasons and thawing of permafrost, indicate that conditions could accelerate and favor the ability of invasive species to become established (Rupp and Springsteen 2009b). Infestations would continue to be concentrated around disturbances and areas of use, such as trails, recreation sites, roads, mines, and other developments but some invasive plants are becoming adapted as understory plants. Timely reclamation using desired native plant materials could be used to diminish the potential for non-native invasive plant species to become established at disturbed sites.

Alternative B would yield the lowest potential for introduction or spread of existing populations of invasive plants. Management under Alternative D would yield the highest potential for introduction or spread of existing populations of invasive plant due to potential for the most ground disturbing activity. Severity of impacts would vary by subunit. Indicators used for impact analysis for invasive plant are the potential for increases or decreases in new non-native plant populations and density and extent of existing populations.

4.3.1.5.1. Effects Common to All Alternatives

Proposed management of the following resources, resource uses and programs would have no negative impacts to invasive species management and will not be analyzed further: Air and Atmospheric Values, Cave and Karst Resources, Cultural and Paleontological Resources, Fish and Aquatic Species, Soil Resources, Special Status Species, Vegetative Communities, Visual Resources, Water Resources, Wilderness Characteristics, and Wildlife. Decisions to protect resources, particularly fish, wildlife, Special Status Species, Wilderness Characteristics and vegetation would benefit management of invasive species by maintaining intact and undisturbed habitats and through stipulations to mitigate impacts from land use actions and maintain the function of these systems. Special designations (ACEC or WSR) would have positive impacts on invasive species management, furthering prevention of their introduction and spread.

Effects from Wildland Fire Ecology and Management

Invasive species, particularly invasive plants, could be introduced within the planning area as a result of fire suppression activities. Over the life of the RMP, fire management options on BLM-managed lands in the planning area would probably remain in suppression categories that limit on-the-ground response. Limited activity would eliminate much of the use of fire suppression personnel, helipads, vehicles, equipment, and dozer lines, thereby reducing potential for suppression related introductions of invasive plants.

Burned areas provide ideal disturbance for invasive plants to become established. Even with limited suppression activity, invasive plants could spread into burned areas from adjacent infestations or through unintentional introduction from other uses, such as trail and cross-country OHV use.

Migation designed to reduce impacts of wildland fire suppression activities that would directly introduce or create favorable conditions for invasive plants would include cleaning of equipment, limitations on the use of dozer lines and off-road vehicles, rehabilitation of lines by replacing duff and soil, and use of weed free native plant materials when stabilizing, seeding, or planting. Timely early detection and rapid response (EDRR) efforts in and adjacent to burn areas would be used to reduce impacts.

Forest and Woodland Products

Invasive species, particularly invasive plants, could be introduced within the planning area as a result of fire suppression activities. Over the life of the RMP, fire management options on BLM-managed lands in the planning area would probably remain in suppression categories that limit on-the-ground response. Limited activity would eliminate much of the use of fire suppression personnel, helipads, vehicles, equipment, and dozer lines, thereby reducing potential for suppression related introductions of invasive plants.

Any disturbances caused by commercial or other authorized harvest of timber and forest products could contribute to the introduction and spread of invasive plants. A NEPA process, usually an environmental assessment (EA), would be conducted for commercial harvest activities. Adverse consequences from invasive plants due to these activities would be analyzed and appropriate stipulations applied to the permit to mitigate impacts. Free-use permits would be issued under a categorical exclusion to which special conditions would be applied. Although the area available for commercial uses varies among the subunits and alternatives, impacts to invasive species would be expected to be minor and successfully mitigated through permit stipulations.

Land and Realty Actions

Realty actions, such as rights-of-way, that result in the disturbance or removal of vegetation create ideal opportunities for invasive plants to become established. Overland access to the disturbance creates a pathway for introduction of invasive plants from infested sites along highways. Equipment used for construction and maintenance could harbor seed or other invasive species that could be dislodged and become established along access routes and at the disturbance. Designating utility and right-of-way corridors and avoidance areas, and locating new rights-of-way near existing rights-of-way, or on already disturbed areas whenever possible, would significantly reduce the potential for introduction and spread of invasive plants across the landscape. Land use authorizations would also be analyzed on a project-specific basis, providing the opportunity to mitigate impacts through permit stipulations.

Introduction and spread of invasive plants could also occur in construction, maintenance, and reclamation projects where gravel, fill, and other materials are moved from a source area to public lands. Stipulations to authorized activities are and would be used to mitigate these methods of spread. A weed-free gravel (WFG) certification program was developed in 2012 in Alaska. BLM would require the use of WFG when practicable for permitted activities using gravel and other fill materials.

Invasive species such as insects, pathogens, and other pests are often introduced as hitchhikers on vehicles, gear, and plant materials used in land use actions. The danger of invasive species becoming established would be compounded if vehicles, equipment, and gear used for these kinds of actions come from outside the region and state. Even though cleaning vehicles and equipment before it is transferred to public lands would reduce the potential for introduction of invasive species, opportunities to stipulate vehicle washing in permitted activities would be limited due to distances from urban areas and the expense of remote washing stations.

Minerals

In general development of minerals would create disturbances, including pads, infrastructure, and roads, that would provide suitable areas for invasive plants to exploit. Oil and gas activities would be expected to be limited to seismic exploration in the Steese or Upper Black River subunits.

Recreation

Any recreational activity has the potential for introducing and spreading nonnative invasive species. Recreational visitors often travel to the planning area from other parts of the state and country. Tents, footwear, packs, canoes, boats, and other gear would harbor seeds and invertebrates that would then be dislodged and become established in new areas.

Invasive plants are commonly introduced through use of contaminated hay and straw products. Travel by dog team and horse occurs in the planning area. Invasive plants were found growing in straw debris at cabins accessed with dog teams in the White Mountains (Musitano unpublished, 2002) and at sites along the Dalton Highway where horses were fed hay (Pers. Comm. Gronquist 2010).

Authorized use of dog teams on BLM-managed lands, such as commercial recreational tours or sponsored sled dog races, would require the use of weed free or local straw. However, most use of dog teams on public land is recreational and would not be administered under a permit. Authorized use of pack animals for guided hunting or other commercial use on BLM-managed

land would require the use of weed-free pellets and hay prior to and during use of BLM public lands. Non-commercial use of pack animals could occur on BLM-managed lands and outreach and education would help reduce impacts.

Boats powered either by inboard or outboard motors, and non-motorized boats can harbor non-native invasive plant and animal species. Boats are often brought onto public lands in Alaska from other regions of Canada and the U.S. by recreational users. The risk of introduction and spread from watercraft would be substantial given the aquatic invasive species prevalent in the contiguous U.S. and Canada.

Outreach and public awareness efforts (brochures, interpretive and educational information, site regulations, the BLM website) would be developed to help prevent unintentional introductions of invasive species. "Tread Lightly" and "Leave No Trace" practices promoted on BLM-managed lands would reduce impacts of recreation on the landscape, which would reduce removal or trampling of vegetation and diminish opportunities for invasive species to become established. Developed sites such as campgrounds, trails and public use cabins would concentrate use and reduce the overall footprint from recreational activity and consolidate the impact to invasive species management in a more confined area. Special recreation uses would be analyzed on a project-specific basis and permits would include stipulations to mitigate impacts to invasive species as appropriate.

Renewable Energy

Only small-scale renewable energy projects, and few of those, would be anticipated in the planning area. Impacts to invasive species would be similar to those for realty actions and would be mitigated by stipulations attached project-specific permits.

Travel Management

Invasive plant infestations often follow transportation routes, including highways and trails. Roadsides and trails are prime habitat for invasive plant species and vehicles, including OHVs, are prime vectors for the introduction and spread of invasive plants along roads and trails. Vehicles import (and export) invasive plant seeds, often introducing previously unrecorded species. Any disturbance or use, including non-motorized, could contribute to introduction and spread of invasive plants in the planning area.

Seeds of non-native plants can be imported or spread into an area if they become attached to OHVs. Tests conducted by Trunkle and Fay (1991) demonstrate that seeds embedded in tires of four-wheel drive vehicles can be carried and deposited long distances from infested site. In their study, eight percent of the original number of seeds was still attached after the vehicle had driven ten miles. Continued heavy use of OHVs in an area and development or pioneering of new trails could reduce vegetation cover and expose soil, providing ideal conditions for invasive plants to become established (Gelbard and Belnap 2003; Christen and Matlack 2006).

Aircraft use in the planning area would be generally unrestricted (with provision as described in travel management sections). The exception would be within Primitive Zones in the Steese and White Mountain Subunits. Aircraft on wheels, skis and floats would contribute to the spread of invasive plants when taking off from strips, ponds and lakes that are infested with invasive plants. Seeds and plant propagates could be harbored on landing gear, struts and other parts of planes and then dropped at landing strips, ponds or lakes (Johnstone et al. 1985).

Motorized boat use would generally be allowed in the action alternatives for all subunits. Aquatic nonnative invasive species embedded in and on motors could be introduced to waterways within the subunits and readily move to areas outside the subunits along currents. The nonnative invasive aquatic plants purple loosestrife, *Elodea nuttallii* and *Elodea canadensis* are known to occur in Alaska and are most likely to be introduced by motorboats. Visitors to the state who bring motorized boats from other parts of the continent could cause introduction of other pests, such as zebra mussel, into BLM-managed areas open to motorized boat use. EDRR, outreach and education would be the tools that best mitigate introduction and spread of invasive species.

4.3.1.5.2. Cumulative Effects

Past, present and reasonably foreseeable actions that are relevant to invasive species management include climate change, wildland fire frequency, severity, use and suppression, fuel treatments, mineral management, population growth, recreation use, OHV use, realty actions, and invasive species management efforts. The impacts expected to occur due to invasive species infestations include loss of plant diversity, fish and wildlife habitat, soil integrity, and reduced ecosystem function. Climate change predictions, including longer frost-free seasons and thawing of permafrost, indicate that conditions may accelerate the ability of invasive species to become established (Rupp and Springsteen 2009b).

Regional approaches to management of invasive species, particularly invasive plants, through statewide efforts of the Alaska Committee for Noxious and Invasive Plants Management, the Alaska Invasive Species Working Group and Cooperative Weed Management Areas have been and will continue to be the most effective means of reducing cumulative impacts on adjacent lands. Many agencies are preparing statewide invasive species management plans. An invasive plants strategic management plan will be prepared as a step down plan from the Eastern Interior RMP.

4.3.1.6. Soil and Water Resources

Summary of Effects

Erosion of soils, compaction, loss of soil structure, loss of permafrost (thermokarst) and subsequent instream sedimentation are the most important concerns for maintaining soil health and water quality in the planning area. A variety of resource uses and programs in this plan have the potential to result in direct adverse impacts to soil and water resources regardless of subunit and alternative. These include Wildland Fire Management, Lands and Realty, Mineral Development, Recreation Management and Travel Management. Other programs and resources that may have common benefits or some impact on soil and water resources are also discussed here.

Water and soils resources, for all subunits and all alternatives, would be managed to reduce soil-erosion, minimize impacts to soil profiles, and comply with State of Alaska water quality requirements. Permitted uses would be analyzed through the NEPA process and measures would be considered to protect and/or restore healthy functioning watersheds and minimize disturbance of soil resources.

4.3.1.6.1. Effects Common to All Alternatives

Effects from Air and Atmospheric Values

As the planning area is sparsely populated with no present or future plans for development of industrial facilities, it is anticipated that no substantial anthropogenic air-quality pollutants would originate from the planning area during the life of the plan. Long-range atmospheric transport of emissions from other countries (Shaw 1995), however, occurs periodically and may impair soil and water resources through deposition of airborne pollution, including mercury (Cahill 2003).

Effects from Cultural and Paleontological Resources

Impacts to soil and water resources from cultural and paleontological management are anticipated to be minor and should be similar across all subunits and all alternatives. Nonetheless, the discovery of cultural or paleontological resources could create temporary soil-disturbing activities and subsequent erosion at selected excavation sites. Excavation sites would likely be limited in extent and number, and thus, should not have major negative impacts on soils or water quality in the planning area. Soil and water resources would receive protection at selected sites where ground-disturbing activities would be restricted to preserve cultural and paleontological resources.

Effects from Fish and Aquatic Species

Measures to restore fish and aquatic species habitat, and to protect healthy watersheds would result in long-term beneficial impacts to soil and water resources. Under all alternatives, fish and aquatic species management decisions would strive to preserve or restore the quality of aquatic ecosystems, resulting in considerable protection for soil and water resources.

Under all alternatives in all subunits the preservation of fish and aquatic species habitat would continue to result in direct benefits to soil and water resources. Permitted activities that may impact aquatic habitat would be mitigated through SOPs. Under the action alternatives additional protective measures would include restricting surface disturbance in watersheds identified as Riparian Conservation Areas (RCAs). In all subunits the acreage that would be protected by RCAs is greatest in Alternative B and progressively less for Alternatives C and D. Under Alternative A, there would be no effect because RCAs were not identified.

Effects from Vegetative Communities and Invasive Species

Soil and water resources benefit where vegetation management supports healthy, productive, and diverse populations and communities of native plants and animals. Measures to protect and/or restore healthy functioning watersheds, riparian areas, and associated vegetative communities would minimize disturbance of soil resources and protect water quality (BLM 2009e). Implementation of measures to protect vegetation, both terrestrial and wetlands, on a project-specific basis, directly provide additional protection for soil and water resources. The implementation of SOPs and leasing stipulations which protect upland and riparian vegetation, contribute to water quality and healthy soils because vegetation can stabilize erosion-prone soils, and reduce sediment influx to streams. These beneficial effects from vegetation management would be substantially similar for watersheds in all subunits and across all alternatives.

Management measures to protect special status plant or animal species would have similar beneficial soil and water resource impacts under all alternatives. Special Status Species protection would likely include minimizing permitted activities and/or restricting access in selected areas which would help reduce potential for disturbance of soils and possible water quality impacts.

Invasive species can adversely alter local ecosystems. Impacts may include species damage to native plant communities, increased soil erosion and sedimentation in streams, altered soil

chemistry and nutrient composition, and reduced diversity of native plants (Hawkins 2000; Chapin et al, 2000). Functionally healthy and established natural plant communities are better able to resist invasions by alien plant species.

Invasive aquatic species are of particular concern in the planning area because of the vast number of waterways which could serve as invasive pathways. Aquatic invasive species can clog waterways, disrupt groundwater flows, degrade water quality, and lead to major changes in native plant and animal communities. Relatively few invasive aquatic species have been introduced and become established in Alaska compared to other states. This is in part due to Alaska's stringent plant and animal transportation laws, geographic isolation, northern climate, small human population, and relatively few concentrated disturbed habitat areas (ADF&G 2002a).

Most aquatic invasive species come from warmer climates, and few of these species are capable of surviving in Alaska's more extreme latitudes. However, the area south of the Brooks Range has a warmer climate, more developed land, more disturbed habitats, and better road access. These factors increase the likelihood of invasive species introductions (ADF&G 2002a).

Invertebrates that pose the highest potential threats to aquatic environments include, but are not limited to, the following: New Zealand mudsnail (*Potamopyrgus antipodarum*), Zebra mussels (*Dreissena polymorpha*), Signal crayfish (*Pacfastacus leniusculus*), and spiny water flea, tiny cladoceran or aquatic crustacean. Additional information on these and other nuisance species can be found online at http://www.adfg.state.ak.us/special/invasive/ak_ansmp.pdf.

The Alaska aquatic nuisance plant species that likely pose the most significant threat of introduction and spread in Alaska include: *Elodea*spp., elodea, *Hydrilla verticillata*, hydrilla, water thyme; *Landoltia (Spirodela) punctata*, dotted duckweed; *Lythrum salicaria*, purple loosestrife; *Myriophyllum spicatum*, Eurasian water-milfoil (present); *Phalaris arundinacea*, Reed Canary grass (present); *Polygonum cuspidatum*, Japanese knotweed (present); *Spartina alternflora*, salt marsh cordgrass; *Spartina densflora*, dense-flowered cordgrass; and *Utricularia inflate*, swollen bladderwort.

Of further concern is didymo (or rock snot) *Didymosphenia geminata.* As described by the University of California Center for Invasive Species Research (2009), "Didymo or rock snot, is a highly invasive species of freshwater diatom that can form large and extensive mats in rivers, streams, and lakes. Didymo is native to cool temperate areas of the northern Hemisphere including Europe, North America, and Asia. Currently, didymo is expanding its range in North America and in addition to Alaska, its presence has been confirmed from Arkansas, Colorado, Idaho, Montana, New Hampshire, New York, North Dakota, South Dakota, Tennessee, Utah, Vermont, Virginia, Washington, West Virginia, and Wyoming; and in British Columbia and Alberta, Canada.

Outbreaks of didymo are thought to have contributed to the declines of freshwater invertebrate and vertebrate populations, especially fish that have important recreational value (e.g., trout fisheries). Didymo is almost certainly moved into new areas via contaminated fishing equipment (e.g., boots, waders, and line) and boats.

SOPs, combined with a preventative approach to the introduction and spread of invasive species, would provide protection for soil and water resources.

Effects from Wilderness Characteristics

Healthy soil and water resources are essential components of wilderness. Management of areas to maintain wilderness characteristics would benefit soil and water resources by minimizing development and restricting surface-disturbing activities such as OHV use.

Alternative B results in the most lands managed for wilderness characteristics with progressively less wilderness acreage for Alternatives E, C, and D. Under Alternative A, there would be no effect because no lands would be explicitly managed to maintain wilderness characteristics. Impacts would vary somewhat by subunit and alternative, but differences in effects to soil and water resources would likely not be discernible. Effects are expected to be the same for all subunits and alternatives.

Effects from Wildland Fire Ecology and Management

In all subunits and under all alternatives, wildland fire would generally be allowed to function in its natural ecological role with fire suppression activities undertaken only to protect life and property, site-specific values, or adjacent higher priority management areas. Wildland fire is an essential ecological process and natural agent of change in ecosystems. Wildland fires in Interior Alaska annually burn large areas and significantly impact soil and water resources on a landscape scale that far exceeds surface disturbance from BLM-authorized activities.

Under all alternatives, expected effects on soil and water resources from wildland fire would vary depending on several factors including topography, vegetation, permafrost, acreage burned, and fire intensity. Fire can stimulate new vegetative growth by helping maintain a mixture of vegetation types and age classes that provide soil stability, and by providing essential nutrients to the soil.

However, fires that heat soils to high temperatures can volatilize organics and produce a barren surface layer that contributes to higher rates of runoff and erosion. In general, removal of vegetation and some or all of the surface organic horizons deepens the active layer, increases effective overland flow, decreases infiltration, and produces warmer, drier soils.

Where permafrost soils are present, the amount of soil thaw after a fire is typically greatest at sites of intermediate wetness. Hence, the effect of wildland fire on Interior Alaska soils is somewhat dependent on the topography and location of the soils in a watershed. South-facing, upland soils, which are drier and permafrost-free, are not severely affected by wildland fire because they are relatively stable. Soils in the coldest (north aspect) and wettest regimes are not severely affected by wildland fire because most of the saturated organic mat and permafrost persist after fire (Ping et al. 2006). It is the marginal soils with permafrost and those located in potentially warmer, drier topographic positions, such as east and south aspect toe slopes, which are most likely to show major changes in moisture and temperature regimes after wildland fire (Swanson 1996). These changes may, in turn, change the soil classification from a poorly drained, permafrost-affected (Gelisol) to a well-drained, permafrost-free soil (Inceptisol; Viereck and Dyrness 1979, Dyrness and Viereck 1982, Moore and Ping 1989).

Where fire intensity is sufficient to remove the insulating vegetative mat on moderate to steep slopes it may result in thermokarst and mass failure of the slope which may result in substantial impacts to streams or other resources for extended periods of time.

Wildland fire-related changes in water quality are primarily the result of soil erosion and deposition of soil materials into water (Neary et al. 2005). The extent of surface erosion after a fire largely depends on the topography and soil types of the immediate area, the amount

of ice-rich frozen ground within the active layer, and the severity at which the fire burns the organic layer and underlying soils. Indirectly, wildland fires may also cause elevated streamflow temperatures, increased pH values, and changed chemical concentrations, including increased nutrient flow into streams and lakes.

Possible impacts on soil and water resources from wildland fire suppression activities include compaction or disturbance of soils from equipment, camps, and roads and fire breaks where the soil has been scraped down to the mineral horizon with heavy equipment, as well as application of chemical retardants. Under all alternatives rehabilitation of areas disturbed by wildland fire suppression activities would reduce potential long-term impacts to soil and water resources. Measures to reduce the impacts of suppression activities include limitations on the use of tracked or off-road vehicles; measures to prevent the introduction of invasive or noxious plant species; establishment of buffer zones near streams and lakes; and rehabilitation of fire and dozer lines.

Effects from Forest and Woodland Products

Soil disturbance resulting from commercial or other authorized harvest of timber and forest products could contribute to soil compaction, erosion and influx of sediment to streams, and potentially, thermokarst formation. Roads and trails created for forest harvest may result in indirect impacts on soil and water resources by facilitating off-road OHV use. Impacts would depend on several factors including site characteristics, season, harvest area, and harvest techniques.

The low value of timber resources will generally limit the extent of roads and trails that would be economic to build for access. Assuming continued low level of forest product sales, expected impacts to soil and water resources would be short-term and of limited extent. Most alternatives allow commercial harvest in some areas where it was not allowed previously and access to timber could result from trails and roads built for other activities. Impacts to soil and water resources from forest and woodland products management should be minimal for all subunits and alternatives. Site-specific impacts to soil and water resources would be analyzed and appropriate stipulations and SOPs applied to permits to mitigate impacts.

Effects from Land and Realty Actions

There are anticipated impacts to soil and water resources from lands and realty actions in all subunits and under all alternatives, particularly in designated transportation corridors. Construction of access roads, railroads, bridges, culverts, and gravel pads in easements can adversely affect local water quality through soil erosion. Indirect impacts may result from removal of vegetation cover or excavation of permafrost soil. Thawing of fine-grained soil with high moisture content may result in ground subsidence, slope instability, and siltation of streams. Thawing fine-grained permafrost soils are subject to mass flow even on relatively gentles slopes. Thawing sand and gravel deposits usually remain comparatively stable.

Development of materials sites often results in permanent loss of soil and may increase siltation to local streams. Construction of bridges and culverts may create diversion of water and subsequent soil erosion and increased siltation in streams. Designating right-of-way corridors and avoidance areas and locating rights-of-way near existing rights-of-way, or on already disturbed areas whenever possible, would help mitigate adverse effects on soil and water resources.

All of the alternatives would address land fragmentation through land acquisition or disposal. Land tenure and land use decisions are not expected to have significant impacts on soil and water resources.

Effects from Fluid Leasable Minerals

All lands are presently withdrawn from fluid minerals leasing and there are no existing legal leases. Acreage is opened to leasing under each of the action alternatives with a progressive increase in number of acres open from Alternative B, to Alternative E, to Alternative C, to Alternative D. Interest from industry is expected be limited due to the lack of BLM lands in high potential areas. Seismic exploration could occur in the Steese or Upper Black River subunits, but is unlikely during the life of the plan. A total of 20 miles of seismic line are anticipated on BLM lands.

Potential impacts from exploration/seismic related activities include damage or removal of the vegetation mat, thermokarst development, soil disturbance or water quality impacts. Nonetheless, adverse effects to soil and water resources from anticipated seismic lines would likely be negligible because seismic activity would occur during winter on frozen snow-covered ground. Impacts would be substantially similar across all alternatives and subunits. Leasing would not occur without further NEPA analysis.

Effects from Solid Leasable Minerals

All lands are presently withdrawn from solid minerals leasing and there are no existing legal leases. Acreage is opened to leasing in each of the action alternatives with a progressive increase in the number of acres open from Alternative B, to Alternative E, to Alternative C, to Alternative D.

Potential impacts from exploration related activities could include damage or removal of the vegetation mat, thermokarst development, soil disturbance or water quality impacts. If development were to occur, impacts from solid leasable mineral (such as coal) activities could include possible erosion, decreased water quality, fugitive dust from gravel roads, and soil compaction from heavy equipment. However, no solid leasable mineral development is anticipated during the life of the plan as there are no economical deposits of these types of minerals.

Effects from Locatable Minerals

Locatable mineral operations expected to occur include development of one or two large lode mines, several small- and large-scale placer mines, and multiple suction dredge operations.

Lode Mines

Money Knob near Livengood, a large lode mine prospect, will likely be developed during the life of the plan. The Money Knob prospect is on state or private land. A second large lode mine could potentially be developed on private land. Large lode mines have a large associated area of surface disturbance, resulting in permanent change to the landscape. The mines typically have high levels of human activity on-site and often require large, high-standard road access with considerable traffic.

The potential water quality contamination risks associated with lode mines, would in part, depend on the level of sulfide minerals in the waste rock. It is too early in the life of the Money Knob mine to establish whether water quality would be adversely affected. Nonetheless, surface and

groundwater quality could potentially be impacted in the area because of the generation of acid mine drainage from waste rock and mine-wall rock leaching. Acidity and level of contaminants in the tailings dam seepage water would be a long-term concern, requiring environmental monitoring.

Depending on availability of existing access to a mine site, new road and trail construction may result in substantially greater aerial extent of disturbance and greater long-term impacts to soils and water quality than the actual mine operation. Construction of roads and trails over permafrost areas may result in thermokarst (melting of ice-rich permafrost), obstruction or change in drainage, and subsequent long-term erosion of road material. The extent of soil disturbance from a mine operation varies considerably depending on access, mining methods, and watershed characteristics.

Impacts from roads can often be mitigated by such measures as restricting access to mine site workers only, limiting off-trail travel by mine workers, prohibiting hunting and off-trail use of OHVs, building the road in a manner which facilitates reclamation, and promptly closing and reclaiming the road following use.

Placer Mines

Placer mine exploration and development could occur on BLM lands on valid existing federal claims under any alternative. Historically, placer mining has occurred in the Fortymile and Birch Creek watersheds since the early 1800s and continues on federal, state, and private lands.

The majority of damage to Birch Creek and other gold-bearing watersheds occurred from dredges and draglines that mined entire valleys before environmental laws were enacted in the late 1980s.

The number of placer mining operations anticipated on BLM lands is predicted to be 37 to 67 small-scale placer mines and five to eight large-scale placer mines. Each small mine would have an anticipated total disturbance of 25 acres over the life of the mine. Large-scale placer mines are expected to disturb about 70 acres over the life of the mine. An estimated 925 to 1,675 acres of surface disturbance from small mines and 350 to 560 acres of surface disturbance from large-scale placer mines are projected to occur.

Probable impacts to soil and water resources from placer mining were described in detail in the Birch Creek Placer Mining Final Cumulative EIS (BLM 1988a) and the Fortymile River Placer Mining Final Cumulative EIS (BLM 1988c). Impacts can vary considerably depending on factors including site characteristics, size of the disturbed area, and mining methods, but where placer mining operations utilize heavy equipment the following impacts could be expected.

Generally, placer mining can have an adverse effect on the structure of the existing soil profile by stripping of overburden and riparian/wetland vegetation. The usual procedure is for the overburden (including organic materials) to be stripped, coarse underlying materials separated from gold-bearing material in the processing plant, and fine materials discharged to a series of settling ponds with recycled water used by the processing plant. There is an irretrievable loss of any soil that enters waterways and is transported downstream.

Erosion of soils from non-point sources typically contribute to the sediment load of stream systems and may result from stream crossings, roadways directly adjacent to stream channels, and improved roads and trails which converge down-gradient to stream channels.

The primary impact to water quality from mining is an increase in sedimentation and turbidity. Some direct effects on water quality can be anticipated during the development stage of

an operation due to the construction of settling ponds and stream bypasses, and through re-channelization of the stream. This would result in short-term increases in sediment levels and turbidity while equipment operates near or in the active stream channel.

It is likely that occasional high water or failure of water control structures would introduce sediments collected by the water treatment system into the stream channel. This would result in short-term increases in turbidity and sediment load levels and possible localized sedimentation of the stream substrate. The degree of impact would depend on the amount of material released and the streamflow at the time of release.

Channel morphology would be directly affected in all areas where activities associated with mining occur in the active channel; by-pass channels are usually constructed to allow mining in the active channel.

Indirect impacts to water quality would occur through non-point source erosion from disturbed areas associated with placer operations including access road and trails and equipment staging areas directly adjacent to stream channels. Channel readjustment would occur where the active channel was modified. These processes increase suspended sediment into the stream system, particularly during spring break-up and floods.

The impacts to soil and water resources could be expected to decrease after cessation of mining, successful revegetation of the disturbed areas, and the disturbed channel has stabilized. It is estimated that reestablishing vegetation on placer waste rock piles may take decades. The rate of succession (revegetation) seems to be heavily influenced by the proportions of particles of silt and clay size in the surface layer of the tailings (Rutherford and Meyer 1981).

The prevention of unnecessary or undue degradation of resources is required by 43 CFR 3809. Current regulations require all placer mine operations to recycle turbid water through settling ponds to prevent high turbidity discharge into streams and require reclamation of disturbed stream channels and riparian areas.

In the action alternatives, SOPs have been developed to reduce impacts to soil and water resources that may result from locatable mineral activities. Specific SOPs can be found in Appendix A. Additional mitigation measures, if necessary, could be developed during NEPA analysis of specific locatable mineral sites. Under all alternatives and subunits BLM would monitor water quality in selected streams and lakes to ensure that state water quality standards were met and would monitor instream flow to document changes in stream flow.

Suction Dredge

Suction dredge mining activities have the potential to affect soil and water resources, particularly if operations require access over steep terrain or permafrost soils where surface disturbance may result in increased erosion. Adverse impacts could result from equipment transport and storage, fuel spills, unauthorized expansion of existing OHV trail networks, as well as from compaction of soils at long-term camping sites associated with suction dredge mining operations.

A majority of the suction dredge operations in the planning area occur in the Fortymile River. The USGS conducted a systematic water quality study of the Fortymile River and many of its major tributaries in June of 1997 and 1998 (Wanty et al. 1999). Surface-water samples were collected for chemical analyses to establish regional baseline geochemistry values and to evaluate the possible environmental effects of suction-dredge placer gold mining and bulldozer-operated

placer gold mining (commonly referred to as cat-mining). They concluded, based on water-quality and turbidity data, that the suction dredges had no apparent impact on the Fortymile River system, although possible effects on biota were not evaluated. One of the three cat-mining operations monitored, however, had adverse impacts on local water quality and streambed morphology.

Effects from Salable Minerals

Future demand for salable minerals, primarily for road maintenance and construction, is not expected to vary substantially. Currently, there are about 160 acres of permitted material sites. It is anticipated that no more than 200 acres of authorized disturbance on BLM lands would be required to meet material demands over the next 20 years. The acreage open for salable minerals varies by alternative and subunit, but the general impacts to soil and water resources are common to all subunits.

Development of materials sites can unfavorably impact soil resources by compacting and/or removing soils. Material site characteristics vary by location but common methods for material extraction include drill and blast techniques in bedrock for rip-rap material and extraction and crushing of alluvial gravel for road material using heavy equipment. Material sites typically remain open for years. In locations where fine grain sediments are exposed, they can easily be eroded by wind and precipitation. Potential exists for increased siltation to local waterways resulting from erosion of soil and fine grained sediments from material site operations. Potential impacts would be reduced under all alternatives with implementation of SOPs and no substantial adverse impacts to soil and water resources are anticipated from management of salable minerals.

Effects from Recreation and Travel Management

Non-motorized recreation and OHV use within much of the planning area is expected to increase five to ten percent per year over the life of the plan. Impacts to soil and water resources increase with increasing levels of OHV use, especially in areas open to off-trail use. User-created OHV trail proliferation would result in increased erosion and stream sediment impacts. Potential adverse impacts to soil and water resources result from unimproved OHV stream crossings, heavy use of sites for camping along streams, and disturbance to riparian vegetation and stream banks.

Surface disturbance from construction of trails and roads on valley slopes and low areas containing ice-rich permafrost could result in formation of retrogressive thaw slumps which can have considerable long-term impacts on water quality.

The U.S. Fish and Wildlife Service (USFWS 2009c) described a nine-acre permafrost thaw slump on the Selawik River as follows: “In 2004, a large thaw slump occurred on the upper Selawik River in the Selawik National Wildlife Refuge in northwest Alaska. Since that time, the slump has transformed the once-clear river into a turbid one for more than 80 downstream river miles. Critical spawning habitat for sheefish—a large whitefish prized by subsistence and sport fishermen—lies 25 miles down river from the slump, generating concern that the heavy sediment might interfere with successful spawning and egg survival.”

Similar thaw slumps have been reported in the Yukon Territory, Canada (Rozell 2009). It is difficult to predict where and when thaw slumps may occur but resources managers should be aware they may occur, and can have substantial adverse impacts on water quality and aquatic habitat.

In all subunits, restricting OHV use to selected areas and trails, and limiting OHV weight would provide protection for soil and water resources. Recommended winter use (October 15 through April 30) of snowmobiles with a limited weight would continue to provide opportunities for recreational users during the winter months, while protecting soil and water resources.

Potential impacts to soil and water resources would be reduced under all alternatives with implementation of SOPs (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*). All recreation and transportation development decisions would be managed to reduce soil-erosion and minimize impacts to soil profiles, while water decisions would be managed to comply with State of Alaska water quality requirements.

Acreage open to summer OHV travel varies under each of the action alternatives, generally with a progressive increase in number of acres open from Alternative B, to Alternative C, to Alternative D. Hence, potential for degradation of soil and water resources is greatest under Alternative D. Alternative E defers limitations on OHV use to a travel management plan. Impacts on soil resources will be analyzed further at that time.

4.3.1.6.2. Cumulative Effects

Total cumulative impacts to soil and water resources consist of past and current impacts; these are in addition to reasonably foreseeable future impacts in the planning area, regardless of whether these impacts were from private, state or federal actions. For all subunits and alternatives, any proposed resource development involving surface disturbance has the potential to cumulatively impact soil and water resources. In the planning area incremental cumulative degradation of soils and water resources within a watershed can occur, for example, through mining operations on selected stream segments. For each individual mining operation a small direct loss of soil and some small degradation of water quality are likely. As the number of mining operations increase in a given watershed the cumulative soil loss and cumulative impact to water quality can have long-term adverse impacts on soil stability, riparian habitat, fisheries habitat and water quality. Cumulative impacts can also result from repetitive use of an area, such as a single OHV stream crossing along a user-created trail. Minor disturbance may result from a single crossing, however, multiple use of an unimproved OHV stream crossing site can result in substantial cumulative impacts including soil compaction, damage to riparian vegetation, erosion along user-created trails and potential decrease in bank stability and local water quality.

Cumulative Effects from Climate Change

The magnitude and scope of climate change impacts to soil and water resources in the planning area are expected to be substantially greater (landscape level) than impacts from all other resource programs or permitted activities. In particular, increased annual air temperatures may substantially accelerate ongoing changes in wildland fire frequency and associated effects to soil (thermokarst) and water resources in much of Interior Alaska. Permafrost degradation associated with a warming climate is second only to wildland fires as a major disturbance to boreal forests (Jorgenson and Osterkamp 2005).

Interior Alaska is projected to become warmer and drier over the next century (Rupp and Springsteen 2009b). Climate change predictions include increased wildland fire frequency, longer frost-free seasons, and decreased water availability for transpiration, lake drying, and continued thawing of permafrost soils, with formation of thermokarst topography as areas of ice-rich

permafrost melt. Permafrost melting would be expected to accelerate around disturbed areas where the insulating vegetation layer has been damaged or destroyed.

Much of the discontinuous permafrost in Alaska is within one to two degrees C. of thawing, and highly susceptible to thermal degradation (Osterkamp et al. 2000). Permafrost typically is capable of supporting heavy loads (at least on short time scales), but when permafrost thaws, the melting of the ice can create voids in the ground and soupy mud flows (Davis 2001). Thaw ponds may develop from removal of vegetation. Permafrost degradation can cause changes in surface hydrology; particularly soil moisture levels, slumping of frozen stream banks, increased erosion, and myriads of other ecological impacts as the system adjust to these disturbances (Smith 2008). Degradation of permafrost is highly variable and its topographic and ecological consequences depend on the interaction of slope position, soil texture, hydrology, and ice content (Jorgenson and Osterkamp 2005).

Warmer temperatures and a longer growing season are expected to increase evapotranspiration enough to outweigh a regional increase in precipitation (Rupp and Springsteen 2009b). Hence, there is uncertainty whether the projected climate warming trend will contribute to an overall increase in wetlands or stream flow. According to Smith (2005), initial permafrost warming may lead to development of thermokarst and lake expansion, followed by lake drainage as the permafrost degrades still further. MacLean et al. (1999) found higher fluxes of dissolved organic carbon (DOC), dissolved organic nitrogen (DON) and dissolved inorganic nitrogen (DIN) into stream water from upland soils with extensive permafrost compared to areas with limited permafrost.

Thawing permafrost and the resulting microbial decomposition of previously frozen organic carbon is one of the most significant potential feedbacks to the atmosphere from terrestrial ecosystems in a changing climate. Schuur et al. (2009) found “areas that thawed over the past 15 years had forty percent more annual losses of old carbon than minimally thawed areas, but had overall net ecosystem carbon uptake as increased plan growth offset these losses. In contrast, areas that thawed decades earlier lost even more old carbon, a seventy-eight percent increase over minimally thawed areas; this old carbon loss contributed to overall net ecosystem carbon release despite increased plant growth. Their studies document significant losses of soil carbon with permafrost thaw that, over decadal time scales, exceeds increased plant carbon uptake at rates that could make permafrost a large carbon source in a warmer world.

Cumulative impacts to soil will likely include increased surface disturbance in the form of thaw slumps and thaw ponds and thermokarst topography; cumulative impacts to water resource are uncertain but a decrease in permafrost will affect levels of groundwater and river runoff as well as water chemistry. Over the life of this plan newly thawed permafrost areas will likely have a net uptake of carbon because increased plant growth would more than offset carbon loss from the melted permafrost. However, in the long-term (>20 years), release of carbon from continued melting of permafrost would likely contribute to increased atmospheric carbon dioxide and climate warming.

Cumulative Effects of Land and Realty Actions

Cumulative impacts to soil and water resources from land and realty actions include past and current impacts and reasonably foreseeable future impacts in the planning area from private, state or federal actions. For all subunits and alternatives proposed land and realty actions that involve surface or stream disturbance have the potential to cumulatively impact soil and water resources.

There are no expected future changes in access to military lands or state lands. There are relatively few BLM transportation corridors within the 30 million-acre planning area. Cumulative effects of land and realty actions on BLM lands would likely be minor compared to actions on state and private lands.

Cumulative Effects of Locatable Minerals

Placer mine development has occurred in the Steese, White Mountains, and Fortymile subunits since the early 1800s using a variety of mechanized methods including dredges, draglines, dozers and excavators. The soil profile is typically destroyed for long periods in areas of active dredging or sluicing, and shorter term impacts of soil compaction and alteration in areas of facilities, roads, and trails. Water quality is often degraded by increased siltation, depending on site characteristic and the type of mining operation.

The total disturbed area from historic placer activity on BLM-managed lands in the planning area is estimated at 7,500 acres. The action alternatives in this RMP recommend lifting mineral withdrawals in selected areas, potentially resulting in development of new access roads and mine operations. However, a substantial portion of the projected mining would likely occur in previously mined areas. Depending on the Alternative, development of an estimated 37 to 67 small-scale (20 to 30 acres) placer mines and five to eight large-scale (60 to 80 acres) would be expected on BLM-managed land during the life of the plan.

In its 2007 Mineral Industry Report, the Alaska Division of Geologic and Geophysical Surveys (DGGS), lists 81 separate companies or individuals that were estimated to be producing gold in the planning Area (Szumigala et al. 2008). The amount of acreage on state and private land that has been disturbed or reclaimed by mining operations within the planning area is uncertain.

Two large-scale lode mines, Pogo and Fort Knox, are in operation on state lands within the planning area. Two additional large lode mines may be developed within the planning area on state or private land within the life of this plan. One potential lode mine "Money Knob," is located near the town of Livengood along the western boundary of the White Mountains subunit. A second potential lode mine, LWM, is located about 35 miles northwest of the town of Chicken in the Fortymile subunit. If potential lode mines are developed, varied impacts to soil and water resources would be expected depending on type of mine development and ore processing methods.

Cumulative Effects of Recreation and Travel Management

The effects of past, present and future actions, including the increasing demand for recreational use of trails and rivers, creates changes to the landscape as a result of surface-disturbing activities, which often have cumulative impacts on soil and water resources. Continued use of OHVs on unauthorized user-created trails can reduce vegetation cover and expose soil. Exposed compacted soil surfaces reduce the infiltration of rain water and snowmelt.

The demand for recreational trails and OHV use is anticipated to increase by about ten to fifteen percent over the life of the plan. Consequently, a similar increase in surface disturbance could be expected. Lands adjoining the planning area are managed by federal, state, Native, and private entities. This is why the rules and regulations governing land and resource use may differ. Cumulative adverse effects to soil and water resources, however, would likely not exceed the anticipated demand for recreation and resources because no major new recreation or commercial developments are likely during the life of the plan. Proliferation of user-created OHV trails along the planning area boundaries would remain a concern. Where soil and water resource standards

were not met, permitted activities and practices would be modified to meet the standards. The nature of the modifications would be based on site-specific circumstances.

4.3.1.7. Special Status Species

Summary of Effects

Although the habitats of sensitive animal species vary considerably, surface-disturbing activities in riparian and wetland habitats would have the greatest potential negative effects on sensitive animal species because many sensitive species are dependent on these habitats. Therefore, alternatives which retain more area closed to locatable and leasable mineral development will generate fewer potential impacts. Few activities are predicted to occur which would directly impact the habitat type which supports most sensitive plant species (dry, steep, south-facing slopes), but these habitats may be susceptible to establishment of invasive plants, which could be facilitated by allowed activities. Sensitive plant species which occur in alpine habitats could be affected by allowance of cross-country OHV travel in some alternatives and areas (Alternatives B and C largely prohibit cross-country summer OHV travel). Climate change is likely to affect populations of sensitive plant and animal species. Even though some may be affected positively, most effects would be negative because sensitive species populations typically have lower resilience to change. Localized impacts to sensitive species from allowed activities may occur, and in general those impacts will increase from Alternative B to E to C to D. However, it is not anticipated that any alternative would trend any species towards the need for federal listing under the Endangered Species Act. Alternative E would designate the Mosquito Flats ACEC, with benefits to at least two sensitive species—trumpeter swan and short-eared owl.

4.3.1.7.1. Effects Common to All Alternatives

The effects of management alternatives on the BLM Alaska sensitive species of plants, wildlife, and fish/aquatic animals would be generally similar to those described for those species groups in the Vegetative Communities, Wildlife, and Fish and Aquatic Species sections. Notable effects on sensitive species or groups are also discussed in those sections.

Wetland, riparian, and aquatic habitats support most of the sensitive animal species. Trumpeter swan, olive-sided flycatcher, blackpoll warbler, rusty blackbird, Alaskan brook lamprey, Alaska endemic mayfly, a mayfly (*Acentrella feropagus*), and a stonefly (Alaska sallfly) are BLM Alaska sensitive species that are dependent on these habitats. The Alaska tiny shrew may also occur more frequently in riparian habitats. All action alternatives open significant areas to placer mining, which could result in substantial local impacts to riparian and aquatic habitats and species, although in varying degrees. Alternatives that maintain water quality and limit impacts to riparian habitats will best minimize impacts to sensitive animal species. Riparian Conservation Areas (where established) will reduce impacts to riparian and aquatic habitats. Requirements in all action alternatives to develop specific reclamation measures and monitor and report achievement of reclamation in plans of operations may increase reclamation success and reduce impacts.

Several sensitive aquatic animal species might be affected by BLM management. One fish species (Alaskan brook lamprey) and two insects (Alaska endemic mayfly and Alaska sallfly) occur in the planning area. A third insect is not known to, but, may occur, in the planning area (*Acentrella feropagus*, a mayfly). The lamprey is not known to occur in waters on BLM lands, but has been documented near BLM lands in the Chatanika and Chena drainages. The planning decision most likely to impact sensitive aquatic species is the recommendation (in some areas and alternatives)

to lift locatable mineral withdrawals, as it would allow increased levels of placer mining that could degrade riparian areas, stream habitats, and water quality. However, the increase in placer mining is expected to be moderate and result in mostly localized impacts. The Alaska endemic mayfly is known only from a single specimen collected on lower Birch Creek WSR near the Steese Highway bridge. It is expected to be found widely in the area, but additional inventories of adult mayflies will be necessary to confirm this. The Birch Creek WSR is closed to locatable minerals, and lands open to locatable mineral entry are far upstream from the Steese Highway bridge. For all subunits except the White Mountains (closed to locatable minerals), the expected impact to fish and aquatic resources (including BLM Alaska sensitive species) from locatable minerals would be highest for Alternative D, and progressively less for Alternatives C, E, B, and A. Under no alternative are allowed activities likely to result in a trend toward federal listing for any of these species.

Several sensitive terrestrial animal species might be affected by BLM's management and are discussed below.

Osgood's arctic ground squirrel—This species is likely found only in dry, open habitats near Circle and in the Steese and Upper Black River subunits (such as steep south-facing slopes and river bluffs, grasslands, and burned areas). It may benefit from activities that remove mature tall vegetation or promote low, early-successional habitats (such as timber removal, prescribed fire). Negative effects could occur from permanent loss of habitat (e.g., facilities development); however, this is not expected at a scale that would influence populations. No alternatives are expected to cause a trend toward federal listing of this species.

Alaska tiny shrew—This species occurs in low density within a variety of habitats, but is most common in riparian shrub habitats. It has been documented to occur in the Steese National Conservation Area near Twelvemile Summit. Widespread activities that clear large areas of vegetation could negatively impact this species. Mining could have localized effects to shrew habitat, but would not likely occur at a scale or degree to cause a trend toward federal listing.

Three sensitive passerine bird species, olive-sided flycatcher, rusty blackbird, and blackpoll warbler, are widely distributed in the planning area. All are associated to some extent with riparian or wetland habitats. Occurrence of these species in other habitats is dispersed enough that anticipated activities are unlikely to impact any of them at a population level. Alternatives that minimize impacts to riparian and wetland habitats will reduce impacts. Of the three species, the rusty blackbird is most dependent on wetlands. Recent drying of lakes and ponds may be responsible for recent population declines and this trend may continue, making protection of remaining lake and pond habitats more important for conservation of this species. However, suitable lake and pond habitats in the planning area are quite rare on BLM lands relative to areas such as Yukon Flats and Tetlin National Wildlife Refuges, so it is very unlikely that any alternative could result in population-level impacts to this species.

Trumpeter Swan—Few trumpeter nests occur on BLM lands in the planning area (26 of 7,787 swan observations occurred on BLM lands during the 2005 statewide aerial surveys). A SOP (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) that limits human disturbance within one-quarter mile of trumpeter swan nests will limit impacts to the few trumpeter swan nests in the planning area. Only large-scale activities among lakes and ponds in the Mosquito Flats area would be likely to affect more than a few nesting trumpeter swans. Alternative E designates an ACEC which would encompass most of the known nest sites in Mosquito Flats and remove mineral development and summer OHV use as potential disturbances.

The SOP was not included in the Proposed RMP because of the small number of trumpeter swan nests known on BLM lands outside of Mosquito Flats.

Two sensitive raptors, golden eagle and short-eared owl, are uncommon but widely distributed across the planning area during summer. Both occur in predominantly open (non-forested) habitats. Golden eagles nest primarily in suitable cliffs (which can be very limited in availability) while short-eared owls nest on the ground. The golden eagle is a priority raptor in this plan and the SOPs in Appendix A will limit the impact of approved activities on nesting golden eagles (assuming that adequate inventory has occurred to identify most golden eagle nests). The short-eared owl is not considered a priority raptor species and nest sites occur on the ground and are less readily identifiable and more likely to change from year-to-year, making it difficult to apply similar protective measures. However, suitable nest sites for the short-eared owl are also much less limited, and the owl is less sensitive to disturbance from human activity. In areas where owls occur in high densities, such as Mosquito Flats, impacts may occur from uncontrolled motorized vehicle use. The Mosquito Flats ACEC designated in Alternative E will maintain habitat for short-eared owls. The BLM will also follow MBTA provisions and Special Status Species management decisions. In addition to SOPs, the Bald and Golden Eagle Act (and implementing rules enacted by the USFWS) will subject approved activities near golden eagle nests to a high level of scrutiny. Potential impacting uses include recreational activities near nest sites (especially along river cliffs), large-scale mining operations, improperly designed powerlines, towers, or similar structures, and high levels of summer off-road vehicle use. The relatively low densities of eagles and short-eared owls on most BLM lands in the planning area and the low level of activities predicted will likely lead to low impacts to populations of either species in any alternative.

Most BLM sensitive plant species occur in habitats with specialized conditions such as: steep south-facing dry bluff habitats; moist alpine herbaceous sites; rocky ridges, slopes, and screes; and calcareous rocks or soils. Potential impacts to sensitive plant habitats occur mostly from summer OHV use, road and trail construction, and large mineral developments in upland habitats (such as large lode mines). Alternatives that allow locatable and leasable mineral development (or other activities that may create new roads and trails) and also allow cross-country OHV use in the same areas represent greater potential impacts to sensitive plant species. In addition to directly impacting sensitive plants and habitats through various levels of crushing, surface disturbance, or removal, these activities are likely to facilitate the spread of non-native invasive plants, which may be the largest potential impact to sensitive plant species. Large areas are opened to locatable and leasable minerals in all action alternatives (largest areas in Alternatives C and D). Alternatives that close areas to cross-country OHV use (B and C) will limit the potential effects from mineral development and other activities.. Alternative E will open a smaller area to locatable and leasable minerals but will not close any new areas to cross-country OHV use.

Given that effects from most allowed activities would remain somewhat discrete and localized (relative to the size of the planning area and the size of most species distributions), and that most habitats in the planning area would remain in an undisturbed condition, it is not anticipated that any alternative would trend any sensitive species toward federal listing. An increased emphasis on monitoring these species and their habitats is advisable to understand threats, design effective mitigation, and confirm management effectiveness and trend predictions.

4.3.1.7.2. Cumulative Effects

The effects of activities allowed under the various alternatives on BLM lands will combine with similar activities on adjacent lands to impact sensitive species. Increased inventory and monitoring is necessary for reliable assessments of impacts. Climate change is predicted to create major changes in vegetative composition on the landscape and changes in ecosystem processes. Species with limited distribution and population size, such as most sensitive species, are expected to be most sensitive to climate change. Even though climate change could benefit some sensitive species, those faced with unfavorable conditions may have limited ability to adapt due to specialized habitat requirements, small populations, and lack of connectivity to suitable habitat. Climate change impacts, in combination with the increasing regional prevalence of non-native species, will combine with other changes, including improvement in access for motorized vehicles, to increase potential negative effects on sensitive species. Basic inventory is needed to assess distributions and populations, minimize impacts, and monitor changes.

4.3.1.8. Vegetative Communities

Summary of Effects

The primary decisions affecting vegetative communities would be the opening of large areas to locatable and leasable minerals and summer OHV management. In Alternatives C through E, the most predictable change in activity would be an increase in placer gold exploration and mining occurring in areas newly opened to location. This would result in areas of impact to riparian habitats as well as impacts to vegetation related to road and trail access. Alternative E recommends retaining mineral withdrawals in more of the planning area than Alternative C, reducing potential impacts from mineral development. In Alternative C, summer cross-country travel by OHVs would generally not be allowed (except in the Upper Black River Subunit where use is very low) and this would greatly reduce impacts from OHV use and greatly reduce the potential spread of non-native invasive plants (invasive plants) with cross-country OHV use. In Alternative E, cross-country summer OHV use would be allowed (but could possibly be limited in subsequent Travel Management Plans). Also, summer OHVs will no longer be prohibited in some areas which current RMPs close to summer OHVs (this will also be subject to Travel Management Planning). The effects of several resource uses are anticipated to be small due to little activity expected, including Forest and Woodland Products, Solid Leasable Minerals, Salable Minerals, and Renewable Energy. Climate change is predicted to result in major changes to vegetation in the next 30 years as wildland fire frequency and intensity increases. Activities which facilitate the spread of invasive plants would compound the effects of climate change and an expected regional increase in prevalence of invasive plants.

4.3.1.8.1. Effects Common to All Alternatives

Effects from Air and Atmospheric Values

If lightning-ignited wildland fires are suppressed to minimize smoke effects on public health, recreation, communities, or tourism; a deviation from the natural fire regime could occur as a result, with resultant effects on vegetative communities.

Effects from Fish and Aquatic Species

Riparian areas typically support some of the most diverse and productive plant communities, and riparian vegetation is critical for proper stream functioning—providing bank stability, shading, capture of insulating snow, instream woody debris, and other functions. Although none of the BLM Alaska sensitive species plants in the planning area are known to occur primarily in riparian habitats, aquatic plants are not well studied and some rare aquatic species could occur. Riparian plant communities make up a very small portion of the landscape on an area basis but, contribute greatly to vegetative community diversity. All alternatives contain some measures to minimize impacts to fish and aquatic species habitat. In action alternatives, Riparian Conservation Areas (RCAs) and High Priority Restoration Watersheds minimize disturbance to riparian vegetation, through closures to mineral development or reclamation requirements, and are most extensive in Alternatives B and E. Reclamation objectives established for all action alternatives to maintain fisheries and aquatic habitats will also benefit vegetative resources. Once disturbed, stream bank vegetation can take decades to recover due to instability of the stream channel caused, in part, by loss of protective vegetation.

Effects from Non-Native Invasive Species

Non-native invasive plant species (invasive plants) have had major impacts on vegetative communities and ecosystems outside of Alaska. The potential impact that introduction and spread of non-native plants has on vegetative communities is large and exceeds the potential direct impacts from other surface-disturbing activities identified in this planning process. Yet introduction of non-native plants most often occurs in conjunction with surface-disturbing activities. The success of planning and management decisions in controlling the introduction and spread of non-native invasive species will be a primary factor in minimizing effects from BLM actions on the whole. Requirements for weed-free hay and mulch, certified weed-free seed, and certified weed-free gravel sources will do much to limit potential for establishment of invasive plants. Planning decisions will also affect the use of motorized vehicles, which can play a major role in spread of invasive plants. Cross-country OHV use, especially in recently burned areas, may represent the largest potential impact to vegetative communities, through spread of invasive plants.

Effects from Soil Resources

All action alternatives contain measures to limit impacts to soil, which in turn limit impacts to vegetation.

Effects from Special Status Species

Provisions to conserve special status plant species (which are common to all action alternatives) will aid in maintaining the full diversity of species present in the planning area, including unique or unusual plant communities. Surveying for BLM Alaska sensitive species plants in areas where they potentially occur prior to activities which may impact sensitive plant species will reduce the potential for impacts.

Effects from Vegetative Communities

Vegetation management goals and decisions apply to all action alternatives. Their implementation will aid in maintaining the health, productivity, and diversity of plants and plant communities. Many SOPs (Appendix A) are focused on minimizing surface disturbance, encouraging natural revegetation or use of native seed, and reducing introduction and spread of invasive plants; they will mitigate potential impacts to vegetative communities in all action alternatives.

Effects from Visual Resources

Maintaining lower—numbered VRM classes will generally be of benefit to vegetative communities, due to reduced levels of surface disturbance and lower levels of associated human activities. VRM class may be used as one indicator of management beneficial to vegetation.

Effects from Water Resources

Maintenance of water quality and natural hydrologic functions will benefit vegetation. All alternatives provide measures to protect water quality.

Effects from Wilderness Characteristics

Other planning decisions which maintain wilderness characteristics (such as maintaining naturalness and opportunities for solitude) will generally benefit vegetative communities by minimizing surface disturbance. Acres of land on which wilderness characteristics will be maintained can be an indicator of management beneficial to vegetation.

Effects from Wildland Fire Ecology and Management

BLM Alaska has recognized fire as an essential ecological process and natural agent of change to ecosystems. A large majority of BLM lands in the planning area have the Limited fire management option where wildfire is considered to have natural resource benefits, and a

near-natural fire regime will result (or at least one that reflects the prevailing climate). However, areas near the road system and communities are typically within Modified, Full, or Critical management options and wildland fire suppression will artificially modify the fire regime in these lands. Human-caused fires (which occur more frequently near the road system) can alter fire regimes; however, the BLM policy is to actively suppress all human-caused fire. The BLM decisions that alter management in an area can also result in changes to wildland fire management. An increase in public presence and establishment of human infrastructure often leads to more wildland fire suppression efforts which can cause abnormal deviations to the fire regime. Effects to vegetation of a longer fire return interval include older stand ages, changes in community composition, trend towards less productivity and growth, and larger areas of similar vegetation. Climate change will generally increase area burned, lower fire return intervals, and increase fire severity. The influence of climate change on fire regime and resulting ecosystem functions might stimulate land managers to investigate methods to slow or reduce the effects of climate change on fire and vegetation.

BLM-sensitive plant species are generally either adapted to fire or occur in habitats where wildland fire occurs rarely. Wildland fire control activities such as camps or constructed firelines could impact sensitive plants. Most sensitive plants occur in alpine areas or on steep south-facing slopes—habitats in which wildland fire suppression activities are unlikely to occur.

Effects from Wildlife

Management guidance and SOPs to minimize impacts to wildlife habitats will benefit vegetative communities. ACEC management will reduce potential impacts to vegetation through closing or placing restrictions on locatable and leasable mineral development, restricting motorized vehicle use, and other provisions. In Alternatives C and E, cross country travel will not be allowed in ACECs and crucial caribou and Dall sheep habitat following Travel Management Planning.

Effects from Forest and Woodland Products

Harvest of wood products can have major effects on vegetative communities, although assumed low levels of harvest will result in minor impacts at the planning area scale. In some aspects and under certain situations, forest harvest can have effects similar to wildland fire, including increase in vegetation productivity and growth. In some situations, timber harvest can be done with minimal effect (e.g., selective or salvage harvest during winter with adequate snow cover). Potential impacts of forest harvest include: loss of vegetation cover, conversion of vegetation to an earlier successional stage, introduction of non-native invasive plant species, and roads and trails built for access. Regeneration of tree species can sometimes be delayed by heavy grass cover following harvest. Roads and trails created for forest harvest can result in both direct and indirect impacts on vegetation, including facilitating recreational off-road OHV use and the resulting creation of additional roads and trails.

In Alternative A, commercial forest harvest is not allowed in the White Mountains NRA or Steese National Conservation Area while commercial sales could be considered in the Fortymile and Upper Black River subunits. Action alternatives allow commercial forest sales in greater portions of the planning area than Alternative A, including 84 percent of BLM lands in the planning area in Alternative C and 70 percent in Alternative E. Commercial timber salvage sales are allowed everywhere in both alternatives. Despite the large area available, it is assumed that only three to five small biomass projects might occur during the life of the plan. Assuming continued low level of forest product sales, (three free-use permits and one small sales vegetative contract during past 10 years) impacts of forest products on vegetation are anticipated to be low in all alternatives. As a result, few forestry-specific resource protection guidelines have been developed in this RMP. The low value of timber resources will generally limit the extent of roads and trails that are economic to build for access. However, most alternatives allow commercial harvest in some areas where it was not allowed previously and improved access to timber could result from access built for other activities. Sensitive plant species are not typically found to occur in commercial forest habitats, but may occur in routes used for access.

Effects from Lands and Realty

Permits for uses of BLM lands may involve uses and activities which will impact vegetation, but those activities will generally be guided by SOPs and leasing stipulations (Appendix A) and the remaining effects will be analyzed and may be reduced during the permitting process. There are no right-of-way exclusion areas in the planning area. Rights-of-way impacts would be similar to those discussed under “Effects from Locatable Minerals.” Lands which are found to contain sensitive plant species could be transferred out of BLM management if not identified for retention.

Effects from Fluid Leasable Minerals

Leasing of minerals is not anticipated during the life of the plan; should it be proposed, it will be analyzed in a separate NEPA document. Seismic exploration for oil and gas could occur in at least some alternatives and would have direct impacts on vegetation, including potentially BLM Alaska sensitive species plants. Direct destruction of vegetation occurs with clearing of seismic lines. Vegetation in seismic lines have been shown to be quite slow to recover (USFWS 2008a, section 4.11.1.1). Lines may be used by summer and winter OHVs, which can exacerbate impacts and slow or prevent vegetation recovery. A total of 20 miles of seismic line is anticipated to be constructed on BLM lands within the life of the plan, most likely in the Steese or Upper Black River subunits. Seismic lines constructed in the 1970s in the Black River Subunit were still

clearly visible in the 2013, and had mostly not returned to the original or similar vegetation type. A long-term shift in plant community can be expected at the 20 miles of lines anticipated.

Effects from Solid Leasable Minerals

Although leasing of coal would not occur without additional NEPA analysis and a land use plan amendment, exploration activities could occur in any areas open to leasing. In addition, coal inventory and exploration could also be approved in areas closed to leasing. Considerable surface disturbance may occur with exploration for coal (e.g., 250 x 250 foot trenches, 50 x 40 foot drill pad sites). Exploration for coal, if any, is anticipated to occur only in the Eagle Field (in the northern Fortymile Subunit). No leasing or exploration of other solid minerals is anticipated due to lack of known occurrence of economic quantities in the planning area. In the unlikely event that leasing of other solid minerals would occur, impacts to vegetative communities could be similar to that of large lode mines described below.

Effects from Locatable Minerals

Locatable mineral extraction operations expected to occur in the planning area include small- and large-scale placer mines, suction dredging, and large-scale lode mines (although no large-scale lode mines are anticipated on BLM lands). Impacts include direct loss of habitat from the operations and access routes, and changes in human use of the area from changes in access.

Suction dredging may impact riparian vegetation through long-term camping activities, and may disturb and/or displace wildlife in the immediate vicinity of the operation, but typically does not impact riparian vegetation directly. Travel to and from suction dredge operations may impact vegetation, depending on available access.

Placer mines typically disturb both riparian and near-stream vegetation, and also disturb the stream channel which may result in downstream effects on riparian vegetation. Placer mining typically results in a change from late seral to early seral community types. Recovery of habitats from placer mining is highly variable and may be very slow. It is dependent on success in saving of topsoil and organic matter, proper re-spreading in a time frame that maintains live seeds and vegetative parts, and establishment of vegetation on topsoil and fine-grained materials before they are washed away. Aufeis formation resulting from disturbance of stream hydrology can result in spring water flow in places that are well above the normal stream level and this could erode topsoil before revegetation occurs. Late melt of aufeis can also prevent or slow vegetation growth. Instability in the stream channel as a result of mining could also affect aquatic and riparian habitats downstream of the mine site. More discussion on stream-channel and downstream effects of placer mining can be found in the Fish and Aquatic Species section 4.3.1.4. It may require 50 years or more (following end of mining) in some areas for riparian area habitat quality to approach pre-mining conditions. Some mine sites remain in operation for many years, with a portion of the mine area disturbed for the duration of mining. Reclamation often does not proceed as planned due to changing of operators, or financial or logistical difficulties.

The number of small-scale placer mining operations on BLM lands in the planning area is predicted to range from 37 small mines in Alternative A, to 42 in Alternatives B and E, to 50 in Alternative C to 67 in Alternative D; and from five to eight large placer mines during the life of the plan (dependent on alternative).; and occur mostly in the Fortymile and Steese subunits (section 4.2.1 Analytical Assumptions). Assuming 25 and 70 acres disturbed in small- and large-scale placer mines, respectively, over the life of the mines, this will result in an estimated direct surface disturbance of 925 to 1,675 acres of small-scale and 350 to 560 acres of large-scale

placer mine disturbance. These predictions for each alternative have no upper or lower bounds identified — actual numbers could be much higher or lower. Although these areas represent very small proportions of the planning area, placer operations concentrate impact on high-value and relatively uncommon stream riparian and aquatic habitats. Placer operations also will be concentrated in some drainages, and affects will persist beyond the life of this plan. In addition, the access to mine sites can cause surface disturbance and indirect impacts to many more acres than the mines themselves. Roads and trails for mining access often occur in or near riparian areas and involve multiple stream crossings.

In addition to the direct loss of habitat from road construction surface disturbance, roads and trails can cause changes to adjacent habitat including melting permafrost, obstruction or change in drainage, aufeis formation, erosion of road material, and dust deposition on adjacent vegetation or snow. Invasive species are frequently spread along roadways and by motorized vehicles. The roads and trails may also be utilized for purposes other than mining. Roads facilitate access by summer and winter OHVs to surrounding areas which may previously have been remote and inaccessible.

Impacts from roads can often be mitigated by measures such as limiting public use and off-road travel, building the road in a manner which facilitates reclamation, and promptly closing and reclaiming the road following use. However, roads frequently are open for public use during mining and are often not closed or reclaimed.

Exploration for locatable minerals may cause vegetation disturbance. During helicopter supported exploration, trees are cleared for helicopter landing sites. If the site is close enough to a road system to make road-building economical, roads may be built to each drill site, which would involve substantially more surface disturbance. Placer exploration may involve trenching and drilling, but would not normally impact the stream channel. Roads and trails built for exploration will create impacts similar to those used for mining (see above) except that they may be reclaimed immediately and thus involve lesser impact. Since mining companies do not necessarily share exploration data, multiple exploration operations could occur in the same area, extending impacts over multiple years or intensifying impacts within a year.

Winter equipment moves will normally be conducted with snow and frozen ground depths adequate to prevent major impacts. Some damage to vegetation, however, will inevitably occur (especially taller vegetation), and in some vegetation types and soils, heavy equipment moves can produce long-term changes to soils and vegetation. Jorgenson et al. (2010) found that some seismic camp move trails on the north slope on ice-rich, fine-grained soils remained disturbed after 25 years (and likely permanently) because of changes in hydrology caused by ground subsidence, despite protectiveminimum snow cover and frozen soil depths. Winter moves can also create or maintain trails used by OHVs.

Effects from Recreation

In general, recreation management units which allow and promote greater recreational use and access (especially motorized access) will have greater potential impacts to vegetation. In SRMAs, progressively greater disturbance of vegetation is expected on a continuum from Primitive to Semi-Primitive, Backcountry, Middlecountry and Frontcountry RMZs. ERMAs allow dispersed use and are typically remote and so, although summer motorized use is allowed, relatively little occurs. Recreational facilities impact vegetation directly (such as during construction) as well as indirectly through visitor use on or near the facility. The effects will depend on area of disturbance, the level of use and habitat. High levels of visitors can impact vegetation by

trampling, especially in areas where use is concentrated such as near facilities. Recreational use motorized vehicles typically have larger impacts to vegetation, both in area impacted and degree of modification as described below.

Effects from Travel Management

Winter OHV Use

Oversnow vehicles (snowmobiles) weighing less than 1,000 pounds curb weight are generally allowed throughout the planning area during winter months (October 15 through April 30) except in Research Natural Areas (and including RNAs in Alternative E).;. When and where there is adequate snow cover, snowmobiles generally create little impact to vegetation. Recreational snowmobilers typically do not travel in areas of low snow cover because it can be uncomfortable and hard on equipment. Shrubs and small trees may be damaged or killed when overrun by snowmobiles. The low vegetative mat is not typically impacted, but may be damaged in spots where a machine's track was spun excessively. Repeated travel on trails can pack snowcover, decreasing insulation value of the snow and in some places cause subsurface water flow to occur on the surface and "glaciering" to occur. The later melt of this ice in spring can impact vegetation growth. In general, impacts to vegetation from snowmobiles will be low in all alternatives and noticeable impacts will be limited to local areas, eg. where use is heavy, on steep slopes, or when or where snow cover is low. But improvements to vehicles and changes in use patterns and climate may increase impacts from snowmachines require closer monitoring and/or changes in management. See section 4.3.3.2 for additional discussion of potential impacts.

Cross-Country Summer OHV use

OHVs impact vegetation in as little as one to a few passes and a visible "trail" is created when vegetation is crushed and broken. Shrubs such as willow and dwarf birch are especially susceptible (Ahlstrand and Racine 1993). Ten controlled passes of a small three-wheeler caused shrub breakage and herbaceous plant compression, damage to sedge tussocks, and surface depression. With additional passes, or with shearing from tires or track cleats, ground cover vegetation and organic material became disturbed, eventually exposing mineral soils and mixing organic and mineral soils (Ahlstrand and Racine 1993). With compression from OHVs, the insulative properties of the vegetation and organic layer are reduced and the depth of thaw is increased. In permafrost soils, this removal or compression of vegetation and organic matter can lead to thermokarsting and erosion. Vegetative cover and composition may change in trails (with sedges and grasses often favored over other plants) or vegetation may be totally lost in the trail tread. The depression of the surface of the trail often leads to capture and rerouting of drainage.

When enough OHV passes occur to create visible trails, those trails tend to attract further use, leading to a network of user-created trails which vary from lightly traveled and barely visible to heavily traveled and bare soil or deep ruts. Heavy use may also lead to braided trails which increases the impacts to vegetation. The BLM has attempted to manage some of these trails to improve condition and reduce impacts to resources. Alternatives B and C propose many of these trails as "designated" or "existing" and propose that summer OHV use be limited to these trails. In contrast, Alternatives A, D, and E allow cross-country summer OHV travel.

Trails with exposed soil serve as routes of spread for non-native plant species, including invasive species. It is very difficult to monitor for initial colonization of non-native species along a user-created network of scattered trails — and even more difficult to monitor large areas that are subject to dispersed cross-country travel. Invasive species not detected soon after establishment

may be difficult or impossible to eradicate. Dispersed cross-country travel which does not result in soil exposure represents much less risk of spreading invasive plant species. Where soil is exposed, risk increases. After fires, mineral soil is either already or easily exposed so that dispersed cross-country travel creates a much greater probability of establishment of invasive plant species. Several studies have shown that roads and trails serve as conduits for movement of plant species and that vehicles are capable of distributing large amounts of weed seed (Gelbard and Belnap 2003, Christen and Matlack 2006, Rooney 2005, Hansen and Clevenger 2005).

Wildland fires in 2004 and 2005, which burned large areas of all subunits, removed brush and tree branches, making travel through previously inaccessible areas possible. Downed trees in some burned areas may make it more difficult to travel cross-country. When vegetative ground cover and organic matter is burned, trails are established after fewer OHV passes. OHV travel which removes remaining organic material may induce erosion, delaying or preventing recovery of vegetation from fire.

The increasing size and capability of OHVs also create increased capability of simply driving over and through small and medium-sized vegetation, including small trees, creating new trails that would not have been possible in the past without first clearing vegetation. On non-forested well-drained ridgetops and areas of alpine tundra, soils may be more resistant to change by OHVs, but vegetation may be removed with repeated passes, and runoff-induced erosion can result without adequate water control. When use is dispersed, a distinct trail may not be formed, but the cover and composition of vegetation over a larger area may be adversely affected. Lichens, in particular, are sensitive to damage from one to a few passes with OHVs. The single passage of an OHV over dry lichens has been observed to all but eliminate them (Ahlstrand et al. 1988), and lichens continue to be rare in disturbed areas on the North Slope after 30 years (Felix and Raynolds 1989).

Recovery of vegetation on an OHV trail can be very slow and permanent changes can result. Where the organic mat is heavily damaged, sites may continue to degrade even after use ceases. Subsidence and erosion may prevent revegetation. Changes to soils may delay revegetation. Some sites may revegetate, but with a different species composition, leaving trails visible for decades.

Allowance of cross-country travel by OHVs 1,000–1,500 pounds curb weght would result in increased impacts to vegetation (This would apply to the Fortymile subunit in Alternatives D and E and in the Black River in all action alternatives) Larger and heavier vehicles (even if they have similar ground pressures) disturb wider tracks of vegetation, create deeper tracks, and cause deeper and wider thaw bulbs (Racine and Ahlstrand 1991). However, summer OHV use is not currently (Alternative A) limited by weight in either the Black River or Fortymile subunits (except for the Fortymile Wild and Scenic River Corridor).

In the Steese subunit in Alternative B, qualified subsistence users would be allowed to access all portions of the subunit with OHVs (except RNAs) after acquiring a free permit. Relative to other alternatives, this would introduce new impacts to areas that are currently closed to summer OHV use (including the Rocky Mountain Primitive zone and Birch Creek WSR Corridor). However, use of summer OHVs for subsistence in Alternative B would be small relative to that by non-subsistence users in alternatives where cross-country use is allowed (A, D, and E). . In addition to impacts from subsistence users, some non-qualified users will be attracted by existing and new tracks and trails and use the area against regulations.

Overall, impacts to vegetation from OHV use would likely be lower in Alternative E relative to Alternatives A and D, but higher than Alternative C where OHV use is limited to Middlecountry and Frontcountry RMZs and cross-country travel is not allowed.

OHV use on designated or existing trails

Most current OHV trails in the planning area are user-created trails. The primary benefits of confining use to existing or designated trails (Alternatives B and C in all but the Upper Black River Subunit) are in limiting damage to vegetation from cross-country OHV use, limiting the continuing proliferation of new user-created trails that result, and allowing management and re-routing of existing trails. Although some vegetation impacts will occur with designated trails, because use will be concentrated on existing trails (such as trail braiding in boggy areas), these impacts will be small relative to damage from cross-country travel (including the continued creation of new tracks and trails).

Constructed trails can have characteristics and effects similar to small roads (especially those built for UTVs). The existing vegetation community is removed, usually in a tread at least twice as wide as the vehicle. If constructed trails are not designed to manage surface water flow across them (or adequately maintained), ponding or erosion will result. Constructed trails also often convert subsurface water flow into surface flow, changing plant habitat near the trail. OHV use on existing constructed and managed sustainable trails will result in little impact to vegetation beyond that caused during construction (except for potential spread of non-native invasive plant seed). Constructed trails will decrease braiding and loss of vegetation through erosion, but will typically be wider than existing non-braided two-track trails. Constructed trails can be sited in less harmful locations. In all subunits except the Upper Black River, constructed trails will replace some existing user-created trails, and benefits to vegetation will generally accrue.

Under Alternative C, travel off of existing or designated trails to retrieve downed game will be allowed. This will create the same types of impacts described above under Cross-country Summer OHV Use. However, the damage to vegetation will be only a small fraction of that which would occur when the entire area allowing limited motorized use is open to cross-country travel. Not only is the use limited to hauling of meat, but must occur near existing/designated trails. In the Fortymile subunit, where in Alternatives D and E cross-country UTV use would be widely allowed, greater impacts to vegetation would occur than in Alternatives B and C (where summer OHVs are limited to existing trails).

OHV effect on BLM Alaska sensitive species plants and riparian and wetland vegetation

Cross-country summer OHV use (which is allowed in all alternatives in the Upper Black River Subunit and Alternatives A and D in all other subunits) could impact BLM Alaska sensitive species plants as well as other rare plant species (Nawrocki 2013). Most of the known locations of sensitive plant species are either in areas closed to summer OHV use, in areas that are currently remote enough to not see OHV use, or in areas where OHVs would generally not access, such as steep, south-facing river bluffs or alpine scree. However, some sensitive species, such as *Poa porsildii* and *Montia bostockii*, in the upper South Fork Birch Creek, are found in terrain that (except for remoteness) would easily be traversed by summer OHVs and adversely impacted. The sensitive species *Ranunculus camissonis* is found in the headwaters of Champion Creek in the White Mountains NRA, in a readily accessible area currently area closed to summer OHV (Alternative A). Limiting OHV use to existing trails greatly reduces the area potentially impacted by OHVs to just a small fraction of that possible with cross-country use. It also allows new trails to be sited in location which will avoid sensitive plants or rare plants and plant communities.

Wetland habitats are especially sensitive to disturbance by OHVs. Disturbance, such as OHV use leading to trail development will result in a direct removal of wetland vegetation. Depression of the insulative mat over permafrost soils can result in thermokarsting. Saturated soils are less resistant to shearing of the organic material and experience hydraulic pumping, which disturbs soil structure. On low-slope terrain, expanding bogs often result. As users divert around these boggy trails, they damage vegetation and create the same cycle, resulting in expanding bogs or an expanding network of braided trails. Any depression in the ground surface can collect and channel water and lead to alteration of drainage patterns.

Riparian vegetation may be sensitive to damage by OHVs, depending on soils and vegetation. Stream bank vegetation is often critical for channel stability. Streamflow may initiate cutting of a new channel where riparian vegetation is removed, especially during high water events. Uncontrolled OHV use along stream channels or banks may damage riparian vegetation and bank structure, resulting in alterations in stream structure and stream sedimentation. At stream crossings, vegetation is removed and widening of the channel often occurs. This change can affect aufeis formation. Diversion of some or all of the stream flow down the trail sometimes occurs at stream crossings. Impacts from stream crossings can be largely eliminated with well-planned and constructed trails combined with limiting of OHV use to those trails.

Area and extent of OHV impacts on vegetation

The proportion of the large areas in each subunit currently open to motorized use on which vegetation is currently impacted by OHVs is unknown, but likely less than two percent. This area might be considered inconsequential on an ecosystem scale. However local impacts may be substantial where use is heavy. In addition, trails and their use may have impact more significant than the area they occupy, because negative impacts are often focused in sensitive or important habitats such as wetlands, riparian areas and streams, and because effects can occur beyond the trail surface — such as from establishment of non-native invasive species.

Studies conducted in Wrangell-St. Elias National Park and Preserve documented that the average OHV trail had an impact area 34.6 feet wide (Connery 1984, as cited in Meyer 2002), or 4.2 acres/mile. In an area of Denali National Park used by summer OHVs, Park staff found 22.8 miles of trails and passes (disturbance from passage of a single OHV) and a total footprint of 36.5 acres, or about 1.6 acres per mile (NPS 2007). Where use is not confined to trails, such as in non-forested, dwarf shrub habitats, dispersed use may impact a large area without creating clearly defined trails. Under Alternatives A, D, and E, cross-country OHV use will continue to be allowed and new trails will continue to be created. Few trails will recover as long as use is allowed. Few limits will be placed on the creation of new trails or damage to existing trails. The area of visibly affected ground is predicted to increase by ten to twenty-five percent in 10 years under Alternatives A and D, but there is little certainty in this estimate. Future travel management planning under the Proposed RMP (Alternative E) could limit cross-country summer OHV travel, but this is not assured and interim management is similar to Alternative A.

Airboat Use

Alternative E allows airboat use in all National Wild and Scenic River Segments, where it has previously been prohibited. Due to the ability of airboats to travel on wetland vegetation (and over short sections of upland or obstructions, vegetation damage in wetland areas adjacent to these river segments can be expected. Non-native invasive plant species could be introduced, particularly in disturbed areas. A study of airboat impacts to floating mat fens in Tanana Flats (Zacheis and Doran 2009) found that vegetation productivity declined by the third year of use.

Following four years protected from airboat traffic, woody plants, grasses and most forbs were eliminated from airboat trails; and live below ground biomass remained reduced.

Effects from Special Designations

New ACECs were proposed (Alternatives B, C, D, and E) to protect wildlife (especially sheep and caribou) and fisheries values. ACEC management will reduce potential impacts to vegetation through closing or placing restrictions on locatable and leasable mineral development, restricting motorized vehicle use, and other provisions. In Alternatives C and E, cross country travel will not be allowed in ACECs following Travel Management Planning. The Mosquito Flats ACEC will protect extensive sensitive wetland vegetation from disturbance by summer OHVs.

All existing WSR classifications will be maintained in all alternatives. Management of these river corridors will tend to minimize new surface-disturbing activities. Designation of new WSR segments under Alternative B will similarly serve to maintain vegetative values in those segments.

Effects from Hazardous Materials and Abandoned Mine Lands

Cleanup of existing hazardous materials and prevention of new spills or deposits will benefit vegetative communities by reducing potential long-term effects and by allowing timely revegetation of the site. Rehabilitation of abandoned mine lands will result in revegetation of disturbed sites. In the cleanup process, disturbance of vegetation may cause short-term impacts to vegetation, but typically this will be offset by long-term benefits of a rehabilitated site.

Effects from Subsistence

The management of federal lands to maintain subsistence resources will benefit wildlife habitat and vegetative subsistence resources. Harvest of vegetative resources by federally qualified subsistence users may impact vegetation, but such harvest is typically non-destructive (such as berry picking) and very limited in extent. Use of motorized vehicles by federally qualified subsistence users could impact vegetation in a manner similar to other motorized vehicle use and will be subject to the same regulations, with very limited exceptions conducted under a permit (eg. snowmachine use in RNAs).

4.3.1.8.2. Cumulative Effects

Climate change will result in major changes in vegetation composition across the planning area. The frequency of wildland fires is predicted to increase and result in a shift from a mature spruce-dominated landscape to one dominated by deciduous forest and shrub. The greatest amount of change will occur by 2040 (Rupp and Springsteen 2009b). Treeline will continue to rise with warming temperatures. This rise documented by Lloyd (2005) in interior Alaska has been slow, but relatively rapid rises have been documented in some places in the region (Danby and Hik 2007). The growing-season climate is predicted to become drier (despite a predicted slight increase in precipitation) due to an increase in evapotranspiration related to higher temperatures. As a result, white spruce in many sites will suffer increased drought stress (Barber et al. 2000), reduced growth, and increased insect attack. The effect of spruce bark beetle infestation in southcentral Alaska has been a dramatic decline in white spruce. Beck et al (2011) documented declines across interior Alaska in both black and white spruce radial growth and forest primary productivity with increased summer temperature. Continued warming temperatures and increased temperature-induced drought stress will negatively affect the productivity, growth, and mortality of both black and white spruce, and likely reduce the prevalence or at least change the distribution

of these species in the planning area. Drying and shrinking of some wetlands may continue. The regional prevalence of non-native plant species will continue to increase, resulting in greater potential for spread onto BLM lands.

Extreme weather events are predicted to increase in frequency and result in a variety of changes. For example, Bokhorst et al. (2009) documented extensive damage to sub-arctic dwarf shrub vegetation in Sweden following a winter warming event in which temperatures warmed to seven degrees C during December 2007. In Interior Alaska, recent extremely dry summers have resulted in several record fire years.

The increase in OHV usage could be greater than expected (analysis assumptions are five to ten percent per year increase). The number of registered OHVs in Montana increased 2.6 times in eight years (Youmans 1999); off-highway motorbike/ATV registrations in Idaho increased 23 times between 1983 and 2003 (USDA, Forest Service 2004); and the nationwide population of OHVs increased by 2.7 times in 10 years (1993 to 2003, Cordell et al. 2005). Coupled with other factors such as attraction of OHV users to constructed trails, increasing off-road capabilities of OHVs, the possibility for population growth in the Fairbanks area, the effects of wildland fires, and creation of new access (roads and trails) for mining, recreation, and utility corridors, the impact of OHVs on vegetation could increase substantially in areas open to cross-country travel. Access tends to increase incrementally, as roads and trails are extended from existing roads and trails, and both roads and trails tend to become larger and improved.

Two large lode mines are predicted to occur in the planning area during the 20-year life of the plan , one of which (Money Knob near Livengood) includes 26 federal mining claims, but no other BLM lands. Large lode mines are not predicted to occur within BLM lands during the life of the plan, in part, because of the time it takes to begin such a mine. However, additional lode mines in the area, including BLM lands opened to mineral entry, could potentially occur, either within the life of the plan or later. Large lode mines have a large area of surface disturbance, permanent change to the landscape, high levels of human activity, and typically require large, high-standard road access with considerable traffic. Access may be requested across BLM lands for mines located on non-BLM lands, resulting in direct and indirect impacts.

Increased wildland fires, increased regional prevalence of non-native species, climate change, a developing transportation network, and increasing OHV usage may all combine to create substantial effects on vegetation both directly and from enhancing conditions for spread of non-native invasive species. All action alternatives open large (but variable) proportions of BLM lands in the planning area to locatable and leasable minerals. Limiting OHV use to existing/designated trails (Alternatives B and C) will reduce potential impacts from the combination of these factors compared to Alternatives A and D. Alternative E does not restrict summer OHV use to existing/designated trails (except in ACECs and crucial caribou and Dall sheep habitats), however smaller areas are open to locatable and leasable minerals than in Alternative C, and Travel Management Plans may result in greater restrictions on cross-country OHV use.

4.3.1.9. Visual Resources

Summary of Effects

Effects to visual resources come from activities resulting in surface disturbance such as mining, trail construction, or facilities development due to changes in line, color, and texture on the

landscape. Temporary field camps associated with a variety of activities would temporarily impact visual resources by introducing different colors into a predominately green and brown landscape. Both wildland and prescribed fires affect the visual resource by changing line, form, color, and texture of burned areas in contrast to the surrounding unburned areas. Proper management of air quality, soils, vegetation, fish and wildlife would generally protect or enhance visual resources.

VRM Classes outline the level of change that could occur within that class. Identifying an area as a specific management class does not guarantee that change will take place. The discussion below identifies the impacts that may occur to the landscape from each resource if development or management activities occur. However, the potential for every acre to lose visual quality due to management in a specific VRM Class is extremely low.

The Visual Resource Inventory Classes described in Chapter 3 will be used as a base of comparison since it represents the existing condition (IM 2009-167; July 7, 2009). The table below shows the results of the VRM Inventory for the entire planning area (Appendix D, *Visual Resource Inventory*) and the acres in each BLM VRM class.

VRM Class	VRI Class (acres)	Alternative B (acres)	Alternative C (acres)	Alternative D (acres)	Alternative E (acres)
Class I	291,000	346,000	343,000	317,000	343,000
Class II	19,547,000	4,951,000	1,876,000	546,000	3,632,000
Class III	2,098,000	371,000	267,000	421,000	11,000
Class V	9,019,000	855,000	4,037,000	5,239,000	2,537,000
Total	**30,955,000**	**6,523,000**	**6,523,000**	**6,523,000**	**6,523,000**

4.3.1.9.1. Effects Common to All Alternatives

Effects from Temporary Field Camps

The BLM uses temporary field camps for management and inventory activities associated with many programs. These field camps may temporarily impact visual resources by introducing different colors into a predominately green and brown landscape. Field camps would be less than one acre in size and generally last fewer than two weeks in any one location. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. As viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Effects from Air and Atmospheric Values

Decisions in this plan will protect and enhance the quality of air resources associated with BLM lands. All direct or authorized emission generating activities will comply with federal and state air quality laws and regulations. The BLM will also implement interagency wildland fire smoke effects mitigation measures and consider smoke effects in all fire management activities. These actions would continue to promote visually clear skies over BLM lands, thus maintaining good visibility. Air flow from adjacent countries may impact visual resources by reducing visibility as pollutants increase. These impacts could affect all distance zones.

Effects from Cultural and Paleontological Resources

Destructive cultural resource data recovery and scientific use such as excavation and extensive subsurface testing has the potential to impact visual resources by removing vegetation and

changing landform characteristics at each site. The browns of disturbed soils and the natural revegetation process would continue to impact color for long-term. Texture contrasts between soils and adjacent vegetation would also be impacted for the long-term. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

The removal of significant paleontological resources may have the same impacts on visual resources as described above for cultural resources.

Effects from Fish and Aquatic Species, Including Special Status Species

Active rehabilitation efforts, such as willow plantings, seeding and fertilizing would have positive impacts to areas with surface disturbance. Other rehabilitation efforts such as recontouring the floodplain and returning the stream channel to a more natural functioning condition would result in changes to line, form, color and texture. Rehabilitation efforts would result in the area returning to a more natural looking landscape. The size and scope would depend on the size of the project.

Effects from Soil Resources

Returning lands to pre-disturbance conditions will enhance visual resources by returning disturbed lands to a more natural landscape by blending with surrounding landscape in line and form. There may be a temporary increase in sedimentation that will impact water clarity during restoration activities. The browns of disturbed soils and the natural revegetation process would continue to impact color for long-term. Texture contrasts between soils and adjacent vegetation would also be impacted for long-term. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Effects from Water Resources

Monitoring activities, such as snow courses, stream gauges and permafrost research sites would generally go unnoticed by the casual observer except if viewed in the Foreground-Middleground Zone. Restoration projects to improve water quality may have impacts online, form, color and texture while returning the disturbed landscape to a more natural appearance over the long-term.

Effects from Wilderness Characteristics

The maintenance of wilderness characteristic would enhance visual resources by limiting surface disturbance activities and managing for a natural landscape. Allowance of temporary structures, public use cabins, and other small facilities, such as dispersed use campsites, would impact visual resources primarily through changes to color from the matte greens of natural vegetation to other colors of buildings. Texture and form impacts would include changes from irregular, random textures of vegetation to smooth, definite geometric shapes of buildings. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Facilities development would be guided by the VRM class objectives assigned for the area where development would occur. Proper design and construction techniques can reduce visual impacts from facilities and help maintain a more natural appearing landscape. If viewed

from a higher viewpoint, facilities in the Foreground-Middleground Zone would attract the attention of the casual observer. Depending on size, facilities in the Background Zone may also attract the attention of the casual observer. As viewed from ground level, only facilities in the Foreground-Middleground Zone would attract the attention of the casual observer.

Visual characteristics are related to the criteria used to determine the presence of wilderness characteristics which includes naturalness. Management decisions to preserve wilderness characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining natural vegetation and landform.

Effects from Wildland Fire Management

Both wildland and prescribed fires affect the visual resource by changing line, color, and texture of burned areas in contrast to the surrounding unburned areas. Line would change from a more regular, smooth line to a irregular, jagged line along the adjacent burned and unburned area within the Foreground-Middleground Zones. Short-term color impacts would be expected in burned areas until revegetation occurs. Fire can enhance color over time by creating more diversity in the hues and colors associated with a more diverse vegetation composition. Vegetation texture can change from a medium to fine, compact texture in natural areas to a coarse, sparse texture in burned areas as a result of fire. Burned areas, if viewed in the Foreground-Middleground and Background zones, would attract the attention of the casual observer. Both wildland and prescribed fires impact visual resources by reducing visibility by smoke. These impacts may last only a day but could last longer. Fire suppression activities cause impacts to visual resources by introducing changes in color, texture, and line to a natural landscape. Colors change from the various hues of green vegetation and predominately brown soils and organic materials. Texture changes from a natural medium, subtle texture of vegetation to a coarse, rough contrast of disrupted soils and organic materials. Changes in line from the irregular, weak line of the natural landscape to a regular, strong line between natural vegetation and human-constructed fireline could occur. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. As viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Rehabilitation of the fireline, which decreases the color contrast, a line contrast may be long-term depending on the vegetation composition between the undisturbed natural area and the disturbed fireline. These impacts may attract the attention of the casual observer in both the Foreground-Middleground and Background zones.

Other treatments such as mechanical fuel reduction using select cut, shaded fuel break pile and burn would have limited impact to visual resources since removal of vegetation is selective and generally appears natural. Treatments such as chemical, dozer lines and hydro axe would have greater impacts to vegetation, resulting in changes to the landscape in line, form, color and texture. Line changes from an irregular line to a more straight line where vegetation is removed, form changes from irregular to more regular appearing in the area of vegetation removal, color changes from various hues of diverse vegetation to a more uniform color of grasses as large woody materials are removed, and texture changes from an irregular texture of diverse plant communities to a more uniform texture of grasses or low woody plants. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. As viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Effects from Forest and Woodland Products, including Subsistence

Timber, firewood, and forest products harvest (e.g., birch bark), including for subsistence purposes, can impact line, form, color, and texture. The removal of trees changes the density of vegetation, a characteristic of texture. Changes in line from the irregular, weak line of the natural landscape to a regular, strong line between natural vegetation and the harvest area is dependent on the harvest technique used. Form changes from the irregular shape of the vegetation to a regular geometric shape from removal of vegetation. Changes in color would occur from the deeper hue of trees to the more diverse colors of lower growing vegetation. Clear-cuts would have the greatest impact, while select cutting would have the least impact. Depending on size, timber harvest activities may attract the attention of the casual observer in the Foreground-Middleground Zone, Background Zone, and even the Seldom-Seen Zone.

Effects from Lands and Realty

The acquisition of lands with high resource values and the consolidation of public land holdings will enhance visual resource management by reducing inholdings and scattered parcels. Consolidation would eliminate the possibility of unmanaged development activities on private land surrounded by BLM lands and would reduce the number of isolated parcels managed by the BLM. Land disposal would impact visual resources by transferring ownership from the BLM into state-management or private ownership where possible development may occur. Development would cause changes to line form, color and texture to the landscape and vegetation.

Most of the visual impacts from land use authorizations, such as leases and rights-of-way, would be from the clearance of vegetation and support structures for pipelines, power lines, communication sites, and weather stations. These would impact visual resources by introducing straight, vertical and horizontal lines into a multi-shaped landscape. Color impacts would include changes from the matte greens of natural vegetation to glossy reflective colors of metal structures and other colors of facilities such as buildings. Texture and form impacts would include changes from irregular, random textures of vegetation to smooth, definite geometric shapes of buildings and straight lines of the right-of-way corridor. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Permits for temporary shelters would impact visual resources primarily through changes to color from the matte greens of natural vegetation to other colors of buildings. Texture and form impacts would include changes from irregular, random textures of vegetation to smooth, definite geometric shapes of buildings. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

The removal of unauthorized use structures would improve visual resources by eliminating the buildings' impact to the existing landscape characteristics of line, form, color and texture and allow the disturbed area to return to a natural state.

Effects from Renewable Energy

Land use authorizations for wind energy, solar energy and biomass utilization activities may result in impacts to visual resources. Most of the visual impacts would be from support structures for wind generators or solar panels, and vegetation harvest and would impact visual resources by introducing straight, vertical lines into a horizontal landscape. Color impacts would include

changes from the matte greens of natural vegetation to glossy reflective colors of metal structures and other colors of facilities such as towers. Some facilities may be reflective or shiny making them more visible from long distances. Texture and form impacts would include changes from irregular, random textures of vegetation to smooth, definite geometric shapes of buildings. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Effects from Fluid Leasable Minerals

Impacts associated with the seismic exploration for oil and gas would primarily be connected to temporary support facilities, survey work and overland moves. Temporary structures (e.g., weatherports, housing mounted on sleds), vehicles (e.g., rolligons, track rigs), aircraft, and human presence and associated activity would create minimal short-term impacts on visual resources. Impacts from exploration activities such as seismic line clearing of vegetation, would be primarily be changes to line, form, color and texture. Visual resources will be protected by the use of VRM class objectives and the visual contrast rating process during authorization of fluid minerals activities. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, exploration activities may attract the attention of a casual observer in the Foreground-Middleground Zone, but would be indistinguishable in the Background and Seldom-Seen Zones.

A longer lasting impact would be “green trails” resulting from overland moves or seismic exploration. These trails are not always visible for the entire route. These “green trails” are quite visible from the air to the casual observer versus on the ground where they become more difficult to recognize. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Effects from Solid Leasable Minerals

Impacts to visual resources by exploration, development and production of solid leasable mineral resources would depend on the scale of the action. Changes to line, form, color and texture of the natural landscape would result from activities such as trenching, road building for access, vegetation clearing for exploration activities, and mineral extraction processes. Mining operations would have the greatest impact to visual resources impacting line, form, color, and texture of mined areas, with the removal of vegetative cover and stockpiled materials creating form contrast between the mined areas and the stockpiled materials and the background landforms. Mining and material stockpiles would also create color contrast between the greens of vegetation and the browns of soils. Texture would change from a natural medium, subtle texture of vegetation to a course, rough contrast of disrupted soils and organic materials. Changes in line from the irregular, weak line of the natural landscape to a regular, strong line between natural vegetation and disturbed landscape could occur. Buildings and other facilities would impact primarily line, color and texture by introducing straight lines in an irregular landscape and color into a predominately green landscape. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Effects from Locatable Minerals

The impacts from the extraction of locatable minerals would vary depending on the methods used and size of operation. Although not predicted to occur on BLM lands over the life of the plan, large lode mining operations would have the greatest potential impact— impacting line, form, color, and texture of mined areas— with the removal of vegetative cover and stockpiled materials creating form contrast between the mined areas and the stockpiled materials and the background landforms. Mining and material stockpiles would also create color contrast between the greens of vegetation and the browns of soils. Texture would change from a natural medium, subtle texture of vegetation to a course, rough contrast of disrupted soils and organic materials. Changes in line from the irregular, weak line of the natural landscape to a regular, strong line between natural vegetation and disturbed landscape could occur. Changes in form from a natural landscape would occur where material is extracted from the ground and a resulting terraced pit is created. Typical footprint for this type of operation would be approximately 2,000 acres, plus any access road. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Smaller lode mining operations would have similar impacts as large lode mines, but the typical footprint would be approximately 600 acres, plus any access road. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. As viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Large-scale placer mining (semi-mobile plant) would have impacts to visual resources impacting line, form, color, and texture of mined areas, with the removal of vegetative cover and stockpiled materials creating form contrast between the mined areas and the stockpiled materials and the background landforms. Mining and material stockpiles would also create color contrast between the greens of vegetation and the browns of soils. Texture would change from a natural medium, subtle texture of vegetation to a course, rough contrast of disrupted soils and organic materials. Changes in line from the irregular, weak line of the natural landscape to a regular, strong line between natural vegetation and disturbed landscape could occur. Typical footprint for this type of operation would be five to twenty acres plus any access road. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Hardrock mineral exploration would have impacts connected to temporary support facilities and survey work. Temporary structures (e.g., weatherports, tents and fuel storage) and aircraft, and human presence and associated activity would create minimal short-term impacts on visual resources. Impacts from exploration activities such as clearing of vegetation for trenching activities and drill pads, would be primarily be changes to line, form, color and texture. The typical footprint would be 4.4 acres. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. As viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Suction dredge operations would have the least impact, but would still impact visual resources through the development of above ground support structures. Support structures from any support facilities would also impact line, form, color, and texture by introducing vertical lines from

buildings into a predominately horizontal landscape. Colors would contrast between the greens of vegetation and the building colors. Buildings introduce a smooth texture into a more coarse texture of the vegetation, as well as a more geometric square or rectangular form into the more random and irregular form of the landscape. Typical footprint for this type of operation would be less than half an acre. Depending on size of camp, suction dredge activities may attract the attention of the casual observer in the Foreground-Middleground,.

Effects from Salable Minerals

Impacts from the extraction of salable minerals would vary depending on the methods used and size of operation. Effects on color, texture, and line would be the same as those described above for locatable minerals due to removal of vegetative cover and stockpiled materials. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Effects from Recreation

Recreation Management Zones (RMZs) are managed for different physical settings which include remoteness, naturalness and visitor facilities. Of these, naturalness and visitor facilities impact visual resources by setting prescriptions for management, i.e., describing the amount of naturalness and how facilities will sit on the landscape. These prescriptions range from Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and description of how facilities will sit on the landscape.

New development of recreational facilities, such as campgrounds, trail heads, and kiosks would impact visual resources by introducing straight vertical lines and smooth textures into a predominately horizontal, random landscape. Increased use of existing and new facilities would introduce different colors into a predominately green and brown landscape. Some of the facilities may be reflective or shiny instead of the more subtle colors of vegetation, making them more visible from long distances. Buildings and other structures introduce a more geometric square or rectangle form into the more random and irregular form of the landscape. Facility development would be guided by visual resource management class objectives assigned for the area where development would occur. Proper design and construction techniques can reduce visual impacts from recreation facilities and help maintain a more natural appearing landscape. If viewed from a higher viewpoint, facilities and recreation activities in the Foreground-Middleground Zone would attract the attention of the casual observer. Depending on size, facilities in the Background Zone may also attract the attention of the casual observer. Viewed from ground level, activities in the Foreground-Middleground Zone may attract the attention of the casual observer.

Impacts to visual resources from special recreation permits would be reduced by the use of VRM class objectives and the visual contrast rating process. The use of “Leave No Trace” and “Tread Lightly” practices would help protect visual resources. The size and scope of impacts are dependent on the size and scope of the proposed activity. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

Effects from Travel Management

Impacts from non-motorized forms of travel such as horses, mountain bikes and foot travel are primarily to color from the damage to vegetation and the resulting soil disturbances. Some changes to texture and line may occur with repeated travel over the same area or route, resulting in an artificial straight line in an otherwise irregular landscape.

Impacts from OHV use as a result of unrestricted overland travel include changes in form, line, color, and texture on the landscape. Continuous overland OHV use leads to destruction of vegetation, which in turn results in soil exposure, creating a contrast between the adjacent greens of natural vegetation and the browns and grays of exposed soil and organic materials. A contrast in line and form occurs when the irregular characteristics of vegetation is altered by a more regular line in the form of a developed route. Texture characteristics change from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a developed route or mineral soil area.

Impacts from trail construction include changes in form, line, color, and texture on the landscape. Construction leads to destruction of vegetation, which in turn results in soil exposure, creating a contrast between the adjacent greens of natural vegetation and the browns and grays of exposed soil and organic materials. A contrast in line occurs when the irregular characteristics of vegetation is altered by a more regular line in the form of a developed route or constructed trail. Texture characteristics change from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a developed trail with trail hardening techniques and mineral soil areas. Some changes to form may also occur with construction along hill sides and over ridges as the landform is cut to make the travel width.

Most routes or trails would attract attention of the casual observer if viewed from a higher observation point and if the routes or trails were located within the Foreground-Middleground and Background zones. Trails or routes that are properly designed and viewed from ground level, however, would not generally attract the attention of a casual observer except from trailhead observation points.

Impacts from road construction are similar from trail construction. Additionally, fugitive dust is also a visual impact resulting from construction activities and from the use of gravel or natural material roads. Fugitive dust is a short-term impact that can be temporary in nature and is dependent on the amount of traffic a road receives. Road construction and use would attract the attention of the casual observer if viewed from a higher observation point and located within the Foreground-Middleground or Background zones. Roads that are properly designed and viewed from ground level, however, would not generally attract the attention of a casual observer, except as the road is traversed. Where roads intersect, where the road is at a higher elevation than the viewpoint (traveling over a hill), or is viewed from an elevated location, it may attract the attention of a casual observer if viewed in the Foreground-Middleground and Background zones.

Impacts on visual resources from unrestricted aircraft landings include minor changes in primarily color and texture on the landscape. Repeated use results in soil exposure and creates a contrast between the adjacent greens of natural vegetation and the browns and grays of exposed soil and organic materials. The removal of rocks and debris that interfere with landing aircraft may create a contrast in texture characteristics from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a cleared soil area.

Effects from Special Designations

The determination of suitable rivers for inclusion to the National WSR System would enhance visual resources in these areas by limited surface disturbance activities and managing for a natural landscape under WSR segments designated as "wild" and "scenic." Management of existing designated Wild and Scenic rivers (Fortymile, Birch Creek, and Beaver Creek) maintains the visual resources within designated river segments.

Visual characteristics may be related to the criteria used to determine eligibility of a river for designation if one of the Outstandingly Remarkable Values is Scenic. The degree of naturalness and the presence of human-made alterations on the landscape of a river segment is also considered when determining the classification of a river segment. The classifications of "wild," "scenic" and "recreational" reflect the naturalness of a landscape with "wild" rivers essentially primitive and undeveloped, "scenic" rivers are still largely primitive and undeveloped by may contain some development such as roads, trails and minor facilities. "Recreational" rivers are readily accessible and may have some development along their shorelines. Management decisions to preserve these characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining natural vegetation and landform on a scale of development from "wild" to "recreational."

Effects from Hazardous Materials

Environmental remediation activities, such as the removal of surface or buried wastes from abandoned sites and removal of contaminated soils, would enhance visual resources by removing the surface or buried wastes, recontouring disturbed areas, and returning the site to blend with the existing landscape characteristics of line, form, color and texture. If viewed from an elevated viewpoint, these activities may attract the attention of a casual observer in the Foreground-Middleground and Background zones. Viewed from ground level, these activities may attract the attention of a casual observer in the Foreground-Middleground Zone.

4.3.1.9.2. Cumulative Effects

There are 33 communities (or areas) adjacent or located within the planning area that impact visual resources. These communities have set aside for possible development approximately 1,900,000 acres, some of which is adjacent to, but outside, the planning area. These developments introduce straight vertical lines, many different colors, and more smooth textures into an already disturbed landscape. Some changes to form also occurs as major surface disturbance activities take place such as road building, bridges, and gravel pits. These community areas in total, comprise approximately six percent of the planning area.

Past, present and reasonably foreseeable actions that are relevant to visual resource management include mineral development, oil and gas development, increases in motorized use, utility and transportation rights-of-way, recreation use, and community development regardless of land ownership. All of these uses can have a direct or indirect impact to visual resources and scenic quality.

Past impacts have been limited to locations with mineral development potential, recreation development, isolated sites for communication or other leases, remote cabin and community developments, and some exploration activities for oil and gas development as well as transportation systems. Most of the planning area remains in a natural state. Development has been limited due to remoteness of the majority of the planning area.

Actions that enhance wildlife and fisheries habitats, protect sensitive vegetative communities, and protect water resources, and special designations such as Areas of Critical Environmental Concern and Wild and Scenic Rivers, will also help protect visual resources by limiting development or applying restrictions to development and indirectly protect the naturalness of the area.

Present and future impacts will continue to occur on the non-BLM lands, as these are developed for resource uses such as oil and gas, minerals, forestry, and renewable energy. Rights-of ways to these developments may impact both BLM and non-BLM lands. Community expansion and remote parcel development is expected to continue, increasing the need for communication sites and other leases. Transportation needs will continue to grow as populations increase and shift locations. Only twenty-two percent of the land base in the planning area is managed by the BLM.

Climate change may have an impact on visual resources through changes to vegetative composition as deciduous trees become increasingly dominate on the landscape and frequency and intensity of wildland fire increases. Melting permafrost may cause changes to waterbodies and landforms by causing lakes to merge, or become smaller due to draining, and cliff formations slough along rivers, streams and lakes. Overall streams and rivers may have higher banks and more gravel bars as water levels drop as the planning area becomes warmer and drier over the next century. All these changes will appear natural due to the slow nature of climate change.

Land owner	VISUAL RESOURCE INVENTORY (VRI) CLASSES									
	VRI Class I		VRI Class II		VRI Class III		VRI Class IV		Totals	
	acres	%	acres	%	acres	%	acres	%	acres	%
Fortymile Subunit										
BLM	145,000	8	1,870,000	90	6,000	0	48,000	2	**2,069,000**	**13**
Non-BLM	0	0	11,040,000	80	735,000	5	2,005,000	5	**13,781,000**	**87**
Steese Subunit										
BLM	69,000	5	1,136,000	89	25,000	2	45,000	4	**1,275,000**	**30**
Non-BLM	0	0	827,000	28	1,000	0	2,097,000	71	**2,925,000**	**70**
Upper Black River Subunit										
BLM	0	0	1,478,000	63	448,000	2	435,000	18	**2,361,000**	**30**
Non-BLM	0	0	1,406,000	26	814,000	15	3,177,000	59	**5,397,000**	**70**
White Mountains Subunit										
BLM	70,000	7	950,000	93	0	0%	0	0	**1,020,000**	**32**
Non-BLM	7,000[a]	0	840,000	40	69,000	3	1,212,000	57	**2,126,000**	**68**

[a]Beaver Creek WSR Corridor managed by the USFWS with a Class I VRI special designation.

4.3.1.10. Wilderness Characteristics

Summary of Effects

Short-term and long-term effects to naturalness could occur from surface-disturbing activities associated with management of resources, mining activity, or land use authorizations. Increased access due to BLM-authorized activities may decrease opportunities for solitude while increasing opportunities for primitive, unconfined recreation. Visual resource management would generally help maintain naturalness. Recreation prescriptions would generally help maintain naturalness in areas where wilderness characteristics would be maintained. In other areas, recreation and travel management decisions may impact naturalness and opportunities for solitude. Effects on wilderness characteristics would be the lowest under Alternative B, somewhat higher under Alternatives C and E, and the greatest under Alternative D.

4.3.1.10.1. Effects Common to All Subunits and Action Alternatives

There would be no effects to wilderness characteristics in any of the subunits, in any of the alternatives, from the following programs, resources, or resource uses and they will not be analyzed further: Air and Atmospheric Values, Cave and Karst Resources, Fish and Aquatic Species, Hazardous Materials, Non-Native Invasive Species, Soil Resources, Special Status Species, Subsistence, Vegetative Resources, Water Resources, and Wildlife.

Effects from Cultural and Paleontological Resources

The discovery of cultural or paleontological resources could result in field research projects. These activities could create temporary surface-disturbing activities through digging and excavation. If these activities are conducted in an area with wilderness characteristics, a short-term loss of naturalness and solitude could occur in the immediate areas of research due to excavation activities. In the long-term, however, no impacts to wilderness characteristics are expected.

Effects from Wildland Fire and Ecology Management

Both wildland and prescribed fire could affect the wilderness characteristics of naturalness and solitude. Fire management activities (such as firefighters, aircraft support, and vehicles) could have short-term impacts to the wilderness characteristics of an area. Opportunities for solitude would be diminished during times of fire management actions. Naturalness would be impacted for as long as evidence of fire suppression actions, such as firelines or evidence of vehicle use, remains on the land.

Effects from Forest and Woodland Products

Commercial timber harvest would generally not occur in areas where wilderness characteristics are maintained. Impacts to wilderness characteristics could occur from firewood harvest and disposal of forest products. Harvest activities could impact naturalness and solitude over the short-term. The removal of vegetation would diminish naturalness until revegetation occurs. Additional impacts to wilderness characteristics could occur from activities associated with forest product removal, including cross-country vehicular travel, and temporary camps.

Effects from Lands and Realty

The BLM would not dispose of any lands managed to maintain wilderness characteristics. However, for lands whose wilderness characteristics are not being maintained, disposal of those lands could result in the loss of naturalness and opportunities for solitude and primitive recreation if the new owner chooses to develop the parcel. Sale of scattered parcels of BLM lands would have minimal effect as these lands are generally too small to have wilderness characteristics, are surrounded by state or private lands, and are not adjacent to BLM lands where wilderness characteristics are to be maintained.

Exchange of BLM parcels with state or Native lands for the purposes of consolidating land ownership could impact wilderness characteristics if the exchanged lands were developed after leaving BLM management. Exchange could also benefit wilderness characteristics if the BLM acquired lands immediately adjacent to lands where wilderness characteristics were being maintained. Exchanges could result in the remaining lands no longer being of sufficient size to make it practicable to preserve wilderness characteristics. Conversely, exchanges may also

increase the size of BLM land holdings in any given area, resulting in new areas that would be of sufficient size to make maintaining wilderness characteristics practicable.

Land use authorizations resulting in development of roads, renewable energy, or other types of facilities would diminish naturalness within the viewshed of the facility. If the authorization resulted in additional access, opportunities for solitude could decrease. Land use authorizations, however, would be considered in the context of applicable land use decisions. For example, on lands managed for a Semi-Primitive recreational setting, land use authorizations would have to be consistent with that setting and thus would be unlikely to adversely affect wilderness characteristics.

Effects from Minerals

Where lands managed to maintain wilderness characteristics overlap with mineral withdrawals enacted by ANILCA, the only effect would be from activity on valid existing mining claims. If these claims were developed the naturalness would be impacted within the viewshed of the development until the site was reclaimed to the extent that it appeared natural looking. Opportunities for solitude would be reduced during the life of the mining activity. Effects on valid existing claims would be limited to the Fortymile and Steese subunits. Similar impacts could occur in the Upper Black River subunit in areas this plan recommends to be opened to mineral entry. Due to the low mineral potential and lack of access to these areas, however, no placer mining is anticipated.

In areas where wilderness characteristics exist, but would not be maintained by other decisions in this plan, impacts to naturalness and solitude could occur from mineral decisions. The RMP would open fifteen to seventy-five percent of the planning area to new mineral entry. In these areas, naturalness and opportunities for solitude would be reduced if mining claims are staked and exploration or development occurs. However, the low mineral potential and lack of access to many of BLM lands would reduce the potential for any mining-related activity to occur. Additionally, mining claims typically affect a relatively small area, since claimants must pay an annual assessment fee. Wilderness characteristics would be unaffected if no activity occurred. For example, the Upper Black River Subunit has low mineral potential and no overland access. Although one alternative in this RMP would open all of the subunit to new mineral entry, no mining activity is anticipated. Even if mining claims were staked, they would be unlikely to involve more than a few thousand acres out of the 2.3 million-acre subunit. Wilderness characteristics would likely be unaffected on the vast majority of the subunit.

Effects from Recreation and Travel Management

Generally, lands where wilderness characteristics would be maintained are located within Recreation Management Zones that contain either Primitive, Semi-Primitive, or Backcountry recreation setting character prescriptions. These prescriptions guide recreation uses that are consistent with the maintenance of wilderness characteristics. In areas where wilderness characteristics exist, but would not be maintained, impacts to naturalness and solitude could occur from recreation and travel management decisions (e.g., construction of new motorized trails, campgrounds, or other facilities).

Effects from Visual Resources

Visual Resource Management Classes are generally assigned based on the suite of management decisions in the RMP for a given parcel of land. For example, lands managed for a Semi-Primitive

recreational setting are assigned a VRM Class consistent with maintaining that setting. VRM allows the BLM to protect visual resources while allowing other activities to occur.

Lands where wilderness characteristics would be maintained would be managed as VRM Class I or Class II which is consistent with maintenance of wilderness characteristics because low levels of development generally occur and facilities would be constructed to blend with the surrounding landscape. A VRM Class I or II designation would help maintain naturalness.

VRM Class III prescriptions could be consistent with the maintenance of wilderness characteristics if the overall level of development was kept to a moderate level, and if developments were designed not to impact the naturalness of the area and to blend with the surrounding landscape. VRM Class IV prescriptions would generally not be consistent with maintaining wilderness characteristics because the overall level of development would conflict with maintaining wilderness characteristics. In VRM Class IV areas, impacts to naturalness may occur.

4.3.1.10.2. Alternative A

Under this alternative, management for lands with wilderness characteristics is not addressed in any of the existing land use plans which were approved in the 1980s. Based on the inventory completed as part of the current planning process, wilderness characteristics exist on 99 percent of the lands in the planning area, thus these characteristics have been retained on most lands since approval of the existing land use plans in the 1980s.

4.3.1.10.3. Alternative B

Under Alternative B wilderness characteristics would be maintained on 5,059,000 acres in the Fortymile, Steese, Upper Black River, and White Mountains subunits. Effects would be the same as those discussed under section 4.3.1.10.1 Effects Common to All Subunits and Action Alternatives.

4.3.1.10.4. Alternative C

Under Alternative C wilderness characteristics would be maintained on 2,067,000 acres in the Fortymile, Steese, and White Mountains subunits. Effects are described under section 4.3.1.10.1 Effects Common to All Subunits and Action Alternatives.

4.3.1.10.5. Alternative D

Under Alternative D wilderness characteristics would be maintained on 742,000 acres in the Fortymile, Steese, and White Mountains subunits. Effects are described under section 4.3.1.10.1, Effects Common to All Subunits and Action Alternatives.

4.3.1.10.6. Alternative E (Proposed RMP)

Under Alternative E impacts to wilderness characteristics would be minimized on 3,708,000 acres in the Fortymile, Steese, Upper Black River, and White Mountains subunits. Effects are described under section 4.3.1.10.1, Effects Common to All Subunits and Action Alternatives.

4.3.1.10.7. Cumulative Effects

Cumulatively, the impacts to wilderness characteristics in the planning area are expected to be very minimal. In addition to those lands where the BLM would maintain the wilderness characteristics, in areas where the BLM would not maintain the wilderness characteristics, those characteristics may remain intact, since incompatible activities (such as mineral development, and roads) are expected to be very minimal. In all likelihood, wilderness characteristics would remain on most of BLM-managed lands for the life of the plan.

Wilderness characteristics would be maintained on 742,000 to 5,059,000 acres of BLM-managed lands, in addition to 11.2 million acres managed in a similar fashion by the National Park Service and U.S. Fish and Wildlife Service. Approximately 1.8 million acres (eighty-five percent of the preserve acreage) in the Yukon-Charley Rivers National Preserve is suitable for wilderness designation (NPS 1983). In 1987, the USFWS identified 650,000 acres in the White and Crazy Mountains, within the Yukon Flats NWR, as meeting the criteria for wilderness designation (USFWS 1987). The USFWS Minimal Management category, which applies to 9.4 million acres in the planning area, would be consistent with maintaining wilderness characteristics. When considering lands managed by other federal agencies, the amount of lands where wilderness characteristics would be maintained within the planning area, would increase from about 11.2 million acres to 16.2 million acres under Alternative B. Alternatives C, D, and E would add 2,067,000, 742,000, and 3,708,000 acres respectively.

4.3.1.11. Wildland Fire Ecology and Management

Summary of Effects

The effects of other resources or uses on wildland fire are minimal or nonexistent. One exception is when wildland fire is excluded from an area to protect other resources or uses.

4.3.1.11.1. Effects Common to All Alternatives

The following resources, resources uses, or programs would either have no effect or have negligible effects and are not analyzed further: Air, Cave and Karst, Cultural and Paleontological Resources, Fish and Aquatic Species, Non-Native Invasive Species, Soil Resources, Special Status Species, Vegetative Communities, Visual Resources, Water Resources, Wilderness Characteristics, Wildlife, Forest and Woodland Products, Land and Realty, Minerals Management, Recreation, Renewable Energy, Travel Management, Special Designations, Subsistence, and Hazardous Materials.

Effects from Wildland Fire

The biggest potential impact to Fire Management is in areas where wildland fire exclusion is the strategy. Long-term wildland fire suppression in the boreal forest does not create a fuel loading problem in the classic sense. Although the overall fuel load on any particular site may increase with time and fire exclusion, it usually does so with additional biomass added to the organic layer. It also creates large homogeneous stands of flammable fuels, usually black spruce. Species diversity is decreased. The end result is larger, more severe wildland fires that may be outside the range of natural variability. This attempt at wildland fire exclusion then impacts other resources over the long-term and with potentially high impact effects. For example, attempts excluding

wildland fire in the Fortymile caribou herd wintering range could result in significant portions of their range burning in one fire event, limiting the carrying capacity of their range.

Areas that are in the Critical, Full, or Modified fire management options have the potential to lose key ecosystem components due to fire exclusion and move from Fire Regime Condition Class 1 to Condition Class 2 or 3. Based on desired conditions for land use and resources objectives, these conditions may be mitigated through fuel management projects or a change in fire management option. If the areas were not treated fire size and severity would increase, life and property could be lost, and resources could be adversely impacted. These areas need to be monitored closely for adverse impacts.

4.3.1.11.2. Cumulative Effects

Wildland fire management decisions cross agency and administrative boundaries. There are several areas along the Alaska Highway and in the Central-Circle area that are in the Full and Critical fire management options and are adjacent to BLM lands. These areas would have impacts associated with fire exclusion, including changes in the Fire Regime Condition Class and vegetation.

The BLM commissioned University of Alaska Fairbanks to identify vegetation and fire regime response to projected future climate change (Rupp and Springsteen 2009b). The report predicts a general increase in fire activity through the end of this century in response to projected warming temperatures and less available moisture, and suggests that boreal forest vegetation would change from a spruce dominated landscape to a deciduous-dominated landscape. The most rapid changes in wildland fire activity and associated changes in vegetation would occur in the 30 to 40 years after 2009. In spite of the shift in vegetation towards less flammable younger age stands and deciduous species, there would be an overall increase in area burned annually.

4.3.1.12. Wildlife

Summary of Effects

Management to maintain several resources will generally benefit wildlife, including Soil and Water Resources, Special Status Species, Vegetative Communities, Visual Resources, Wilderness Characteristics, and Subsistence. Management of Non-Native Invasive Plants and cleanup of Hazardous materials and Abandoned Mine Lands will generally benefit wildlife habitats. In general, a natural fire regime has been considered beneficial to wildlife and is maintained over most of the planning area by the "Limited" Management Option designation in fire plans. Changes to fire management are readily made and could be utilized to slow the rapid change in vegetation expected from climate-induced changes in fire frequency and severity. Wildlife management decisions are designed to benefit wildlife resources, including one SOP which does not allow use of domestic sheep, goats, or llamas as pack animals by BLM-permittees (such as commercial outfitters) and thus reduces the potential for disease transmission to Dall sheep. However, members of the public could use these pack animals, (except in Alternative B and E), and potential impacts to Dall sheep from such use are considerable.

The types of impacts which can occur from Locatable and Fluid Leasable Minerals, Recreation, and Travel Management, are considered generally most significant and are discussed in detail below and in individual subunit discussions. Alternative E will result in fewer potential impacts to wildlife than alternative C because a high proportion of BLM lands in the planning area will

remain closed to locatable and leasable mineral development. Recreation and travel management decisions in Alternative E which allow greater access to motorized vehicles than in Alternative C (especially cross country use of summer OHVs) will result in greater impacts from those activities. The Steese, White Mountains, and Fortymile ACECs and RMZ settings will place constraints on the level of summer OHV use in much of the high-value wildlife habitat. These ACECs include a high proportion of Dall sheep habitat and of the mapped caribou calving and postcalving habitats in the planning area (including historical and recent ranges).

Cumulative effects could occur from a variety of activities on state and private lands as well as from climate change. Cumulative impacts are very uncertain, but impacts to caribou could potentially be considerable in some alternatives.

4.3.1.12.1. Effects Common to All Alternatives

Proposed management of the following resources/resource uses/programs would have no anticipated impacts to wildlife management and will not be analyzed further: Cave and Karst Resources, and Cultural and Paleontological Resources

Effects from Air and Atmospheric Values

If lightning-ignited wildland fires are suppressed to minimize smoke effects on public health, recreation, communities, or tourism, a deviation from the natural fire regime may occur, with resultant effects on wildlife habitats (described below under Effects from Wildland Fire Ecology and Management).

Effects from Fish and Aquatic Species

Riparian areas are high-quality habitats for many species of wildlife and may be crucial for some. For example, many migratory bird species achieve greatest abundance in riparian habitats. A variety of species are very dependent on stream and riparian habitats, including river otter, beaver, mink, water shrew, muskrat, waterfowl and shorebirds. In addition, there is energy and nutrient exchange between aquatic and upland habitats. Aquatic habitats often increase productivity of adjacent upland habitats, for example, through re-distribution of the energy contained in spawning salmon to adjacent areas by predators and scavengers. Most BLM Alaska sensitive species animals rely on riparian or wetland habitats. Most Bird Species of Conservation Concern are also dependent or most abundant in riparian/wetland habitats.

All alternatives contain measures to minimize impacts to fish and aquatic habitat. Those alternatives that are most successful in doing so will be most beneficial to wildlife species, with the primary determinant of impacts the amount of area open to locatable minerals. Some Riparian Conservation Areas (RCAs) and High Priority Restoration Watersheds are closed to locatable minerals. Where open, RCA management will improve reclamation success and reduce impacts to riparian vegetation. For all action alternatives, Desired Habitat Conditions are identified and SOPs will be implemented to meet Desired Habitat Conditions (section 2.6.2.3 Fish and Aquatic Species; Appendix A, Standard Operating Procedures and Fluid Mineral Leasing Stipulations).

Effects from Non-Native Invasive Species

Non-native invasive plant (invasive plant) species have had large effects on wildlife species outside of Alaska through alteration of habitat, and this indicates the potential for impacts within

Alaska. Introduction and spread of non-native animal species is also a potential impact. All action alternatives will include attempts to monitor and control the spread of invasive species.

Requirements to use certified weed-free sources of seed, feed and mulch, and gravel will reduce potential for introduction of invasive plants from some activities. These measures will reduce impacts, but some increased abundance of native plants and loss of habitat for native wildlife species can be expected. Roads and trails (and associated vehicle use) are recognized as the primary avenues of invasive plant species spread. Alternatives which minimize creation of roads and trails and off-trail use of summer OHVs will reduce potential spread and impacts of invasive plants. Treatment of invasive plnat infestations may impact wildlife habitats, but generally less than continuation and spread of invasive plants at the site.

Effects from Soil Resources

Soil is the basic foundation of wildlife habitat in the planning area. Impacts to soils result in impacts or changes to vegetation which in turn result in impacts or changes to wildlife populations. Measures which limit impacts to soils would also limit impacts to wildlife habitats. All action alternatives contain measures to limit impacts to soil.

Effects from Special Status Species

Generally, provisions to conserve Special Status Species plants and animals would benefit other wildlife as well. Such measures would be applied under all action alternatives.

Effects from Vegetative Communities

Generally, provisions related to vegetative communities are designed to maintain natural biodiversity and will benefit wildlife habitats, and they are consistent across action alternatives. All alternatives contain some provisions to protect vegetation. Alternatives B, C, D, and E have SOPs (Appendix A, Standard Operating Procedures and Fluid Mineral Leasing Stipulations) that provide more protection than in Alternative A. However, allowed uses in some alternatives may increase residual and cumulative impacts beyond current levels.

Effects from Visual Resources

To the extent that VRM classes result in changes in construction that simply shield or camouflage facilities from view, they will have little effect on wildlife. If VRM classes result in limitations to levels of surface disturbance, wildlife resources will benefit from reduced habitat disturbance and indirectly by reduced levels of human activity. Lower numbered VRM classes may be an indicator of management beneficial to wildlife.

Effects from Water Resources

Maintenance of water quality and natural hydrologic functions will benefit wildlife. All alternatives provide measures to protect water quality.

Effects from Wilderness Characteristics

Management for maintenance of wilderness characteristics (such as maintaining naturalness and opportunities for solitude) will generally benefit wildlife by reducing disturbance of habitats and reducing levels of human use to low to moderate levels. In the various alternatives, the number of acres managed for maintenance of wilderness characteristics can be an indicator of management beneficial to wildlife.

Effects from Wildland Fire Ecology and Management

These effects are described in detail in the Land Use Plan Amendment for Wildland Fire and Fuels Management for Alaska (BLM 2004b, 2005c). Short-term negative impacts from wildland fire on resident wildlife include displacement, disruption of reproductive activities, and occasional mortalities of animals with low mobility. Populations of many species can recover quickly, however, in post-burn habitats. Wildland fire helps maintain a mixture of vegetation types and age classes that provide habitat for a variety of wildlife. Fire alters habitats and may improve habitat components for some species while degrading habitat for others. Herbivores are directly affected by the changes in vegetative cover and forage associated with fire, while predators respond to both changes in cover and abundance of prey. Wildlife in Interior Alaska has evolved in the presence of wildland fire and are generally adapted to it.

Fire will tend to benefit wildlife species dependent on early successional habitats at the expense of late successional habitats. For many species, a mosaic of successional habitats is beneficial. And, on a landscape scale, a mosaic of successional habitats will result in greater wildlife species diversity. Vegetation in early seral stage communities is generally more productive than late seral communities, often resulting in higher total wildlife biomass. Grasses, sedges and herbaceous plants that quickly resprout after fire provide forage and cover for small mammals, grassland birds, and grazing species such as caribou. Browsers such as moose, hares, and ptarmigan benefit from fire when trees and shrubs begin to reestablish themselves. If fires are not too severe, sprouting of shrubs will occur soon after burning. Severe wildland fires which consume most of the organic matter are more likely to result in a change from conifer to deciduous dominance of a site. Moose generally benefit from fire due to increased production of high quality browse for 10 to 30 years after fire (McCracken and Viereck 1990, Maier et al. 2005), although population-level changes may depend on predation pressure. Prescribed fires are a management tool which may be used to improve moose habitat, but increased occurrence of wildfire will make this unnecessary except in specific situations.

Climate change will continue to increase the proportion of early-successional and deciduous-dominated habitats through increased fire frequency and severity, possibly resulting in a shift to a boreal mixed-wood forest similar to that of the aspen-dominated portion of south-central Canada (Rupp and Springsteen 2009, Mann et al 2012, Beck et al. 2011a). Fire management actions which suppress fires or reduce continuity of fuels may be useful tools to minimize or delay impacts of climate change, maintain fire regimes closer to those of the past few centuries, and protect late successional habitats and species dependent upon them (such as lichen-spruce habitats and caribou). Fire management plans are flexible and can accommodate such actions.

The short-term effects of fire on caribou winter range are negative, and vary depending upon the severity of the burn. Lichens, primary winter forage for caribou, are highly susceptible to wildfire. Impacts to habitat include reduced availability of forage lichens for generally 80 years after fire (Klein 1982, Joly et al. 2003, Collins et al. 2011). On caribou summer ranges, forage quality of vascular plants is improved by fire. Fire also affects caribou movement patterns. Caribou actively avoid burned areas for 35 to 50 years after a fire (Joly et al. 2003). It is speculated that, over the long-term, wildland fire would be beneficial to caribou by maintaining the ecological diversity of the habitat and preventing mosses from out-competing forage lichens. Few forest stands, however, may reach an advanced age at which moss replaces lichens (Collins et al. 2011). Periodic wildland fires create a mosaic of fuel types and fire conditions that naturally precludes large, extensive fires (BLM 2004b).

Wildland fire has been rare in alpine and subalpine habitats used by Dall sheep (although considerable areas adjacent to relatively low-elevation sheep habitat near limestone outcroppings in the White Mountains have burned in recent years). Fire may enhance sheep habitat by reducing encroachment of shrubs and spruce into alpine and subalpine habitats or temporarily eliminating forest cover near lower-elevation rocky habitats. Fire can also increase the amount or quality of herbaceous and graminoid forage available and reduce cover used by bears and wolves when hunting sheep.

Wildland fire has both beneficial and negative effects on bears. Beneficial effects include increasing the availability of forage plants such as berries, grasses and forbs; although some forage species may be reduced or temporarily eliminated by fire. Moose calves are an important prey item for both black and grizzly bears. Early stages of plant succession due to fire tend to increase moose production, resulting in more calves available for prey (BLM 2004b). Large burns may be avoided by bears within two or more years of the fire.

The effects of wildland fire on furbearers are variable depending on the species. Carnivorous furbearers (e.g., lynx) respond to fire in a manner similar to their prey species, though there tends to be a lag period. If prey species benefit from fire, predators do as well. Snowshoe hares, voles, and other small mammals tend to respond positively to vigorous re-growth triggered by wildland fires. Populations of species such as marten and lynx tend to increase as well, tracking those of prey species (Johnson et al. 1990). Herbivorous furbearers tend to benefit from fire due to rejuvenation of forage plants. Beavers may be negatively affected by severe fires in localized areas until forage species recolonize the area, but generally willow and deciduous tree re-growth following fires will benefit beaver.

It is difficult to generalize impacts of wildland fire on passerine birds due to the great variety of habitat requirements. Shrub communities often support the greatest number and diversity of passerine birds (Spindler and Kessel 1980, Kessel 1989). Many shrub communities are maintained or recreated by periodic fires. Within forested areas, wildland fire creates openings in the forest and snags used for nesting, perching, and foraging. Wildland fire may cause direct impacts to birds when it occurs during the nesting season, killing nestlings and destroying nests. Raptors may benefit from fire due to increased populations of small mammals and birds in response to vegetative changes after wildland fire. The timing of the benefit varies depending upon the type of prey favored by the raptor. Over the short-term, fires reduce cover available for prey species, making them more visible to raptors.

Wildland fire suppression activities also cause both direct and indirect impacts to wildlife. Wildlife habitat may be destroyed, fragmented, or degraded due to construction of fire breaks or use of OHVs. Firelines not rehabilitated in a way which prevents use by OHVs may result in unplanned OHV trails and associated use. Degradation of firelines by thermokarst or erosion may prevent vegetation re-establishment. SOPs are designed to reduce the impacts of suppression activities include limitations on the use of tracked or off-road vehicles; measures to prevent the introduction of non-native invasive plant species; limiting construction of firelines (dug to mineral soil) in riparian zones; and rehabilitation of fire and dozer lines (Appendix A, Standard Operating Procedures and Fluid Mineral Leasing Stipulations). Impacts from wildland fire suppression would be infrequent because most BLM-managed lands are currently distant from the road system and in the “Limited” management option, which will minimize the use of mechanized equipment. Lands closer to the road system will receive more fire suppression activity and greater effects.

Most BLM lands in the planning area are within the "Limited" management option and a fire regime which reflects climate conditions will result. However, areas near the road system and communities are typically within modified, full, or critical management options and fire suppression will artificially modify the fire regime in these lands with associated impacts to wildlife habitats.

Effects from Wildlife

Most wildlife decisions in the action alternatives of this RMP are common to all subunits. The decisions set desired future conditions (stated in the forms of goals) and establish Standard Operating Procedures for activities which require authorization by the BLM. A set of decisions and SOPs are applied to ACECs (and/or in some areas and alternatives to Wildlife Conservation Areas or crucial caribou and Dall sheep habitats) which will reduce potential impacts to caribou calving/postcalving habitats and Dall sheep habitats. The action alternatives vary in size of ACECs and which decisions apply to ACECs or to other delineations such as the crucial caribou and Dall sheep habitats delineated in Alternative E. So depending on the Alternative, discussion of effects may alternatively occur under *Effects from Special Designation* or *Effects from Wildlife* headings. In general, ACEC designation would be expected to be somewhat more effective in preventing impacts.

Planning area-wide SOPs limit impacts by: specifying that pipelines and roads allow free movements of wildlife; limiting vegetation removal to nesting migratory birds; designing power lines and other structures to minimize danger to and use by raptors and other birds; limiting use of domestic sheep, goats and llamas in and near Dall sheep habitat to minimize disease transmission; limiting activities in Dall sheep and caribou habitat during lambing and calving/postcalving: avoiding attraction of wildlife to food and garbage; and limiting activities allowed near nests of priority raptors. Although not part of Alternative A (no action), some of these measures are being implemented currently as stipulations in land use permits.

Many decisions will continue to rely on analyses of plans and activities (during project planning and through the NEPA process) to reduce impacts to wildlife. Avoidance of important wildlife habitat and enactment of mitigation measures may be accomplished during project planning, analysis, and implementation.

Dall Sheep Health

Wild sheep populations in the U.S. and Canada have been shown to be susceptible to diseases of domestic livestock, and a large body of knowledge has accumulated to indicate that interaction of domestic sheep and goats with wild sheep can lead to effects ranging from local extirpations to major die-offs to more subtle impacts such as reductions in lamb production and survival (WAFWA 2012, Wehausen et al 2011, Garde et al 2005). Although respiratory disease is associated with most major die-offs, other diseases of domestic livestock are a concern to wild sheep as well (Garde et al 2005).

Allowing the use of domestic sheep, goats, goats or llamas/camelids in and near Dall sheep habitats could result in substantial risks to health and productivity of Dall sheep populations through disease transmission (Garde et al. 2005). Allowance of llama/camelid use is currently considered a smaller risk (WAFWA 2007).

Although grazing permits will not be issued in the planning area in any action alternative, domestic livestock might be used as pack animals or for weed control. Horses, llamas, and

domestic goats are sometimes used as pack animals. Horses are considered to represent little disease transmission risk to Dall sheep, llamas are an uncertain but an increased risk, and domestic goats a larger risk. A few llamas have been used, but use of pack goats is currently not known to occur in the planning area. Use of pack goats may be increasing within the state. Risks from use of pack goats and llamas are not easily quantified, but are recognized to be real, with very large consequences (Garde et al. 2005). Risks of transmission from closely tended animals (as is typical with pack animals) are lower than with herds of free-ranging animals, but still significant. Some animals may escape or be lost and could associate directly with Dall sheep. Some Dall sheep near Mount Prindle have been closely approaching recreationists, attracted to the minerals in human urine, and more recently to human-provided foods (including attempting to gain entry to backpacks). This behavior would place them in almost direct contact with pack animals.

Pack goat use in bighorn sheep habitat has been prohibited in several National Forest and National Park units in the western U.S. to reduce risk of disease transmission to wild sheep. Garde et al. (2005) examined disease risks in the Northwest Territories (NWT) and concluded that "...given the naïve state of both Dall's sheep and mountain goats, we suspect that any contact between these species and domestic sheep, goats and llamas could result in disease with serious outcomes for populations of these valuable game animals." Their recommendations include this statement: "Our Risk Assessment indicates that contact between domestic sheep or goats and wild Dall's sheep or mountain goats would likely result in significant disease in the wild species with substantial negative and long-term effects on population dynamics and sustainability. We strongly advise that domestic goats not be used as pack animals, and that domestic sheep and goats not be pastured anywhere in the vicinity of Dall's sheep or mountain goat ranges within the NWT." Similarly, the Wild Sheep Working Group of the Western Association of Fish and Wildlife Agencies (WAFWA 2012) recommended the following: "It is generally acknowledged [that Dall sheep] are likely naïve to exposure to many organisms commonly carried by domestic species. Until this is confirmed and the effects of exposure to infectious organisms are clearly understood, it is essential that no association occurs between thinhorn sheep and domestic sheep or goats."

Effects from Forest and Woodland Products

The effects of Forest and Woodland Products to wildlife habitats are largely described in section 4.3.1.8 Vegetative Communities. Tree harvest can be similar in effect to fire in its effects on wildlife habitats, but is not equivalent. In addition to effects on vegetation, timber harvest can result in loss of snag trees for cavity nesting birds, direct mortality of small animals or nesting birds, disturbance/displacement of wildlife in the vicinity of the operation and along roads or trails to the site. Roads and associated activites are often the biggest impacts to wildlife from forestry. Impacts of roads and trails are discussed below under "Effects from Locatable Minerals."

Effects from Lands and Realty

Wildlife habitats on lands identified for disposal could be transferred to other ownership which may result in impacts. Acquisitions could benefit wildlife. Permits for uses of BLM lands may involve uses and activities which will impact wildlife habitats, but those activities will generally be guided by SOPs and leasing stipulations (Appendix A, Standard Operating Procedures and Fluid Mineral Leasing Stipulations) and the remaining effects will be analyzed and may be mitigated in the permitting process. There are no right-of-way exclusion areas in the planning area. Rights-of-way could have impacts similar to those discussed under "Effects from Locatable Minerals" and could contribute to fragmentation of wildlife habitats.

Effects from Fluid Leasable Minerals

Leasing of minerals is not anticipated during the life of the plan. Should leasing be proposed, it will be analyzed in a separate NEPA document. Seismic exploration for oil and gas will be allowed in portions of all subunits in at least some alternatives and could have direct impacts on wildlife, including temporary disturbance.

Direct loss of habitat occurs with clearing (cutting) and use (crushing) of seismic lines. Vegetation in seismic lines has been shown to be quite slow to recover (USFWS 2008a). Lines may later be used by summer and winter OHVs, which can exacerbate impacts and slow or prevent recovery. Continued vehicle use of the lines may result in longer-term displacement of wildlife such as caribou.

Seismic activities may affect denning bears if it occurs in close proximity (Reynolds et al. 1986, as cited in USFWS 2008a). Some bears will abandon dens in response to activity within one km of the den, especially within 200 m or early in the denning period (Linnell et al. 2000). In one study of the effects of pipeline ROWs on marten, Marklevitz (2003, as cited in USFWS 2008a) found no adverse effects of the ROWs (50 to 300 feet wide) on density of marten populations, but some apparent reluctance by marten to cross the larger ROWs. The expected 14-foot width of most seismic lines would be expected to cause little impact to marten.

Caribou would be expected to be temporarily displaced from winter seismic survey activities and/or increase movements (Bradshaw et al. 1997). As long as large areas were not undergoing seismic survey activities in the same period, caribou could likely adjust range use to avoid activities, possibly returning later. However, long-term avoidance of inactive seismic lines by caribou has been demonstrated (Dyer et al. 2001), possibly related to wolf use of the lines (James and Stuart-Smith 2000).

In general, large and medium mammal responses to seismic activities are expected to be temporary avoidance of the local area. Small rodents such as voles could suffer direct mortality, but this would be insignificant to populations in the area. Most birds are absent during the period of the year of seismic exploration (December-April), but resident species could be temporarily displaced and some early-nesters (such as owls) may have their nests destroyed.

A total of 20 miles of seismic line is anticipated to be constructed on BLM lands within the life of the plan, most likely in the Steese or Upper Black River subunits. Impact of this amount of activity would most likely be local in nature.

Effects from Solid Leasable Minerals

Leasing of coal would not occur without additional NEPA analysis and a land use plan amendment, although exploration activities could occur on any area open to leasing. Coal inventory and exploration could also be approved in areas closed to leasing. Considerable surface disturbance may occur with exploration for coal, but the coal exploration activities are expected to be minimal (section 4.2.1.3.3) and unlikely anywhere but possibly in the Eagle Field (in the northern Fortymile Subunit). No leasing or exploration of other solid minerals is anticipated due to lack of known occurrence of economic quantities in the planning area. In the unlikely event that leasing of other solid minerals would occur, impacts to wildlife could be similar to that of large lode mines (See Effects from Locatable Minerals below).

Effects from Locatable Minerals

Locatable mineral extraction operations expected to occur on BLM lands in the planning area include small- and large-scale placer mines and suction dredging. Pre-feasibility exploration for large-scale lode mining is expected, but no mines are predicted to be developed on BLM lands during the life of the plan (except for the Money Knob mine which involves only scattered federal mining claims). Impacts include direct loss of habitat from the operations and access routes, wildlife disturbance associated with the operations resulting in some level of avoidance, and changes in human use of the area from changes in access. (See also *Effects from Travel Management*).

Suction dredging, though not directly impacting riparian zones, may impact riparian vegetation through long-term camping activities, and may disturb or displace wildlife in the immediate vicinity of the operation. Nesting raptor species may be impacted by suction dredging activities occurring near nest sites, potentially through nest abandonment or reduced chick survival.

Placer mines typically disturb riparian and near-stream vegetation and the stream channel, which may also result in downstream effects on riparian vegetation and aquatic habitat. Riparian habitats are typically very high-value habitats for wildlife and provide essential habitat for some species. Many species are found in much higher densities in riparian habitats and riparian habitats may be important habitats within their home ranges, including moose and many migratory birds. Peregrine falcons and other raptors also commonly nest along streams.

Recovery of habitats from placer mining is highly variable and may be very slow. It may require 50 years or more (following initiation of reclamation) in some areas for riparian area habitat quality to approach pre-mining conditions. Some mine sites remain in operation for many years, with a portion of the mine area disturbed for the duration of mining. Reclamation often does not proceed as planned due to changing of operators, or financial or logistical difficulties. Placer mining brings a change in habitat, typically from late seral to early seral community types. The potential exists, given proper revegetation, that some wildlife species (such as moose) may benefit from the early seral vegetation communities created at revegetated mine sites. In most cases, placer mined areas have severely reduced abilities to support wildlife for many years post-disturbance. The degree of this impact could be reduced with effective planning and implementation of reclamation, including effective reclamation of stream channels (or avoidance of disturbance to the channel).

The number of placer mining operations on BLM lands in the planning area is predicted to range from 37 small mines in Alternative A, to 42 in Alternatives B and E, to 50 in Alternative C to 67 in Alternative D; and from five to eight large placer mines during the life of the plan (dependent on alternative). Actual numbers could be considerably higher, but will likely result in disturbance of small proportions of BLM lands in the planing area (less than one percent). (The area of riparian area disturbed by placer mining on BLM lands in the planning area is unknown.) However, placer operations concentrate impact on relatively uncommon stream riparian and aquatic habitats, that are generally high-value wildlife habitats, and effects will persist beyond the life of this plan. In addition, the access to mine sites can cause surface disturbance and indirect impacts to many more acres than the mines themselves. Roads and trails for mining access often occur in or near riparian areas and involve multiple stream crossings.

Depending on availability of existing access to a mine site, road and trail construction and use may create greater surface disturbance and impacts to wildlife than mines themselves (see also Vegetative Communities) and roads and trails may be utilized for purposes other than mining. Roads facilitate access by summer and winter OHVs to surrounding area which may previously

have been remote and inaccessible. Increased access can result in increased human garbage available to bears, ravens, foxes, and other scavengers, potentially leading to either increased populations of predators or destruction to protect life or property. The human activities associated with mining roads, trails, and other infrastructure can potentially result in displacement of wildlife species and result in loss of habitat effectiveness. For example, Powell (2004) noted that snowmobilers utilized a network of old mining roads to access the majority of the Ibex caribou herd's winter range.

Impacts from roads can often be mitigated by such measures as restricting access to mine site workers only, prohibiting hunting and off-trail use of OHVs by workers, building the road in a manner which facilitates reclamation, and promptly closing and reclaiming the road following use. However, roads typically become open for public use and are not often closed or reclaimed.

Exploration activities in areas opened to mineral location and entry may involve significant helicopter activity which can affect many wildlife species, but most notably caribou, sheep, and nesting raptors and trumpeter swans. SOPs will limit, but probably not eliminate, low-level aircraft activities during lambing and calving/postcalving seasons in seasonal caribou and sheep habitat (Appendix A, Standard Operating Procedures and Fluid Mineral Leasing Stipulations). Impacts may also occur to these species in other seasons or outside of identified calving and lambing habitats, and may also affect other species depending on location, altitude, and intensity of flights. Reconnaissance exploration, in which a field camp(s) may be established and daily helicopter flights transport geologists to sampling sites, will likely occur initially. Drilling exploration may occur subsequently in areas of interest. Helicopter supported exploration drilling can involve substantial helicopter activity (an estimated eight hours flight time per drill move) and will be more concentrated in a specific location. If the site is close enough to a road system to make road-building economical, roads will be built to each drill site, which will involve substantially more surface disturbance. Placer exploration may involve trenching and drilling, but would not normally impact the stream channel. Roads and trails may be built to access exploration sites, if feasible. As mining companies do not necessarily share exploration data, multiple exploration operations could occur in the same area, extending impacts over multiple years or intensifying impacts within a year.

Potential effects of mining road and facility development on caribou:

Despite a large body of evidence that caribou have a negative response to human disturbances (Johnson et al. 2005), the effects of roads and industrial development in caribou habitat are not clearly established. Many studies have demonstrated an avoidance of areas near roads and infrastructure, with most regional-scale studies indicating caribou and reindeer reduce their use of areas within one to 10 kms of development (Boulanger et al. 2012, Vistnes and Nellemann 2008). Wasser et al. (2011) detected reduced use by caribou of areas within 13 kms of winter oil exploration roads, and measured higher stress hormones in caribou that did use areas near these roads. Cameron et al. (2005) found that calving caribou avoided areas within four km of roads (ie., used them less than expected based on availability) in the Kuparuk Development Area of Prudhoe Bay and that density of calving caribou declined exponentially with road density. With increasing infrastructure over years, high-density calving shifted to undeveloped areas inland with lower forage biomass. Caribou in July and early August were relatively unsuccessful in crossing road/pipeline corridors and both abundance and movements of female caribou were lower in the oil field complex at Prudhoe Bay than in other areas along the Arctic coast. The scale of analysis may be important (Vistnes and Nellemann 2008). Following the establishment of the oil field network of roads and pipelines, a reduced portion of the caribou herd that remained continued to

occur within the oil field complex, but the distribution of those caribou was found to be unrelated to distance from infrastructure (Cronin et al. 1998, Noel et al. 2004).

In addition to avoidance of human activities at facilities, studies have documented avoidance of lightly used linear corridors (mostly seismic lines) by woodland caribou; most likely due to greater wolf use of these features (James and Stuart Smith 2000). The studies also documented woodland caribou avoid the area within 14 km of infrastructure in a diamond mine complex, which was thought due to dust deposition (Boulanger et al. 2012).

A small area of infrastructure (footprint) may impact wildlife in the surrounding area much more than might be expected. Despite measuring only one percent of their study area as developed (well sites, roads, seismic lines), Dyer et al. (2001) calculated that twenty-two to forty-eight percent of the area would receive reduced use by caribou. Similarly, Johnson et al. (2005) estimated that three uranium mines, a 20 km road, and scattered outfitter camps and mineral exploration activities within a 190,000 km2 study area may have resulted in a "37 percent reduction in the area of the highest quality habitats and an 84 percent increase in the area of the lowest quality habitats."

Roads may also affect caribou migrations. Of 28 collared caribou that approached and eventually crossed the Red Dog Mine road in northwestern Alaska during autumn migration, 29% delayed crossing the road by an average of 29 days longer than the others and traveled an average of 250 km further (Wilson et al 2016).

Caribou in open habitats will likely avoid human infrastructure at greater distances than caribou in forested habitats. Hunted wildlife populations may exhibit greater reaction to human disturbance than non-hunted populations. Roads and trails with little vehicle traffic can result in significant avoidance by animals. For example, a hunted population of elk in partially forested habitat in Oregon showed significant selection for areas farther from roads which had as little as one to four vehicles per 12 hours (Wisdom et al. 2005b) and showed an increased probability of flight response to ATV and mountain bike traffic at distances of 1,500 meters (Wisdom et al. 2005a). Increased access provided by roads and trails may benefit hunters using motorized vehicles (including subsistence hunters), but may increase poaching rates and may increase the difficulty of managing hunting seasons, due to increased harvest rate.

Population level impacts resulting from caribou avoidance of infrastructure and activities are not well understood. Cameron et al. (2005) reported that female caribou exposed to petroleum development west of the Sagavanirktok River had significantly lower parturition rates, which likely reduced herd productivity. And Arthur and DelVecchio (2009) found that calves born to cows east of the Sagavanirktok River were significantly greater in body mass and size than calves born to cows using the western calving area, which indicated that "displacement of caribou cows from preferred calving habitats may reduce fitness and survival of calves." The Central Arctic caribou herd population increased greatly during the period of oil development. Population increase, however, may have been slowed and future decreases may be magnified, especially if infrastructure continues to expand to other areas used by caribou for calving and insect-avoidance (Cameron et al. 2005). An analysis of boreal caribou herds in Canada (Environment Canada 2008) showed that the number of calves per 100 cows in fall was negatively related to percent of the herd range disturbed. Both studies included habitats with greater size and density of infrastructure development than are anticipated on BLM lands in the planning area.

Potential effects of mining road and facility development on Dall Sheep:

Distributions and activities of the closely related bighorn sheep have been shown in many studies to be negatively influenced by human activities and OHV use (Canfield et al. 1999), however, a few studies have indicated little or no affect from recreational activities (e.g., Wehausen 1977). Each individual animal, population and situation may be unique and factors which may influence the degree of apparent effect include type of disturbance, habitat, the history of human interaction with that sheep population, and even study methods. Wild sheep can habituate in some situations to some human activities. Even in situations where sheep use habitats in proximity to human disturbance and appear to be habituated, however, impacts may still be occurring (such as altered behavior, increased energy expenditures, changes in used habitats). Papouchis et al. (2001) showed that even in an area with a considerable human activity (Canyonlands National Park) and a long history of human use, although some individual sheep appeared to habituate to road activity most did not. All sheep were disturbed by off-trail hikers. The researchers documented avoidance by sheep of a road corridor that resulted in reduced use by sheep of twenty to thirty-six percent of all suitable habitat in the study area.

Acute and chronic stress (including higher heart rates and levels of stress hormones) may also be occurring despite calm appearances among disturbed sheep (MacArthur et al. 1982). Heart rate in bighorn sheep is elevated when sheep are occupying less secure habitats (e.g., greater distances from escape terrain or lower visibility; Hayes et al. 1994). Although sheep may appear to habituate to human presence, especially in areas where resources of high value are found (e.g., ungulate mineral licks or fertilized grasses), human activities may continue to cause stress, increased energy expenditures, and reduced use of preferred habitats (Keller and Bender 2007). In some situations, mines can create habitat features attractive to wild sheep which may be beneficial (Elliott and McKendrick 1984, Bleich et al. 2009). Dall sheep are assumed to be similar to bighorn sheep in sensitivity to disturbance, but few studies have been conducted. Loehr et al. (2005) found sheep increased vigilance behaviors and ewes decreased bedding and increased foraging when in presence of humans on foot. Dall sheep in the White Mountains typically fled when approached to within one-quarter mile by a hiker and extreme flights of several miles occasionally resulted (Herriges, unpublished data).

Sheep in the planning area typically occur in small subpopulations in scattered areas of adequate habitat. Small habitat patch size results in reduced probability of population persistence (Singer et al. 2001). Several subpopulations use mineral licks which occur at substantial distance from secure sheep habitats. Human facilities and activities which reduced the ability of sheep to move freely between subpopulations or to access peripheral habitats and mineral licks could affect long-term sheep populations.

In recognition of the apparent importance of mineral licks to ungulates in the planning area, all action alternatives prohibit leasing or location of minerals within ½ or 1 mile of identified mineral licks, and only Alternative D does not also restrict activity near Dall sheep mineral licks. Moose and caribou also utilize mineral licks (and there are several mineral licks in the Fortymile subunit that are used by high numbers of Fortymile caribou), but Dall sheep generally make higher use of mineral licks. Some radiocollared White Mountains Dall sheep made daily visits to a mineral lick through most of the summer (J. Herriges, unpublished data). Indications of mineral deficiencies or imbalances, have been noted in this population (Schwafel 2013).

Bears, wolves, and wolverines have also been shown to avoid or be negatively influenced by roads and human activities. However, wolves also utilize linear features, such as trails and roads, as travel routes (and may benefit from that use) and any of these species may be attracted by human foods.

Effects from Salable Minerals

Mineral material disposal has both direct and indirect impacts on wildlife and their habitats. There is typically a direct loss of habitat with disturbance of the site. Sites are often left open for future potential uses. Once sites are reclaimed, they may recover within a relatively short time, but more typically will require decades to recover. During recovery, early seral vegetation may benefit some species. Temporary displacement of some animals may occur, especially to sensitive species such as nesting raptors, although application of SOPs (Appendix A, Standard Operating Procedures and Fluid Mineral Leasing Stipulations) will reduce disturbance of priority raptors. Direct mortality may occur during disturbance of non-mobile species, but larger impacts will result from the long-term use and potentially lengthy vegetation recovery.

Few mineral material disposal actions are anticipated on BLM lands during the life of the plan. No more than 200 acres of authorized disturbance on BLM-managed lands are anticipated necessary to meet demands over the next 20 years. There are currently there are 160 acres of potential disturbance authorized. No new sites are anticipated away from existing roads. Impacts to wildlife at a regional level from mineral material disposal would be minimal under all alternatives at predicted levels of use, but local effects will occur.

Effects from Recreation

Recreational activities can impact wildlife in a number of ways. Some level of disturbance of wildlife is generally associated with most outdoor human activity. Habituation to human activities may or may not occur, include more than a few individuals, or be complete. Effects of disturbance typically include increased energy expenditure due to movement away from the activity and avoidance of the activity or area for the short- or long-term. Disruption of behaviors can also result in lower probability of survival of young. For example, a nesting raptor may leave its nest during weather conditions hazardous to nestlings, or caribou calves may be prevented from utilizing insect avoidance habitats. Stress can also result in increased energy expenditure (as indicated by increased heart rate) and, if chronic, result in health effects such as lowered immunities to parasites. Effects of facility development and human disturbance are also discussed in “Effects of Locatable Minerals” above.

Some level of habituation to human activities may be beneficial to wildlife. This could reduce the degree of avoidance of important habitats located near human activities and reduce energy expenditures when disturbed. Habituation can also create problems—such as seeking of human foods, attraction to less favorable habitats, and concerns for human safety.

Facilities impact wildlife through direct loss of habitat, as well as displacement of wildlife through human use. The effects will depend on the level and history of use, wildlife species present, and habitat. High levels of visitors can impact vegetation by trampling. Bears may be attracted to garbage and as a result may need to be destroyed. River-floating recreational users can disturb wildlife using high-value aquatic and riparian habitats, including waterfowl with young. Nesting raptors may be briefly disturbed as floaters pass or disturbed for longer periods if camping or other sustained activities occur within sight of the nest. Motorized boat usage typically creates more disturbance due to noise, speed, unpredictability, and increased levels of traffic. Hunters may disturb wildlife, especially in situations where hunters are concentrated. Hunter activity near roads may reach levels, such as those occasionally seen along the Taylor highway, which can affect the course of caribou migrations.

Effects from Renewable Energy

Renewable energy development can have many of the same impacts associated with infrastructure of mining discussed in "Effects from locatable minerals." Wind generators and power lines can result in mortality of birds, but can also be sited and designed to minimize this mortality. The potential for renewable energy development in the planning area is predicted to be very low.

Effects from Travel Management

Motorized vehicle use usually results in much greater numbers of visitors and trips in an area than non-motorized use. In addition, use of motorized vehicles may be more disturbing to wildlife and more damaging to wildlife habitats than non-motorized uses (due to factors such as speed, size, and noise). Allowance of motorized vehicle use and the degree of control of motorized users is a primary difference among alternatives in potential impacts to wildlife and wildlife habitats. In the White Mountains and Steese subunits in Alternatives B–D, the Primitive, Semi-Primitive, and Backcountry RMZs do not allow summer OHV use. These designations minimize potential recreation impacts to wildlife. Summer OHV use is allowed in Backcountry RMZs in the Fortymile subunit in Alternatives B–D. In Alternative E, Summer OHV use may be allowed in any RMZ in all three subunits, following Travel Management Planning. Non-motorized recreational use can also adversely affect wildlife, but typically the impacts are limited by difficulty of access and lower numbers of visitors. Non-motorized access also typically impacts vegetation and soils to a much lesser extent. All alternatives allow winter snowmobile use in all areas except the RNAs (and including RNAs in Alternative E). Winter OHV use with adequate snowcover generally causes limited impacts to soils and vegetation (see section 4.3.1.8 Vegetative Communities), but may disturb resident wildlife.

Aircraft use (especially helicopters) has the potential to disturb wildlife, but aircraft use for recreation is usually limited to fixed-wing aircraft and focused on transport to one of a relatively few suitable landing sites. The levels of use seen currently in the planning area are not considered to be generally problematic.

Impacts of OHV use on wildlife:

Off-highway vehicle usage potentially affects wildlife species in several ways, including loss of wildlife habitat, disturbance of wildlife, and through the consequences of improved access. The potential impacts to vegetation (described in section 4.3.1.8 Vegetative Communities) can result in direct loss or modification of habitat. Wildlife habitat loss can also result indirectly from establishment of invasive plant species which can be facilitated by the combination of soil disturbance and seed carrying actions of OHVs. Potential wildlife habitat loss from OHV-facilitated weed establishment likely exceeds the potential loss from direct destruction of vegetation and soils.

Disturbance of wildlife can impact individuals directly and can also lead to loss of habitat through avoidance of the area (see also *Effects from Locatable Minerals*). Disturbance distance in open habitats may be greater than in forested habitats. Wildlife may respond to disturbance by fleeing. If individuals remain in place, they will likely experience stress, as indicated by increased heart rate and other physiological responses. Many studies have shown that many big game species avoid areas near roads and trails (ie. they use areas near roads and trails less than more distant areas, resulting in effective loss of habitat (eg. Wisdom et al. 2005a and 2005b; Sawyer et al. 2006). Shanley and Pyare (2011) found that lightly used rural roads and OHV routes reduced moose occurrence in a zone 500–1,000 meters distant from the road. Road and trail densities are frequently negatively correlated with abundance of large wildlife species. Effects of roads and trails are also dependent on the amount of use, but in remote areas even low levels of use

may result in avoidance of habitats because animals are not regularly exposed to noise and visual disturbance of motorized activity. In the Gustavus, Alaska area, a low route activity of 0.25 km of vehicle travel/km2/day was found to be the threshold value at or below which moose sustained a high probability of occurrence (0.60 to 0.91, Shanley and Pyare 2011).

Where OHV use is limited to established trails, it is less disturbing to wildlife in degree and extent. Individual animals may learn that off-highway vehicles are likely to remain on the trail and are therefore more predictable. Limiting motorized vehicle use to a set of designated trails also allows planning to control trail density and route trails to avoid sensitive or high quality habitats and thereby optimize the balance between access to preferred areas and conservation of wildlife habitat (Shanley et al. 2013). Moose in central Alaska often congregate in localized areas of subalpine forest during the rut (Van Ballenberghe and Miquelle 1996) and planning and designating trails can avoid those or other areas of high wildlife density or importance.

Increased access into an area can also result in greater mortality of wildlife by legal and illegal harvest. Attraction to human foods and habituation to humans can result in removal of the animal. Predators such as grizzly bear, wolverine, and wolves frequently decline with increased access, through both mortality and avoidance (Gaines et al. 2003).

Larger trails and allowance of larger OHVs, such as UTVs create impacts more similar to those of roads. These will likely increase direct impacts to vegetation and habitat due to greater weight and larger footprint and may increase disturbance due to larger numbers of passengers and larger camps and increase wildlife mortality resulting from access to human garbage. Constructed trails can also increase average speed of OHVs on the trail, which may be even more disturbing to wildlife

Effects of cross-country OHV use:

Cross-country OHV use results in impacts to soils and vegetation (section 4.3.1.8 Vegetative Communities). Increasing numbers of OHV users and resulting levels of off-trail use will increasingly affect wildlife habitat and populations. Off-trail use of OHVs is less predictable and thus more disturbing to wildlife than use which is limited to trails. Cross-country OHV use results in uncontrolled establishment of user-pioneered trails. Planning of designated trails can be done so as to provide access while minimizing impacts (Shanley et al. 2013). Unregulated establishment of trails will often result in trails traversing and paralleling riparian habitats which are frequently the most productive habitats for many species. Trails will also become pioneered in other sensitive and productive wildlife habitats, where constructed/managed trails could be sited to avoid sensitive wildlife habitats. Off-trail use of OHVs can also crush small terrestrial species and bird nests. Construction or improvement of OHV trails can increase off-trail OHV use and associated impacts in more remote areas due to the improved access.

Open habitats in high-elevation sheep and caribou habitat may be easily traversed by OHVs, and as a result off-trail use can be extensive in area and affect vegetation cover and composition over a large area. Increased access provided by a network of trails could increase harvest of wildlife species, such as moose and caribou, to such an extent that more restrictive harvest regulations would need to be implemented. Winter use of trails created by summer OHV users may extend disturbance of sensitive wildlife habitats. Winter trails packed by snowmobile use can facilitate travel by predators and increase mortality rates of prey.

Cross-country OHV use is allowed in Alternatives A, D, and E in all subunits. In these alternatives, habitat effectiveness for most wildlife species will be diminished relative to

Alternatives B and C, and will allow continued proliferation of user-pioneered trails. The extent of this loss of habitat effectiveness is dependent on uncontrollable factors such as the rate of increase in usage of off-highway vehicles, changes in capabilities of off-highway vehicles to traverse difficult terrain, effects of large wildland fires on rate of trail proliferation, increase in non-motorized use, and increase in the regional prevalence of invasive plant seed sources. With the exception of the generally remote Black River Subunit, the growth in off-highway vehicle use in some areas is potentially large, and even minor impacts could accumulate. Scenario planning of OHV trails near Gustavus, Alaska conducted by Shanley et al. (2013) demonstrated the importance of planning in maintaining moose habitat effectiveness. Travel Management Plans for three subunits could result in decisions to restrict summer OHV travel to designated trails.

Winter OHV (snowmobile) use.

All areas (except RNAs in most alternatives) are open to small winter OHV (snowmobile) traffic. Snowmobile traffic has been demonstrated to result in disturbance of most northern ungulates. Within the planning area, where snowmobile use occurs in forested habitats, use is largely limited to cleared trails and small openings. The forest cover prevents or reduces off-trail travel and typically shields the activity from view of animals (which reduces the distance at which animals are appreciably disturbed). Where trails avoid high-value wildlife habitats and trail density remains low, the impacts to wildlife populations from a limited set of snowmobile trails in the forested areas (such as the White Mountains cabins and trails system) should be low. Snowmobiles are not similarly restricted to trails in open forest or non-forested habitats and as a result could potentially travel and disturb animals throughout a large area. In addition, animals located in non-forested habitats may be more sensitive to disturbance. Where open forest or non-forested habitats are accessible to snowmobiles, wildlife species may be impacted if use is frequent or widespread.

In addition to increasing energy expenditures, ongoing snowmobile use of these areas may cause animals such as caribou or sheep to abandon that area. Current off-trail use of open areas on BLM lands in the planning area is generally low and such use is not anticipated to increase greatly. Localized impacts to wildlife may occur in some areas, and these may increase where access is improved. Monitoring of snowmobile use and appropriate planning and management of winter trails could ameliorate impacts to caribou and other species.

Packed snowmobile trails provide routes for wolves that facilitate more efficient travel, which may increase rates of encounter of prey species and increase predation rates (an indirect impact on moose and caribou). RMZs which maintained low densities of roads and trails (e.g., Semi-Primitive or Backcountry) would minimize such effects. Travel management planning can also avoid routing groomed snowmobile trails into non-forested caribou range or other sensitive habitats or close trails which result in excessive snowmobile use in such areas. Groomed trail density is currently greatest in the White Mountains Subunit and is considered to have only minor or localized direct impacts to winter wildlife at current levels and patterns of use.

Motorboat Use

Motorboats are currently allowed on most rivers in the planning area with the exception of non-navigable portions of the Fortymile WSR--the North Fork above The Kink, Middle Fork, Joseph Creek, and Mosquito Fork above Ingle Creek. Motorboat use is limited on Beaver Creek Wild River by a restriction on the size of motors on boats launched in the Nome Creek valley at the upper end of the river and by remoteness on the lower end.

Motorboat use can disturb wildlife and result in avoidance of riparian habitats near rivers. Effects depend on the type of boat, manner of use, volume of traffic, and level of habituation of wildlife species. Relative to float boats, motorboat use will have a greater effect on wildlife due to noise, speed, and increased traffic due to their ability to travel both up and downstream. This also allows boats to remain longer in areas near wildlife, including nesting birds, or repeatedly pass by them. In remote areas, wildlife may not habituate to low or intermittent numbers of boat trips and so may be sensitive to even low amounts of traffic.

Nesting success or productivity of waterfowl and raptors such golden eagles, bald eagles, and peregrine falcons may be affected. Fraser and Anthony (2008) summarized four studies of Bald Eagles and found that flush distances from approaching boats averaged 137-393 meters. In addition to causing birds to flush from nests, human activity near nests can cause other changes in behavior which may affect nest success, such as a decrease in amount of prey fed to nestlings (Steidl and Anthony 2000). Although eagles and other raptors may eventually adjust to motorboat activity by nesting further from the stream in future seasons or may habituate to disturbance, this may not occur with human activity that occurs intermittently or for only short periods in the year.

Airboats are likely to be especially disturbing due to their loud sound levels (100-110dBA at 50 ft.) and ability to travel off of the river channels and in wetlands (and the unpredictable nature of that travel). Personal watercraft use would be more disturbing than jet- or prop-powered boats because of the tendency of this use to be used in play and to travel side to side and up and down the water channel. Hovercraft would be similar in impact to jetboats, but would be able to better traverse shallow water areas and travel off of the river channel. In that way they are similar to airboats, but generally quieter.

Effects from Hazardous Materials and Abandoned Mine Lands

Cleanup of existing hazardous materials and prevention of new spills or deposits will benefit wildlife resources by reducing potential animal exposures and effects on habitats. Rehabilitation of abandoned mine lands will generally benefit wildlife, especially those that restore key habitats such as riparian areas.

Effects from Subsistence

The management of federal lands to maintain subsistence resources will benefit wildlife resources. . Subsistence harvest of wildlife is regulated and the harvest of vegetative materials for subsistence use is generally low and dispersed. Motorized vehicle use by federally qualified subsistence users could potentially impact wildlife in some alternatives and in some circumstances. Subsistence use of snowmachines (with a permit) during winter in RNAs would likely have generally minor direct impacts on wildlife, due to low levels of expected activity.

Effects from Special Designations

New ACECs were proposed in all action alternatives to protect wildlife (especially sheep and caribou) and fisheries values. ACEC management will reduce potential impacts to wildlife through closing or placing restrictions on locatable and leasable mineral development, restricting motorized vehicle use, and other provisions. In Alternatives C and E, cross country travel will not be allowed in ACECs, following Travel Management Planning. The Mosquito Flats ACEC will protect extensive sensitive wetland vegetation from disturbance by summer OHVs and will maintain moose calving and trumpeter swan and short-eared owl nesting habitat along with habitat for other wetland-dependent species.

All existing WSR classifications will be maintained in all alternatives. Management of these river corridors will tend to minimize surface disturbing activities. Designation of new segments under Alternative B will similarly serve to maintain wildlife habitat values in those segments.

4.3.1.12.2. Alternative A (No Action)

Effects from Wildlife

Although grazing of livestock is not currently allowed except in the Fortymile MFP, no restrictions on casual use of domestic animals, such as goats and llamas, as pack animals are in place anywhere in the planning area.

4.3.1.12.3. Alternative B

Effects from Wildlife

No use of domestic goats, sheep, llamas or similar animals would occur in Dall sheep habitat, reducing the risk to very low levels. However, use in adjacent areas could result in inadvertent contact because Dall sheep do use areas outside primary ranges (and can wander long distances) and escapes of domestic animals may occur.

4.3.1.12.4. Alternative C

Effects from Wildlife

No use of domestic goats, sheep, llamas or similar animals in Dall sheep habitat by operations requiring a permit from the BLM would be allowed. This would reduce risk of disease transmission from the No Action Alternative only slightly, because most use of domestic goats or llamas is likely to be by non-permit holders (such as the general public). Some Dall sheep in the Mount Prindle area have developed the habit of closely approaching recreationists to obtain urine-soaked soil and/or food. If use of pack goats was allowed, close contact between sheep and pack animals would be likely. Consequences of disease transmission could be major and have long-term impacts on Dall sheep populations.

4.3.1.12.5. Alternative D

Effects from Wildlife

Same as Alternative C.

4.3.1.12.6. Alternative E (Proposed RMP)

Effects from Wildlife

As in Alternative B, prohibiting domestic goats, sheep, and llamas would minimize risks of disease exposure.

4.3.1.12.7. Cumulative Effects

State Land Disposals

In some parts of the planning area, state lands adjacent to BLM lands are open to disposals, such as sales of recreational lots. Activities associated with these lands may affect wildlife resources on BLM lands, including road and trail development. Along the west side of the south unit of the Steese National Conservation Area, a large area of state land is designated for disposal. Several sales of recreational lots in this area have occurred. Some land owners in such an area near the southern boundary of the White Mountains NRA use BLM trails to access their parcels. Other state land sale areas are adjacent to portions of the Dennison and Mosquito forks of the Fortymile WSR Corridor. Settlement is currently not allowed in Region 1 of the Upper Yukon Area Plan, which includes a significant portion of the current Fortymile calving area.

Mineral Development

Development of minerals will occur on state and private lands in the planning area. Effects will be similar to those described for activities on BLM lands, except that the level of activity is expected to be much higher, as the state and private lands generally have higher mineral potential.

Large lode mines are not predicted to occur during the 20-year life of the plan on BLM lands, except for the Money Knob Mine, which involves only isolated federal mining claims. Additional lode mines on BLM lands could potentially occur, either within the life of the plan or later. One pre-feasibility exploration project is predicted for the Steese Unit, which could later be developed into a large mine. Large lode mines involve a large area of surface disturbance, permanent change to the landscape, high levels of human activity on-site and involved in transport, and typically require large, high-standard road access with considerable traffic. Access may be requested across BLM lands for mines located on non-BLM lands, resulting in direct and indirect impacts.

Opening an area to mineral entry and location may have long-term consequences because a mineral claim may be maintained indefinitely before being developed. In addition, patent of mining claims, in the unlikely even the current moratorium is lifted, could result in-holdings of private land within public lands, resulting in long-term habitat loss and fragmentation, wildlife disturbance, and impacts associated with access.

Forest and Woodland Products

Commercial development of forest products will occur on state and private lands in the planning area, mostly in lower-elevation areas close to road access. Roads created for other purposes may be utilized for access to forest products. For example, the State of Alaska Upper Yukon Plan recognized the potential for forest product sales in the remote North Fork region, through possible access from the west. The Pogo Mine road, which has since been completed, extended the existing forest road east.

R.S. 2477 Rights-of-Way

Access to and across BLM lands, including motorized access, may be granted along R.S. 2477 rights-of-way. Currently, R.S. 2477s are not recognized by the BLM, but court decisions or negotiations with the State of Alaska could result in allowance of access along these routes and/or granting of rights-of-way. For example, the BLM recently granted a right-of-way along the Harrison Creek R.S. 2477 within the Steese National Conservation Area. Impacts of access would be similar to those described for motorized vehicle use on BLM lands for locatable minerals and recreation.

Aircraft activity

Other than as a condition of a permit for land use, the use of airspace is not controlled by BLM. Military aircraft utilize airspace over all of the planning area, and most BLM lands in the planning area (but not including the White Mountains subunit) are underneath Military Operations Area (MOA) airspace. MOA airspace is utilized both for routine flying and major exercises and in most of the MOAs aircraft are allowed to fly at 100 feet above ground level.

Military overflights have been related to lower caribou calf survival (Harrington and Veitch 1992). Davis et al. (1985) found no evidence of long-term population effects from frequent military and civilian aircraft activity to the Delta caribou herd. However, noise monitors and activity-sensing collars were used in the Delta Herd to document behavioral changes in caribou exposed to overflights, which included shorter resting bouts and increased daily movements (Murphy et al. 1993, Maier 1996, Maier et al. 1998). Most researchers studying the effects of aircraft overflights on caribou have suggested that female caribou with young calves are more sensitive to aircraft overflights than caribou of other sex and age categories and that mitigation is particularly important in the calving and postcalving seasons (Miller and Gunn 1979; Harrington and Veitch 1991; Murphy et al. 1993; Maier et al. 1998).

Magoun et al. (2003) observed reactions of Fortymile caribou to military aircraft overflights and concluded that short-term responses to overflights were generally mild in comparison to caribou reactions to predators or perceived predators. They also advised against assuming there are no long-term effects on calving caribou from jet overflights. Determining long-term effects would be difficult and they advised that "Without this information and with the potential for increased military jet training in the Yukon MOA, a conservative approach is advisable."

Lawler et al. (2005) observed Dall sheep reactions to military overflights and noted few substantial reactions. During observation periods, however, few overflights occurred in close proximity to observed sheep. Dall sheep are likely to be more sensitive to disturbance in areas where they feel less secure, as indicated by the following observation made by BLM biologists: Sheep in the vicinity of Puzzle Gulch (an area with very limited escape terrain) reacted more strongly to passage of two military jet aircraft at a distance of approximately one mile from the sheep than any recorded reaction in the Lawler et al. (2005) study (Herriges, unpublished data, J. Lawler, pers. comm.).

Other studies of effects of military aircraft activity on neotropical passerine birds (Bartecchi 2003) and nesting peregrine falcons (Ambrose and Donaldson 2004) did not document major impacts at current levels of aircraft activity.

The amount of military aircraft use allowed in the MOAs (in the MOA EIS) is considerably higher than has occurred since their establishment and during any of the recent studies on effects to wildlife species. Impacts to wildlife in some areas could potentially occur at high levels of military aircraft activity. In recent years, the Air Force has voluntarily avoided scheduling Major Flying Exercises during caribou calving and has instituted mitigation measures (raised minimum altitudes near known concentrations of calving caribou) to reduce potential impacts to the herd. These measures have likely resulted in little impact to caribou from Major Flying Exercises, but greater impacts could occur in the future if aircraft activity increases to nearer the allowable limits or mitigation measures are not followed.

Other aircraft activity over BLM lands in the planning area includes commercial commuter aircraft. This activity normally occurs at high altitudes, but in some areas (where flight paths intersect high terrain) flights are at low level above ground. The highest amount of this activity likely occurs in the White Mountains NRA. To some extent, this activity may have acclimated

wildlife to at least some types of aircraft activity. Typically, commercial flights occur in one direction with no circling, and this nature may facilitate habituation. Aircraft flights along Beaver Creek can be numerous because it is used often during low cloud conditions to travel between Yukon Flats and Fairbanks.

Climate Change

Climate change will result in major ecosystem changes in the planning area, with corresponding effects on wildlife habitats and populations. Some species will benefit, others will be negatively affected. Significant changes to wildlife communities due to climate change have been predicted (Lawler et al. 2009). During the next 30 years, the expected impacts on individual eastern Interior Alaska wildlife species from predicted changes in climate are not all clear. The biggest change in the planning area, where wildland fire is a part of the ecosystem, will be due to a predicted increase in fire frequency (Rupp and Springsteen 2009b, Rupp et al. 2006). A shift from mature coniferous forest-dominated landscape to a younger deciduous forest and shrub-dominated landscape is predicted to occur as a result. The loss of older spruce forests (more than 80 years) is likely to be substantial. This predicted shift will be a major ecosystem-level change and may result in large shifts in wildlife species distribution and abundance. Between 1990 and 2050, the mean fire return interval for the entire planning area is predicted to change from 250 years to 100 years, and simulations show an increase in deciduous vegetation (forest and shrub) from 10.7 to 75.6 percent of landscape.

As a result of the shift in fire frequency and severity and vegetation composition, species dependent on early seral stage and deciduous communities will in general benefit from climate change; and those dependent on older seral and spruce communities will likely be negatively affected. New plant and animal species will expand their distribution into the planning area within the next 30 years, with unpredictable effects on resident wildlife species. Habitat change from spread of invasive plants could be large in at least some habitats.

Summers are predicted to receive more precipitation, but be relatively drier due to increased temperatures. Insect damage to trees and temperature-induced moisture stress on spruce trees could result in major declines in those species which, in addition to increased fire frequency, could result in relatively less spruce forest on the landscape. This would impact mature white spruce-dependent bird species such as Townsend's warblers. As permafrost has receded, ponds and small lakes have dried (Riordan et al. 2006) and this trend will likely continue, perhaps aided by the summer moisture deficit. Lower creek and river flows are also likely. These changes will negatively affect waterfowl, shorebirds and aquatic wildlife such as beaver and muskrats. Species with only arctic and subarctic or alpine distribution may be most likely to be negatively impacted by climate change, including species such as gyrfalcon and ptarmigan. Extreme weather events are predicted to increase in frequency and can have major impacts to wildlife populations.

Caribou–Climate change is predicted to dramatically change forests in Interior Alaska and a predicted increase in wildland fire occurrence and severity will drastically reduce old age spruce lichen stands and reduce traditional winter lichen forage (Rupp and Springsteen 2009b). Using moderate climate change scenarios, the decline in stands of spruce less than 80 years old is predicted to be roughly forty percent from 1990 to 2050 and the mean fire return interval will decline from 250 to 100 years. This will result in major reductions in available lichen forage. Currently, winter range is not considered to be limiting, so impacts of this reduction will depend on the population level of caribou and the extent of winter range available, including other herds that may be using the available winter range.

At a minimum, increased wildland fires will result in wider winter travel by caribou in search of available lichen forage. More frequent and severe wildland fires and the shift from coniferous to deciduous forest dominance will likely foster increased moose densities and, as a result, increased wolf densities, which would likely increase predation rates on caribou. Predicted increased summer temperatures and drier conditions will likely reduce condition and pregnancy rates of caribou. Harassment by insects may also increase with higher summer temperatures. Increased shrubs and decreased lichen may occur in alpine habitat and a slowly rising treeline may reduce extent and quality of summer and fall range. Increased incidence of rain-on-snow events could impede winter foraging. Expanded ranges of some parasites and increased abundance in the environment are expected to affect caribou. Although some aspects of climate change could be positive, such as earlier summer greenup of vegetation, in balance, the effects on caribou populations are more likely to be negative. Across the north, a majority of large caribou herds monitored are in decline and the synchronous nature of these trends and observed effects on some herds of extreme weather events implicates climate change as a primary cause (Vors et al. 2009), although other human influences such as development and harvest may also be involved.

Dall Sheep—It is difficult to predict the effects of climate change on Dall sheep habitats. In low-elevation sheep habitats where forest is found in close proximity to escape terrain, an increase in fire frequency may result in improvement in short-term creation of new foraging habitats and improvement in forage quality. In most areas of sheep habitat, an ongoing rise in treeline could reduce the extent of sheep habitat, but that rise is expected to be slow. An increase in shrubs in alpine tundra (as is occurring in arctic tundra) would reduce quality of Dall sheep habitat, especially in winter when they would hold snow. The main impact of climate change may come from a combination of a predicted increase in winter temperatures (which will result in increased incidence of winter rain/icing events) and an increase in winter precipitation. Earlier green-up and longer growing seasons may be beneficial, but drier soil conditions could reduce forage quality. Dall sheep rely on alpine slopes which are blown free of snow and on areas of shallow, uncompacted snow for access to forage in winter and populations are commonly thought to be regulated by winter weather. Heavy snow winters and/or instances of freezing rain or heavily crusted snow could have serious consequences for sheep populations, depending on the severity and frequency of those events. These consequences would likely outweigh positive effects of climate change and so the overall impact of climate change on Dall sheep is likely to be negative.

Moose—The large area burned since 2004 has likely already benefited moose and the predicted increase in fire frequency and resulting shift towards a more deciduous-dominated landscape will likely continue to benefit moose. Negative effects of climate change for moose include a predicted increase in winter precipitation, which may result in periodic excessively deep snow years, and increased summer temperatures which could result in some heat stress. Deep snow and heavy browsing were responsible for a crash of Tanana Flats moose populations in 1965–1966 (Gasaway et al. 1983). The overall effect of climate change on moose is uncertain, but a shift to early seral and deciduous vegetation will likely result in overall beneficial effects.

Potential Cumulative Effects to Caribou

Caribou are a very important species in the Planning area, both ecologically and culturally. Caribou are wide ranging and the Fortymile caribou herd ranges into all four subunits (though rarely in Upper Black River Subunit) and far into Canada as well. This large range with many landowners increases the potential for significant accumulation of effects. In addition to the BLM , major land managers in the Fortymile caribou herd range include State of Alaska, National Park Service (Yukon-Charley Rivers National Preserve), BLM, Doyon, Limited, and Government of

Yukon Territory. Only the NPS has a mission focused on resource preservation and it manages twenty-nine percent of lands in the core calving area. Doyon, Limited, is a corporation with a focus on resource development; and the BLM and State of Alaska have multiple use missions. The State of Alaska may also sell land. In the Fortymile subunit especially, many BLM lands have recently been, or will soon be, conveyed to Doyon, Limited, and other Native corporations and the State of Alaska. The State of Alaska and Native corporations are selecting lands with relatively high mineral potential (or other resource development potential), leaving what are currently thought to be mostly lower potential lands under BLM's management. As a result, resource development activities which may impact Fortymile caribou are likely to be concentrated on state and private lands in the area. Relative to these, activities on BLM lands are likely to represent smaller impacts to Fortymile caribou habitat. BLM lands, however, include some of the most highly used habitats for calving and postcalving. In the core calving area, thirty percent is within BLM lands, and that proportion is higher in the highest density calving areas. As other lands in calving/postcalving habitats are developed, BLM and NPS lands may become more important to Fortymile caribou. The main historical calving grounds of the Fortymile herd for much of the previous century occurred in the White Mountains NRA and north Steese National Conservation Area. Access to the historical calving grounds requires migration across a zone of state land along the Steese Highway mostly open to mineral entry and currently with extensive areas of mining claims.

Increased fragmentation of Fortymile caribou habitats is expected to occur from a variety of activities and the access created for them. Most of the highest density recent calving habitat for the Fortymile herd occurs south and east of Yukon-Charley Rivers National Preserve. Lands have been selected in those areas by Doyon, Limited, and the State of Alaska for conveyance. The Pogo Mine occurs just to the west of calving/postcalving range and a potential mine at Slate Creek (Goodpaster River tributary) occurs closer to that range. The Little White Man prospect, the site of a likely lode development, and other prospects in the vicinity occur to the east of Pogo. More than two townships of land centered upon Mount Harper have recently been conveyed to Doyon, Limited, presumably for their mineral potential, and this is the center of a very highly used calving concentration. Extension of a road east from Pogo towards Mount Harper was considered as a scenario for cumulative effects analysis in the Pogo Mine EIS. Filings of R.S. 2477 rights-of-way, although not recognized at this time by the BLM, indicate potential additional routes upon which access might someday be developed. Any exploration, mines and access (and additional development associated with and facilitated by that access), on BLM lands in the Fortymile calving/postcalving range could add to the cumulative impact of other development in the area. The Fortymile calving/postcalving habitats most likely to become unused or less used due to foreseeable future development are the historical calving grounds in the White Mountains/north Steese and one of the areas of highest current calving density in the Mount Harper/upper Middle Fork Fortymile River area .

Although predictions of new mining activity during the life of the plan are moderate (in part due to the length of time required to develop large mines), the opening of large areas of caribou habitat to locatable minerals could, in certain economic conditions, potentially result in extensive development within caribou habitat, including migratory habitats. Extensive areas of mining claims may be staked and maintained for many years and developed later.

The effects of climate change— combined with the effects of potential development on state land and private land of mining and exploration operations; military and other aircraft overflights; forestry and biomass harvest; state land disposals; recreational activities (including OHV use); and, transportation corridors associated with these and other activities— when combined with

that occurring on BLM lands may be substantial. It is not possible to predict these activities and changes accurately, but there is at least the possibility that they may combine to create substantial impacts on caribou.

In Alternative B, the contribution of BLM actions to cumulative impacts to caribou will be negligible. Most of the recent and historical calving and postcalving habitats on BLM lands are designated as ACECs. Alternative B provides the most protection to caribou calving/postcalving from potential impacts of mining and motorized vehicle use (of action alternatives) and restricts cross-country OHV use. Of the current most highly used (core) calving habitat of the Fortymile caribou herd, fifty-nine percent is closed to mineral entry (BLM and NPS lands).

In Alternative C, the contribution of BLM actions to cumulative impacts to caribou will be somewhat greater. Most of the recent and a portion of the historical Fortymile calving and postcalving habitats on BLM lands are designated as ACECs and are closed to mineral location and entry and leasing of minerals. OHV use will be limited to designated or existing routes in all SRMAs. However, a smaller portion of the current general calving range of the Fortymile herd is closed to mineral entry in Alternative C than Alternative B, but within the core calving area, the same fifty-nine percent is closed to mineral entry (BLM and NPS lands). The migration corridor in the vicinity of the Steese Highway is mostly open to locatable and leasable minerals.

In Alternative D, the contribution of BLM actions to cumulative impacts are potentially considerably greater. Almost all caribou calving/postcalving habitats on BLM lands in the Fortymile subunit are open to mineral location and entry and mineral leasing. Of the current Fortymile caribou core calving area, only twenty-nine percent is closed to mineral entry (all in Yukon-Charley Rivers National Preserve). Also in Alternative D, greater development of calving/postcalving and migration habitats in the Steese National Conservation Area and White Mountains NRA are allowed. More area is open to mineral location and entry and mineral leasing and areas open to motorized vehicle use. Cross-country use of small summer OHVs are allowed. In the White Mountains NRA and Steese National Conservation Area, other management objectives (such as RMZ designations) provide some protection to caribou habitats outside of ACECs. In this alternative, the impacts of potential mineral development in migration habitats in the Steese Highway area and in calving/postcalving habitats in the Fortymile, along with other cumulative impacts, could potentially become substantial.

In Alternative E, the contribution of BLM actions to cumulative impacts to caribou will be greater than Alternative B, but less than Alternative C. Larger portions of recent and historical Fortymile calving and postcalving habitats on BLM lands are closed to mineral location and entry and leasing of minerals. The main difference from Alternative C is that all of the Steese National Conservation Area is closed to mineral locatable and leasable minerals in Alternative E, including all BLM lands in and near the migration corridor in the vicinity of the Steese Highway. In Alternative E summer OHV use is allowed in all RMZs and cross-country summer OHV use is allowed in all subunits, but summer OHV use will be limited (through Travel Management planning) in the Fortymile ACEC and in crucial caribou and Dall sheep habitat. Other restrictions may also be implemented during Travel Management Planning.

4.3.2. Resource Uses

4.3.2.1. Forest and Woodland Products

Summary of Effects

Since no restrictions are proposed under any alternative for recreational use of timber or for personal use of forest products, there would be negligible effects to these activities under all alternatives. The area closed to personal use of timber would range from: zero acres in Alternatives A and E; 2.5 million acres in Alternative B; 300,000 acres in Alternative C; and 840 acres in Alternative D. Closures to commercial use of timber and forest products would be similar in that the largest areas are closed in Alternative B.

BLM lands would not be a significant source of timber. Other areas, in particular the Tanana Valley State Forest, offer much better opportunities for timber harvest. In areas that are open, measures to protect other resources, such as limits on the method, timing, and amount of harvest, would be required. Implementing closures to protect resource values would result in the loss of some available acreage and opportunities for harvest of timber and forest products. These restrictions and closures would have minimal impact on the Forestry Program, primarily due to low timber values and lack of access.

Special Designations would have the largest effect on the Forestry Program, but effects would still be small. The three WSR corridors provide some of the better opportunities to harvest the more valuable white spruce trees, particularly those portions of the Fortymile WSR where there is road access. Commercial timber harvest would be excluded from the WSR corridors and RNAs in all action alternatives. Restrictions on harvest would apply in ACECs. Loss of potential harvest areas in RNAs, ACECs and even WSRs would have a minimal effect, due to the remote and inaccessible nature and generally limited forest resources found in these areas. The strong emphasis on recreation within the White Mountains NRA, Steese National Conservation Area, and Fortymile WSR and the desire to protect visual resources would also likely lead to greater restrictions.

The following resources, resource uses, or programs would not affect Forest and Woodland Products and are not analyzed further: Air and Atmospheric Values, Cave and Karst Resources, Lands and Realty, Travel Management, and Vegetation Management, Withdrawals, Hazardous Materials, and Subsistence.

4.3.2.1.1. Effects Common to All Alternatives

Effects from Cultural and Paleontological Resources

Cultural and Paleontological resources would have minimal effects on Forestry. Minor restrictions on timber harvest could apply to avoid and minimize disturbing cultural and paleontological sites.

Effects from Fish and Aquatic Species

Measures to protect or restore healthy, functioning watersheds, riparian areas, and associated fish habitat would have minimal impact on the Forestry Program, primarily due to the low level of timber and forest product harvest anticipated. Implementing riparian buffers in Riparian Conservation Areas and reducing impacts to aquatic habitats in other areas would result in the loss of some available acreage and opportunities for harvesting timber. In areas that are open to

harvest, additional restrictions could apply; including limits on the method, timing, and amount of harvest.

Effects from Non-Native Invasive Species

Management to prevent invasion and spread of non-native species would have a minimal impact, primarily due to the low level of timber and forest product harvest anticipated. Additional restrictions on timber harvest could apply to prevent the introduction or spread of non-native species.

Effects from Soil and Water Resources

Protecting soil and water resources and reducing impacts to watersheds could indirectly result in some loss of available acreage and opportunities for harvesting forest products. Buffers or avoidance areas generally near streams, along with possible seasonal restrictions, could reduce potential harvest areas. Other areas not closed to timber harvest, may also require such restrictions, making harvest uneconomical and creating additional lost opportunity.

Effects from Special Status Species

Measures to protect and preserve Special Status Species would result in direct effects to all forest activities that impact these species. Under all alternatives, the harvest of timber and forest products in areas containing sensitive, threatened, or endangered species could be restricted, relocated, or excluded to avoid resource damage. The presence of Special Status Species in the planning area, however, is limited and impacts would be minimal.

Effects from Visual Resource Management

Protecting visual resources and reducing impacts to viewsheds could result in the loss of available acreage and opportunities for harvesting timber and forest products. Much of the potentially harvestable timber is within the WSR corridors or within economically accessible distances from roads. These areas would typically be managed for higher visual resource protection, resulting in harvest restrictions to reduce impacts to visual resources. Restrictions could include limits on the method, timing, location, and amount of harvest.

Effects from Wilderness Characteristics

Under Alternative A there would be no effect as areas to be maintained with wilderness characteristics since none have been identified. Under Alternatives B, C, D, and E various acreages of lands with wilderness characteristics to be maintained are identified. Though a considerable amount of acreage proposed as open to various forest harvest activities overlaps with areas where wilderness characteristics would be maintained, few impacts would occur. Areas where wilderness characteristics are to be maintained are generally remote and offer minimal harvest potential. Managing for wilderness characteristics could preclude timber harvest or restrict the method, timing, and amount of harvest.

Effects from Wildland Fire Ecology and Management

Opportunities may arise to combine fuel treatments and timber harvest to benefit local communities. Post-fire salvage could offer potential for harvest sites. Managing under a Limited Fire Management option could result in the loss of timber that might otherwise be available for harvest. These effects would be limited due to the lack of commercially valuable timber.

Effects from Wildlife

Protecting suitable habitat and reducing impacts to wildlife could result in the loss of some available acreage and opportunities for timber harvest. The method, timing, and amount of harvest could be restricted. Overall impacts would be limited based on the assumption that most restrictions to protect wildlife would be seasonal and that timber values are low.

Effects from Minerals Management

Development associated with minerals management could enhance access to otherwise uneconomical timber harvest areas. These sites are more likely to be in less sensitive areas and thus would be more conducive to timber harvest.

Effects from Renewable Energy

Criteria for biomass utilization according to *Assessing the Potential for Renewable Energy on Public Lands* (BLM and DOE 2003) are not met within the planning area. However significant and growing demand does exist for biomass utilization for personal and possibly small-scale community use. The plan allows for biomass projects in all alternatives, but only three to five small biomass projects are expected.

4.3.2.1.2. Alternative A (No Action)

Effects from Forest and Woodland Products

Under Alternative A 2.2 million acres would be closed to commercial timber sales and 1.2 million acres would be closed to commercial use of forest products in the White Mountains and Steese subunits. Personal use of timber and forest products could be allowed throughout the planning area. Although large areas are closed to these types of uses, effects would be minimal due to the low value of timber and lack of access to BLM lands.

Effects from Special Designations

Within the Beaver and Birch Creek WSR Corridors (156,000 acres), commercial timber harvest would be prohibited. Within the Fortymile WSR Corridor (248,000 acres), timber harvest could occur if consistent with managing for river values. Four RNAs (15,600 acres) are designated in the Steese National Conservation Area and White Mountains NRA. Commercial harvest of forest products would likely not be authorized within RNAs as it would not be consistent with the reasons for designation, and surface-disturbing activities are prohibited. Commercial use of timber would be prohibited in the Steese National Conservation Area and White Mountains NRA (inclusive of the RNAs).

The effect of these prohibitions or restrictions on the Forestry Program would be minimal due to the generally low value of the timber, lack of demand, and the inaccessibility of these areas.

4.3.2.1.3. Alternative B

Effects from Forest and Woodland Products

Under Alternative B, forest harvest activities would be much more restricted than in Alternative A. Approximately 4.8 million acres would be closed to commercial timber sales, and 2.5 million acres would be closed to commercial use of forest products, timber salvage sales, and personal

use of timber. Similar to Alternative A, the effects of these closures or restrictions would be small due to the low timber values and lack of access. Personal use of timber would not be allowed in the Steese National Conservation Area or the White Mountains NRA. This could have the effect precluding four or more applications for personal use firewood annually.

Effects from Recreation

Protecting designated recreation setting prescriptions and developed sites within designated SRMAs could result in the loss of some available acreage and opportunities for harvesting timber and other forest products. Effects would be minimal under Alternative B due to the fact that very limited forestry actions would be allowed to occur in SRMAs.

Effects from Special Designations

Under Alternative B, 2,811,000 acres in four areas would be designated as ACECs. The effect of these designations would be minimal, due to the fact that timber values are low and access to these areas is limited. Additionally, the Fortymile ACEC (690,000 acres) would be open to harvest of timber and forest products, consistent with protection of ACEC values.

The recommended designation of 98 miles of river under the National Wild and Scenic Rivers System could result in loss of opportunity for harvest of timber and forest products, including some areas that support the more valuable white spruce. These impacts would be minor due to generally low timber values, lack of access and lack of demand.

The Fortymile, Birch Creek, and Beaver Creek WSR Corridors (404,000 acres) would closed to commercial use of timber and forest products. Although these areas support the more valuable white spruce, the effects of these closures would be minimal due to lack of access and demand. Additionally, any harvest authorized in the WSR corridor would have to be consistent with protecting the outstandingly remarkable river values.

4.3.2.1.4. Alternative C

Effects from Forest and Woodland Products

Under Alternative C, one million acres would be closed to commercial timber sales and 166,000 acres would be closed to commercial harvest of forest products. Personal use of timber would be prohibited on 300,000 acres. Effects on the Forestry Program would be minimal and less than under Alternatives A and B.

Effects from Recreation

Backcountry and Semi-Primitive RMZs overlap some areas where various types of timber and forest harvest would be allowed. No impact would be expected in these RMZs based on low timber values and lack of access. Areas where recreation could impact the Forestry Program include some Middlecountry and Frontcountry RMZs. These RMZs would have more developed recreational sites and place a higher value on protecting the visual setting for users. The location, method, timing, and amount of harvest could be restricted. Overall impacts would be low, based on current and anticipated future demand and low timber values.

Effects from Special Designations

The effects from RNAs would be the same as Alternative B.

Under Alternative C, 1,632,000 acres in three areas would be designated as ACECs. Similar to Alternative B, the effect of these designations would be minimal, due to the fact that timber values are low and access to these areas is limited. Additionally, the Fortymile and Steese ACECs (1,011,000 acres) would be open to harvest of timber and forest products, consistent with protection of ACEC values.

No additional rivers would be recommended for designation under the National Wild and Scenic Rivers System. Thus there would be no effects. Designated WSRs would be closed to commercial timber harvest. Commercial use of forest products would be allowed on the "scenic" and "recreational" segments of the Fortymile WSR, increasing the acreage open to these types of use compared to Alternative B. The effects of these prohibitions would be minimal due to the lack of valuable timber, limited access, and lack of demand.

Similar to Alternative B, the Fortymile, Birch Creek, and Beaver Creek WSR Corridors (404,000 acres) would be closed to commercial use of timber. The "scenic" and "recreational" segments of the Fortymile WSR would be open to personal use of timber. Although these areas support the more valuable white spruce, the effects of these closures would be minimal due to lack of access and demand. The effects of opening portions of the Fortymile WSR to personal use of timber would be that it would provide additional opportunities for this type of harvest on 103,000 acres. Compared to Alternative B, an additional 259,000 acres within WSR corridors would be open to commercial harvest of forest products, providing additional commercial harvest opportunities for forest products. Any harvest authorized in the WSR corridors would have to be consistent with protecting the outstandingly remarkable river values.

4.3.2.1.5. Alternative D

Effects from Forest and Woodland Products

Under Alternative D, 403,000 acres would be closed to commercial timber sales, 21,000 acres would be closed to commercial use of forest products, and 840 acres in the Fortymile Subunit would be closed to personal use of timber. Although this alternative opens large areas to various types of timber and forest product harvest, the effects would be minimal due to the low value of timber and lack of access on BLM lands.

Effects from Recreation

Same as Alternative C.

Effects from Special Designations

The effects from RNAs would be the same as Alternative B.

Under Alternative D, 1,368,000 acres in three areas would be designated as ACECs. The ACECs would be open to harvest of timber and forest products, consistent with protection of ACEC values. Similar to Alternative B, the effect of these designations would be minimal.

No additional rivers would be recommended for designation under the National Wild and Scenic Rivers System. Thus there would be no effects.

Designated WSRs (404,000 acres) would be closed to commercial timber harvest and open to commercial use of forest products. The entire Fortymile WSR would be open to commercial use of forest products, increasing the open acreage by 145,000 acres over Alternative C. Although this

alternative would open additional acreage, effects would essentially be the same as Alternative C, due to lack of access in the "wild" segments of the Fortymile WSR. Additionally, the Beaver Creek and Beaver Creek WSRs would be open to personal use of timber, providing opportunities for harvest on an additional 156,000 acres compared to Alternative C. Increasing the acres open personal of timber products would have minimal effect, as demand is expected to remain low and there are alternative harvest areas on state lands that are more accessible.

4.3.2.1.6. Alternative E (Proposed RMP)

Effects from Forest and Woodland Products

Under Alternative E, 1,967,000 acres would be closed to commercial timber sales. No areas would be closed for personal use of forest and timber products, commercial use of forest products, and commercial salvage of timber products. Although this alternative closes approximately 30 percent of the BLM-managed lands to commercial timber harvest, the entire planning area would be open to other forest and forest product uses and offers an increase in available personal wood and slash harvest. The effects would remain minimal as similar to previous alternatives due to lack of access to most lands and low timber values.

Effects from Recreation

Same as Alternative C.

Effects from Special Designations

Under Alternative E, 1,022,000 acres in three areas would be designated as ACECs. The ACECs would be open to harvest of timber and forest products, except commercial timber harvest. Similar to Alternative B, the effect of these designations would be minimal.

No additional rivers would be recommended for designation under the National Wild and Scenic Rivers System. Thus there would be no effects.

Designated WSRs (404,000 acres) would be closed to commercial timber harvest and open to commercial use of forest products. The entire Fortymile WSR would be open to commercial use of forest products, increasing the open acreage by 145,000 acres over Alternative C. Although this alternative would open additional acreage, effects would essentially be the same as Alternative C, due to lack of access in the "wild" segments of the Fortymile WSR. Additionally, the Beaver Creek and Beaver Creek WSRs would be open to personal use of timber, providing opportunities for harvest on an additional 156,000 acres compared to Alternative C. Increasing the acres open personal of timber products would have minimal effect, as demand is expected to remain low and there are alternative harvest areas on state lands that are more accessible.

4.3.2.1.7. Cumulative Effects

Warmer and drier conditions are expected over the life of the plan. The potential for increased frequency of wildland fire and stress to the forest ecosystems is expected. The possibility exists that increased interest may arise for salvage type harvest due to post fire availability and salvage of disease or pest infested trees. As for forest products such as berries and mushrooms, changes could be expected but are difficult to forecast. These effects would not vary by alternative.

The overall effect on the Forestry Program from planning decisions on BLM lands, in addition to restrictions in National Wildlife Refuges and National Preserves would result in additional loss of potential harvest areas. The demand for local harvest of timber, for home heating, saw logs and lumber, and biomass, is expected to increase. Higher fuel prices would lead to higher transportation and heating costs. Currently non-federal lands are able to meet this demand, with more accessible and feasibly recoverable timber. The cumulative effect to the Forestry Program would remain low, although activity is expected to increase slightly throughout the life of the plan. Cumulative effects would be the greatest in Alternatives A and B, somewhat less in Alternative C, and minimal in Alternative D and E.

4.3.2.2. Land and Realty Actions

Summary of Effects

The effects to the Lands and Realty program are limited and effects would be similar under most alternatives. The primary effect under all alternatives would be the potential for requiring relocation, redesign, or denial of realty authorizations to protect other resources. The largest effect would occur under Alternative B due to the designation of right-of-way avoidance areas.

4.3.2.2.1. Effects Common to All Alternatives

There would be no foreseeable effects on Lands and Realty from the following programs, resources, or resource uses and they are not analyzed further: Air and Atmospheric values, Cave and Karst, Non-Native Invasive Species, Soil Resources, Vegetation Management, Wilderness Characteristics, Fire Management, Forest and Woodland Products, Renewable Energy, Travel Management, Hazardous Materials, or Subsistence.

Effects from Cultural and Paleontological Resources

If important cultural or paleontological resources were found on public lands, the proposed action under a realty authorization may need to be relocated, redesigned, or denied. The presence of significant cultural or paleontological resources on public lands could prevent disposal of those lands through land tenure actions.

Effects from Fish and Wildlife, and Special Status Species

Proposed realty actions that would negatively impact the habitat of fish or wildlife species may need to be relocated, redesigned, or denied, depending on the level of effects. If critical habitat was designated for a listed species, it would become land tenure Zone 1 and would not be available for disposal actions.

Effects from Visual Resource Management

Management of visual resources would have minimal effects on most land and realty actions. VRM Class designations do not prohibit the issuance of authorizations, but would require modification of the proposed action to meet the visual resource management class objectives. Projects in VRM Class I and II areas would require more modifications than would projects in Class III and IV areas. In some cases, proposed projects could be denied in VRM Class I and II areas.

The only VRM Class I areas would be the "wild" segments of the Fortymile, Birch, and Beaver WSRs, and the RNAs in the Steese National Conservation Area and White Mountains NRA. The amount of VRM Class II lands would be limited under most alternatives and occur primarily in areas managed for a Semi-Primitive recreation setting or to maintain wilderness characteristics. VRM Class I designation could constrain or prevent some realty authorizations. This effect would be generally be limited in scope, because the status of these areas as WSR corridors and RNAs, their proposed management, and their generally remote locations, would limit the number and types of projects considered. Realty authorizations would be somewhat effected in VRM Class II areas, depending on the extent and permanence of any disturbance. VRM III and IV classifications would have minimal effects on lands and realty actions because projects can more easily be designed to meet the objectives for these classes. Under all VRM Classes, topography and other landscape features would often provide an opportunity to screen projects, further reducing the amount of modifications to the project itself.

VRM designations would have a limited effect because the number of realty authorizations likely to occur in Class I or II areas would be small. VRM Class I or II designation could have a large impact, in the event that an application for a project is denied because it cannot be redesigned or relocated to meet the VRM management objectives. In general, the potential for adverse impacts decreases from Alternative B to Alternative E to Alternative C to Alternative D because the acres under VRM Class I and II designation decreases.

Effects from Water Resources

If there are instances where proposed realty actions would have unacceptable impacts on the management of water resources or riparian habitat, the proposed action may need to be relocated, redesigned, or denied.

Effects of Minerals Management

There are few foreseeable effects on land tenure or land use authorizations from the use of fluid, solid, locatable, or salable mineral resources. If additional lands are made available for the staking of mining claims, there could be some increase in processing and granting of rights-of-way for access to mining claims. In most cases, however, access would be authorized as part of the Plan of Operations under the mining regulations.

Effects of Recreation

There are few foreseeable effects on land tenure or land use authorizations from Recreation Uses. For those lands that would be managed for Primitive or Semi-Primitive settings, all reasonable alternatives (including relocation, redesign, mitigation, or denial) would be explored to avoid issuing rights-of-way or other authorizations that would be inconsistent or incompatible with the recreation opportunity setting.

Effects of Withdrawals

There are few foreseeable effects on land tenure or land use authorizations from recommended adjustments to withdrawals. When some withdrawals are modified or revoked, more lands could become available for exchange and other means of disposal. In addition more lands would be available for mineral entry. As a result, there could be a small increase in processing and granting of rights-of-way.

4.3.2.2.2. Alternative A (No Action)

Effects of Special Designations

There are few foreseeable effects on land tenure or land use authorizations from special designations. For those lands under special designation, all reasonable alternatives (including relocation, redesign, mitigation, or denial) would be explored to avoid issuing rights-of-way or other authorizations that would be inconsistent or incompatible with the purpose and reason for which the lands were designated. Designated lands would be unavailable for disposal actions. Under Alternative A, these effects would be limited to 15,600 acres of designated RNAs in the Steese National Conservation Area and White Mountains NRA, and 404,000 acres in the Fortymile, Beaver Creek, and Birch Creek WSRs.

4.3.2.2.3. Alternative B

Effects of Special Designations

In addition to the effects discussed under Alternative A, all ACECs (2,811,000 acres) are designated as right-of-way avoidance areas. In the Steese, White Mountains, and Upper Black River subunits the effects of this would be limited. Few requests for rights-of-way are anticipated in the Salmon Fork ACEC due to its remote location. Few requests are also anticipated in the White Mountains and Steese ACECs as they are within congressionally designated areas that limit land uses. Rights-of-way within the White Mountains NRA for example would most likely be for BLM-managed trails or small site type rights-of-way such as remote weather stations.

In the Fortymile Subunit, the Fortymile ACEC entirely surrounds some Doyon, Limited and State lands and includes both State- and Native-selections. Resource development is an important aspect of both Doyon, Limited's and the State of Alaska's mission. Designation of this ACEC as a right-of-way avoidance area would likely make it more expensive and difficult for these entities to access their lands in the event of mineral exploration or development activities. This may also be the case in the Upper Black River Subunit where two parcels of Doyon, Limited lands are located between the Salmon Fork ACEC and the Yukon Flats and Arctic national wildlife refuges.

The effects under this alternative would be higher than under Alternatives C, D, or E as more acres are designated as ACECs and ACECs are right-of-way avoidance areas.

4.3.2.2.4. Alternative C

Effects of Special Designations

Only 1,632,000 acres would be designated as ACECs under this alternative and they would not be right-of-way avoidance areas. Effects on land and realty actions would be similar to those discussed under Alternative A. The effects under this alternative would be slightly less than under Alternative B, but greater than under Alternatives D and E.

4.3.2.2.5. Alternative D

Effects of Special Designations

Only 1,368,000 acres would be designated as ACECs under this alternative. Effects on land and realty actions would be similar to those discussed under Alternative A. The effects under this alternative would be slightly less than under Alternatives B and C because fewer acres are designated as ACECs.

4.3.2.2.6. Alternative E (Proposed RMP)

Effects of Special Designations

Effects would be similar to Alternative D, except 1,022,000 acres would be designated as ACECs. The effects under this alternative would be less than under Alternatives B, C, and D because fewer acres are designated.

4.3.2.3. Fluid Leasable Minerals

Summary of Effects

There would be no effects on geothermal and coalbed natural gas. Although decisions in Alternatives B, C, D, and E propose to close between 5,689,000 acres and 1,319,000 acres, to fluid mineral leasing, these closure decisions would have limited effect due to the lack of these resources on BLM-managed lands.

Effects to oil and gas would be limited due to the small amount of high potential resources on BLM-managed lands. Alternatives B, C, D, and E would open 834,000 to 5,204,000 acres to fluid mineral leasing subject to standard stipulations or minor constraints. Little interest in exploration and no interest in leasing is anticipated in any subunit under any alternative.

Alternative B would generate little interest in exploration or leasing, in part due to the extensive closed areas and leasing restrictions on open areas. Alternatives C and E would open some of the high occurrence potential lands in the Upper Black River and Steese subunits. Alternative D would open more of the high occurrence potential lands, including some lands in the White Mountains Subunit. Regardless of these openings, little interest in exploration or leasing would be anticipated, even under Alternatives C, D, and E. The unknown resource that underlies these lands would remain unattainable for the life of the plan.

4.3.2.3.1. Effects Common to All Alternatives

Fluid leasable minerals including geothermal, coalbed natural gas, and oil and gas have little development potential in the planning area. There is no development potential for geothermal or coalbed natural gas. The only hot springs on BLM-managed lands is Big Windy Hot Springs, which is designated as a Research Natural Area. Although Alternatives B, C, D, and E would open from 834,000 to 5,204,000 acres, to fluid mineral leasing these decisions would have no effect in relation to geothermal or coalbed natural gas.

There is limited potential for oil and gas in the Steese, Upper Black River, and White Mountains subunits. All three subunits contain areas of high occurrence oil and gas potential, based on conceptual USGS oil and gas plays (Map 87). BLM-managed lands lie on the margin of these plays and little development interest has been expressed in this part of the Yukon Flats Basin. Limited exploration has occurred in these subunits, particularly on BLM-managed lands. The oil

and gas resource in the Upper Black River Subunit is virtually unknown, as there has been little seismic work and only three test wells drilled.

Even if the resource existed in commercial quantities, exploration and development of the potential oil and gas resource would be further deterred by additional restrictions imposed through this plan such as SOPs and Leasing Stipulations (Appendix A). In all alternatives, there are areas with high oil and gas occurrence potential that conflict with environmentally sensitive surface values. Restrictions imposed to meet the goals of the RMP, would impact exploration and development by increasing the costs of these activities. The prospect for reduced profit would diminish interest and the potential leaseholder would look elsewhere. Interest in the Upper Black River Subunit would likely be negated by its remoteness and lack of infrastructure. Although Alternatives B, C, D, and E would open from 834,000 to 5,204,000 acres to fluid mineral leasing, these decisions would have limited effect in relation to oil and gas leasing.

4.3.2.3.2. Alternative A (No Action)

There are no active oil and gas leases in the planning area and leasing would not occur under Alternative A. The lack of NEPA analysis and the retention of ANCSA 17(d)(1) withdrawals would preclude leasing. As a result, exploration and development would not occur and those undiscovered fluid minerals resources would remain unavailable for development.

4.3.2.3.3. Alternative B

Under Alternative B, 800,000 acres in the Fortymile and 3,000 acres in the Steese subunits would be open to leasing, subject to the standard stipulations. The decision to open these areas would have no effect as there are no known high occurrence potential oil and gas lands in these areas.

Some lands in the Steese and Fortymile subunits would be open to fluid mineral leasing, subject to no surface occupancy (NSO). NSO lands would include split-estate lands (minimal acreage) and BLM lands near the village of Circle (31,000 acres). The NSO lands near the communities of Circle and Central contain high occurrence potential for fluid leasable minerals. NSO would not allow for any permanent facilities and given the size of the parcels near Circle, would likely make any potential oil and gas target uneconomical. Split-estate lands could be available through directional drilling, but adjacent lands would need be open to development for this to occur. Directional drilling is unlikely because it is a technique used in the oil and gas development process. It is very uncommon for exploration drilling due to the expense. Before a directional well was considered, resource potential would need to be discovered through seismic followed by confirmation drilling of a vertical well.

Further deterring oil and gas leasing and development are the SOPs, Leasing Stipulations, and other regulations. Additional restrictions tend to cause a reduction in lease interest and overall lease value. Encumbrances posed by the SOPs and Leasing Stipulations also increase operating costs, which would have an impact on exploration. Higher operating costs associated with drilling restrictions would result in fewer wells drilled, potentially delaying or preventing a discovery.

The remaining 5,689,000 acres (eighty-five percent of BLM lands in the planning area) would be closed to leasing (Maps 26, 32, and 39). Closed lands would include the Fortymile WSR, Fortymile ACEC, Fortymile SRMA, the Steese SRMA, the Upper Black River Subunit, and the White Mountains Subunit. These closures would have no impact in the Fortymile Subunit as there are no known high occurrence potential lands for oil and gas. Closed areas in the other subunits

include at least 300,000 acres of high occurrence potential lands. Any fluid mineral resource that may be present in these areas would be considered unavailable for the life of this plan.

4.3.2.3.4. Alternative C

Alternative C differs from Alternative B, as the Upper Black River Subunit and portions of the Fortymile caribou herd calving habitat in the Fortymile and Steese subunits would be available to leasing. Additionally, a portion of the Steese National Conservation Area would be open to leasing. Effects would be similar to Alternative B, but closures and restrictions would apply to fewer acres.

Under Alternative C, 2,804,000 acres in Fortymile, Steese, and Upper Black River Subunits would be open to leasing, subject to the standard stipulations (Maps 27, 35, and 40). Restrictive openings would include 462,000 acres open. In the Steese Subunit, openings would include approximately 100,000 acres of high occurrence potential lands. These decisions would have no effect in the Fortymile Subunit due to the lack of oil and gas resources. The minor constraints in the Steese and Upper Black River subunits would consist of seasonal restrictions in priority wildlife habitats and stream buffers in Riparian Conservation Areas. These could constrain the exploration and development phases by delaying a project, but would not have any effect on the production phase. These constraints would not impose a significant restriction for oil and gas exploration and production.

Approximately 3,257,000 acres (fifty percent of BLM lands in the planning area) would be closed to leasing. Closed lands would include the Fortymile WSR Corridor, portions of the Fortymile ACEC, Birch Creek WSR Corridor, portions of the Steese National Conservation Area, and the White Mountains Subunit. These closures would have no impact in the Fortymile Subunit as there are no known high occurrence potential lands for oil and gas. The closed areas in the Steese and White Mountains subunits encompass approximately 252,000 acres of high mineral occurrence potential lands that would be unavailable for exploration, development, and production of any oil and gas that may exist.

4.3.2.3.5. Alternative D

Alternative D makes the most lands available to fluid leasable minerals of any alternative (Maps 29, 36 and 42). The primary difference from Alternative C would be the opening of the Middlecountry RMZ in the White Mountains Subunit, the opening of additional acres in the Steese Subunit, and the opening of caribou calving habitat and the “scenic” segments of the Fortymile WSR in the Fortymile Subunit.

Under Alternative D, 3,091,000 acres in the Fortymile, Steese, and Upper Black River Subunits would be open to leasing, subject to standard stipulations, including 51,000 acres of high occurrence potential lands in the Steese Subunit. An additional 2,111,000 acres would be open, subject to minor constraints. Lands open to minor constraints would include 117,000 acres of high occurrence potential areas in the Steese Subunit and 25,000 acres of high occurrence potential areas along Victoria Creek, in the White Mountains Subunit.

The effects of these closures and seasonal restrictions would essentially be the same as described under Alternative B, but would apply to fewer acres. Minor constraints would be seasonal and could constrain the exploration and development phase in the sense of delaying a project, but would not have any effect on the production phase. Stream setbacks in Riparian Conservation

Areas would not impose a significant restriction for oil and gas exploration and production. The seasonal constraints in the White Mountains Subunit (May 15 through July 15) could economically impact development projects, such as constructing and maintaining a pipeline or road. However, this impact would be minor.

The remaining lands, 1,319,000 acres (twenty percent of BLM lands in the planning area) would be closed to fluid mineral leasing. Closed lands would include the "wild" and "recreational" segments of the Fortymile WSR, forty-six percent of the Steese Subunit, and fifty-six percent of the White Mountains Subunit. As in Alternatives B and C, these closures would have no impact in the Fortymile Subunit. The closed areas encompass some high occurrence potential lands in the Steese National Conservation Area (87,000 acres) and the White Mountains Subunit (105,000 acres) which would be considered unavailable for exploration, development, and production of any fluid leasable mineral resources that may exist.

4.3.2.3.6. Alternative E (Proposed RMP)

Alternative E would open 1,713,000 acres to leasing. It differs from Alternative B, in that twenty-three percent of the Upper Black River Subunit would be available to leasing as would small parts of the Steese Subunit. Between these two subunits, approximately 122,000 acres of high potential lands would be available, with roughly 30,000 of those acres on BLM unencumbered lands. Approximately, 32,000 acres are in the Steese with the remaining 90,000 acres in the Upper Black River. Effects would be similar to Alternative B for the Fortymile, White Mountains, and Steese Subunits. Effects in the Upper Black River Subunit would be similar to those in Alternative C where closures and restrictions would apply to fewer acres. Opening these lands to leasing would have little effect because so little high potential acreage is included and these high potential lands are on the periphery of the oil and gas basin. Although this alternative would open an additional 91,000 acres of high potential lands to leasing compared to Alternative B, industry interest would focus on numerous other areas that are closer to existing infrastructure and have higher development potential.

The remaining lands, 4,811,000 acres, would be closed to fluid mineral leasing. The closed area includes the Steese National Conservation Area, White Mountains NRA, wild and scenic rivers, high value watersheds, and ACECs.

4.3.2.3.7. Cumulative Effects

There would be no cumulative impacts in the Fortymile Subunit under any alternative, as fluid minerals are not known to exist in commercial quantity. While there are high occurrence potential lands for oil and gas within the Steese, Upper Black River, and White Mountains subunits, cumulative impacts would be minimal as this plan does not anticipate leasing. If future leasing were to occur, the cumulative impact to the resource would be the removal of natural gas or oil by producing wells on leases with the fewest restrictions and lowest operating costs. The production of natural gas and oil is a beneficial irretrievable commitment of the resource. Production of these resources in a specific reservoir would not affect natural gas or oil recovery from a separate reservoir.

Cumulative impacts to the oil and gas resource would be greatest under Alternatives C and D, if leasing were to occur. No leasing would occur in Alternative A. There would be no interest in leasing under Alternative B since most high occurrence potential lands would be closed.

Cumulative impacts under Alternative E would be less than Alternative C, but greater than Alternative B.

Restrictions on federal leases could impact the leasing and development of adjacent non-federal leasable minerals. If an exploration company could not put a block of leases together, because of restrictions on federal leasable minerals, the private or state minerals may not be leased or developed either. Leasing of federal minerals on the other hand, could encourage the leasing of private or state minerals. Fluid leasable minerals are not expected to be impacted by the extraction of other minerals over the life of the plan.

Decisions and restrictions on fluid mineral leasing proposed in this RMP, combined with restrictions on mineral leasing on other lands in the planning area, would have a minor incremental effect by limiting the timing and locations available for oil and gas development. The BLM high potential occurrence lands are on the periphery of the Yukon Flats Oil and Gas Basin. Most of the basin is located on private and federal lands in the Yukon Flats NWR (Map 87). Without exploration and discovery on these private and other federal lands, no interest would be expected on BLM lands.

The incremental effect would be the greatest under Alternative A, where all BLM lands (6,523,000 acres or twenty-one percent of all lands in the planning area), would be closed to fluid mineral leasing. Incremental effects would be lower under Alternatives B, C, and E, where 5,689,000 to 4,811,000 acres of BLM lands (eighteen and eleven percent of the total lands in the planning area) respectively, would be closed to fluid mineral leasing. Under Alternative D, the incremental effect would be the lowest with only 1,319,000 acres of BLM lands (four percent of the total lands in the planning area) closed to leasing and an even higher percentage of the high occurrence potential lands open.

4.3.2.4. Solid Leasable Minerals

Summary of Effects

Although decisions in Alternatives B, C, D, and E propose to open from 834,000 acres to 5,204,000 acres in the planning area to solid mineral leasing, these decisions would have no effect due to the lack of these resources on BLM-managed lands and a decision to defer coal leasing.

4.3.2.4.1. Effects Common to All Alternatives

All unleased BLM-managed lands (including selected lands) within the planning area, subject to leasing under 43 CFR 3400.2, would be open for coal exploration and non-energy leasable mineral prospecting (oil shale, potassium, sodium, phosphate, and gilsonite). Exploration of federal coal would be considered if an application were received. There are no known occurrences of non-energy leasables of commercial quantity on BLM lands, thus no exploration or development is anticipated.

Although decisions in Alternatives B, C, D, and E propose to open from 834,000 acres to 5,204,000 acres to non-energy solid mineral leasing, these decisions would have no effect due to the lack of these resources on BLM-managed lands.

There are known coal occurrences in the planning area (Map 87). The Eagle Field (Fortymile Subunit) at 392,500 acres is the largest. The Eagle Field does not contain high quality coal

(lignite to subbituminous C, 0.2 to 0.6 sulfur, and two to twenty percent ash) and it has an estimated recoverable resource of 10 million short tons. There is very little interest associated with coal occurrences in the Fortymile Subunit unless nearby infrastructure were present or demand increased. The town of Eagle is 15 miles southeast of the Eagle Field. The Circle and Steese Coal districts are within the Steese Subunit. The Circle District is almost entirely on state land near the town of Central. The Steese District is located in the Steese National Conservation Area and Yukon Flats NWR. Development potential for the Steese District is greatly limited by its remote location and small resource body. Neither of these coal districts are considered valuable to industry at this time.

In the unlikely event interest was shown in the Steese District or Eagle Field, the resource would be unavailable due to existing withdrawals under Alternative A and a decision to defer coal leasing under Alternatives B, C, D, and E. If a company expressed interest in coal leasing, the coal screening process would be completed. If the screening process found the lands appropriate for coal leasing, the RMP would need to be amended before leasing could occur, delaying any potential development. Unless infrastructure were improved, or the demand for coal increased to a point where a low quality resource was desirable, the coal resource would remain in the ground.

4.3.2.4.2. Cumulative Effects

There would be no cumulative impacts under any alternative as there are no likely coal or other non-energy deposits attractive to industry. If a solid mineral resource were developed on adjacent, non-BLM lands, interest in BLM lands could be rejuvenated. Exploration could be conducted on BLM-managed lands, but leasing would require a nomination of specific lands and a plan amendment.

4.3.2.5. Salable Minerals

Summary of Effects

There would be no effects under Alternative A. Effects would occur under Alternatives B, C, D, and E as some lands would be closed to salable minerals. The unavailability of salable minerals could make projects more logistically challenging or uneconomic. This effect would be minor as demand for salable minerals on BLM lands would be low or nonexistent due to the remote nature of the closed areas and the lack of infrastructure.

4.3.2.5.1. Effects Common to All Alternatives

A NEPA review would be required for all salable mineral extraction operations on BLM lands. "Section 106" [54 USC 306108] of the National Historic Preservation Act requires a cultural resource evaluation be conducted and resources located prior to allowing any surface disturbance. Reclamation would be required. Under interim management guidelines, mineral material sales and free-use permits would not be conducted on selected lands without written consent of the potential future land owner. Material sales and permits are not issued on un-certificated Native allotments. Monies collected from sales and permits on selected lands are put into escrow for the future land owner.

Demand for mineral materials are driven by development projects. If other decisions in the plan constrain construction of facilities, trails, or roads, there would be less need for salable minerals. In areas where sand and gravel is needed for development, but which are closed to salable

minerals, the sand and gravel would need to be brought in from another area, most likely at a higher cost. In some cases, this could make the project uneconomical.

4.3.2.5.2. Alternative A (No Action)

Development of mineral materials sites would not be constrained under Alternative A, except as restricted by interim management guidelines for selected lands. No unencumbered federal lands would be closed to mineral material sales and permits.

4.3.2.5.3. Alternative B

Under Alternative B, 3,772,000 acres (fifty-seven percent of the planning area) would be open to salable minerals. There would be no effects in these open areas.

Approximately 2,751,000 acres (forty-three percent of the planning area) would be closed to salable minerals. Closed areas would include the "wild" and "scenic" segments of the Fortymile WSR Corridor, the Steese SRMA, the Salmon Fork ACEC, and portions of the White Mountains NRA. The unavailability of salable minerals can make projects logistically challenging or uneconomic as companies would be forced to look elsewhere for a readily available product. If a need for sand or gravel were identified in a closed area, the resource would not be available from BLM lands. The effects of these closures would be minor as most of the closed areas are remote and would be managed to maintain a Primitive or Semi-Primitive recreation setting. Little demand for mineral materials would be anticipated in the closed areas.

4.3.2.5.4. Alternative C

Under Alternative C, 6,134,000 acres (ninety-four percent of the planning area) would be open to salable minerals. There would be no effect in these open areas.

Approximately 389,000 acres (six percent of the planning area) would be closed to salable minerals. Closed areas would include the "wild" and "scenic" segments of the Fortymile WSR Corridor, and the Birch Creek and Beaver Creek WSR Corridors. These closures would not pose an adverse affect to salable minerals as there are few developed trails within the WSR corridors and no demand for mineral materials would be anticipated. Some of the "scenic" segments of the Fortymile WSR are adjacent to the Taylor Highway. Closures in these areas could make highway maintenance projects more costly.

4.3.2.5.5. Alternative D

Under Alternative D, 6,387,000 acres (ninety-eight percent of the planning area) would be open to salable minerals. There would be no effects in these open areas.

The "wild" segments of the Fortymile WSR (145,000 acres) would be closed to salable minerals. This closure would not pose an adverse affect to salable minerals as this area is remote and no demand for mineral materials would be anticipated.

4.3.2.5.6. Alternative E (Proposed RMP)

Same as Alternative C.

4.3.2.5.7. Cumulative Effects

Decisions in this plan, combined with restrictions on salable minerals on state land would have a minor incremental effect by restricting the locations available for salable minerals. Approximately fifty-nine, twenty, and twenty-six percent of the Fortymile, Steese and White Mountains subunits, respectively, are state land. The state lands are open to salable minerals, and are adjacent to the Alaska Highway System and the TAPs, where the most demand for mineral materials is anticipated. Additionally, there are existing BLM material sites along the highways that would remain available under all alternatives. There would be no incremental impacts under Alternative A in any subunit as all BLM lands would be open to mineral material sales.

Under Alternative B, the incremental effect of closing 2,751,000 acres to salable minerals in the Fortymile, Steese and White Mountains subunits would be minimal. Closing 621,000 acres in the Upper Black River Subunit would have no incremental effect as there are no roads or other infrastructure within the subunit.

Under Alternatives C and E, the cumulative effect of closing 389,000 acres to salable minerals in the Fortymile, Steese, and White Mountains Subunit would be less than Alternative B. These closed areas represent only one percent of all lands within the planning area and six percent of BLM lands.

The cumulative effects would be even lower in Alternative D. Only 145,000 acres in the Fortymile Subunit would be closed. This closed area is remote from the highway system and represents only two percent of BLM lands and less than one percent of all lands in the planning area.

4.3.2.6. Recreation

Summary of Effects

Measures to protect natural resources would generally benefit recreation by enhancing scenic quality and opportunities for fish- and wildlife-related recreation. The protection and interpretation of cultural sites would provide beneficial experiences for those seeking historical and cultural appreciation opportunities. Negative effects may occur due to restrictions on trail, site, or facility development to avoid sensitive areas or to prevent resource degradation. These effects would not vary greatly by alternative or subunit.

4.3.2.6.1. Effects Common to All Alternatives

Effects from Air and Atmospheric Values

The effects of smoke, haze, or other air pollutants would result in immediate and direct effects to recreational activities that include scenic qualities as part of the experience. For all of the alternatives, emission-generating activity decisions will comply with federal and state air quality standards, and will be managed to consider the effects of smoke (from wildland fire and prescribed burns) to recreation and tourism. These decisions would have long-term, beneficial impacts on all recreational opportunities, as air quality would be protected to provide quality scenic experiences.

Effects from Cultural and Paleontological Resources

Under all alternatives, site-specific measures regarding cultural and paleontological resources would preserve and protect these resources and ensure that they are available for appropriate

uses by present and future recreation users. The protection and possible interpretation of these resources would provide beneficial experiences for those individuals seeking historical and cultural appreciation opportunities. Negative effects of cultural and paleontological resources involve the possible restriction of trail, site, and facility development in areas that conflict with existing cultural sites. Short-term impacts of excavation and long-term impacts from the possible destruction of cultural sites could further impact recreation users, through the removal of valuable appreciation opportunities.

Effects from Fish and Aquatic Species

Measures to protect and/or restore healthy, functioning watersheds, riparian areas, and aquatic habitats, would result in long-term, beneficial impacts to fisheries related recreation activities and experiences. For all alternatives, fish management decisions would strive to maintain or restore the quality of water and aquatic ecosystems, resulting in improved fisheries related recreation. Negative effects of fisheries management on recreation involve the possible restriction of trail, site, and facility development in Riparian Conservation Areas or Essential Fish Habitat.

Effects from Non-Native Invasive Species and Vegetative Communities

Proper vegetative management practices, combined with a preventative approach to the introduction and spread of non-native invasive species, would provide a productive wildlife habitat for recreational use. Under all of the alternatives, integrated pest management (IPM) practices would be used to control or eradicate non-native invasive species, to improve vegetative communities and improve or restore ecosystem health. These management decisions would also provide for long-term, beneficial impacts to all recreational users in areas where vegetative communities provide scenic view sheds that enhance the quality of recreational experiences. Negative effects of vegetation management on recreation involve the possible restriction or modification of trail, site, and facility development. Certain recreational areas or activities could be closed (seasonally or permanently) due to higher potentials of vegetative damage or susceptibility to invasion by non-native invasive species.

Effects from Soil and Water Resources

Under all alternatives, measures would be enacted to ensure that watersheds are in, or making significant progress toward, a properly functioning condition. Soils would be managed to reduce erosion and minimize impacts to soil profiles, while water would be managed to comply with State of Alaska water quality requirements. These management decisions could directly affect recreation management if restrictions are implemented to protect soils or water quality in areas that are used for activities such as OHV use, fishing, and boating. Other activities such as hiking and wildlife viewing would be indirectly affected as the health of watersheds improve.

Effects from Special Status Species

Measures to protect and preserve Special Status Species would result in immediate and direct effects to all recreational activities that impact these species. Under all alternatives, recreational uses in areas containing sensitive, threatened, or endangered species could be restricted, relocated, or excluded to avoid further resource damage. Impacts to recreation may be short-term or the life of the plan dependent on the management decision. Long-term benefits from management for Special Status Species include enhance recreational botany and wildlife viewing , thus increasing natural appeal.

Effects from Wildland Fire Ecology and Management

As an essential ecological process and natural agent of change, wildland fires promote vegetative and wildlife diversity that can result in long-term, direct effects to recreation opportunities. New vegetative growth and improved wildlife habitat can result in increased wildlife numbers that have beneficial impacts on wildlife viewing and hunting. Negative effects of wildland fire on recreation are typically short-term, and are directly related to the effects of fire on resources used in recreation, such as recreation facilities, and on recreational scenic quality until vegetation can re-grow and return to a more esthetic state.

Effects from Wildlife

Management of a naturally functioning ecosystem to support healthy populations of wildlife would directly and indirectly protect recreation resources. Healthy wildlife populations would benefit hunting, wildlife viewing, and trapping activities. Negative effects of wildlife on recreation may occur if restrictions are placed on trails and facility development in order to avoid conflicts with priority wildlife habitats.

Effects from Recreation

Under all alternatives, lands not identified as a Special Recreation Management Area (SRMA) would be managed to provide for custodial actions only, through minimal facilities, structures, and regulations, except when deemed necessary to address visitor health and safety, user conflicts, and resource protection issues. Together, these actions would directly affect recreation management by ensuring that land-and water-based recreation opportunities continue to exist throughout the planning area.

Effects from Hazardous Materials

Environmental remediation activities would enhance recreation resources directly and indirectly by removing contaminated and hazardous materials, resulting in a more natural landscape and safer environment. The size and scope of the impacts would depend on the size of the site and the techniques used for removal and remediation activities.

Effects from Subsistence

Proper subsistence management practices, combined with a proactive approach to the protection and maintenance of sufficient wildlife habitat, will provide for healthy populations of subsistence species (such as moose and caribou), sufficient to provide opportunity for recreational use while still meeting subsistence needs. Under all alternatives, measures that serve to minimize impacts to subsistence uses, users and/or resources, would provide long-term, direct benefits to fish and game related recreation activities. However, if subsistence resources become limited, recreational uses of fish and game may be reduced.

4.3.2.6.2. Cumulative Effects

Management actions described under the RMP will maintain the recreation spectrum for the planning area for the life of the plan. Outside factors not controlled by the plan may impact recreation common to all units.

An increase in population in Interior Alaska will likely cause use number to increase over the life the plan; however management for the Recreational Opportunity Spectrum and the use of

indicators should prevent negative impacts. Increases in tourism in Interior Alaska may also show an increase in use numbers although the same strategy as described above would be employed. Improved transportation corridors may enhance visitor access to recreation areas and facilities. Enhancements, developments or closing of other federal and state recreation areas will also impact use numbers. These changes cannot be predicted, but can be monitored.

Climate change would have an effect on recreation, but how and to what extent is unknown. Warmer and drier conditions are expected along with an increased potential for wildland fire, leading to a vegetative shift towards a greater deciduous dominance on the landscape (Rupp and Springsteen, 2009b). Warmer drier conditions could result in changes to the traditional seasonal uses of recreation users. Winter activity use periods may increase or decrease, as temperatures and precipitation fluctuate. Summer type activities may benefit with predicted drying trends producing better hiking and OHV opportunities. On the other hand, floating use may become more challenging if adequate precipitation and run-off does not occur.

4.3.2.7. Travel Management

Summary of Effects

Measures to protect natural and cultural resources (such as fish, wildlife, soils, water quality, cultural sites) may reduce opportunities for travel-related activities. Trails may be rerouted to avoid sensitive sites or emergency closures may be implemented. These decisions would result in negative impacts to travel opportunities by limiting the accessibility and availability of public lands and features, including roads, primitive roads, and trails. Activities that result in development of new access may increase opportunities for travel-related activities.

4.3.2.7.1. Effects Common to All Alternatives

Effects from Air and Atmospheric Values

Snowmobile use would most likely emit the most concentrated emissions output within the White Mountains NRA. Emissions would be concentrated mainly at the trailheads, and then would disperse. Studies in Yellowstone National Park found that use levels of up to 318 (Best Available Technology) snowmobiles per day and up to 78 snow coaches per day would only have negligible impacts on air quality and would allow for maintenance of air quality at acceptable levels (NPS 2009). Snowmobile use has not exceeded this level in any subunit and is unlikely to do so during the life of the plan under any of the alternatives. Current trends in automobile and OHV technology are towards reducing emissions. It is foreseeable that air quality issues would not impact travel management decisions.

Effects from Cultural and Paleontological Resources

Under all alternatives, site-specific measures regarding cultural and paleontological resources would affect transportation management if restrictions or emergency closures were implemented, to protect and preserve significant cultural resources. These site-avoidance decisions would result in long-term, negative impacts to travel opportunities by limiting the accessibility and availability of public lands and features, including roads, primitive roads, and trails. If it is determined that OHV use or trail construction could negatively impact cultural or paleontological resources, the use may be deemed inappropriate or trails may be relocated to avoid negative effects.

Effects from Fish and Aquatic Species

Measures to mitigate the impacts of development on the fishery resource are attached as stipulations to the authorizing documents. Special stipulations are placed on development activities in crucial habitat areas such as fish spawning and over wintering areas. All surface-disturbing activities are required to use the best available technology to reduce siltation and stream turbidity to an acceptable level for fish survival and reproduction. All surface-disturbing activities are required to minimize future erosion. Effects on travel from fish management might include rerouting trails to avoid crucial habitat areas or potential trail closures. Strict adherence to best management practices or avoidance of crucial habitat areas will minimize impacts to travel management.

Effects from Invasive Species

Vegetation and surface-disturbing changes would result from all the alternatives in this Draft RMP/EIS. These disturbances all increase the risk of propagation of exotic, invasive or noxious non-native plants, and more so in Alternatives A and D since cross-country travel would be allowed. In Alternatives B and C, use would be more controlled and spread of invasive species could be reduced because OHV use would be more restricted in acreage and miles. Effective implementation of management decisions for non-native invasive species would keep the risk from becoming greater than at present and help reduce risk in the future. If some areas become impacted, avoidance areas may have to be delineated to reduce the spread of invasive species and potentially some areas could be temporarily closed to OHV use until the impact is mitigated.

Effects from Soil Resources

Managing soil resources will affect travel management if the proliferation of user-created trails, that are unsustainable from a resource management perspective, continue to evolve in unsuitable locations throughout the planning area. Increased erosion and melting permafrost, due to surface-disturbing activities, would continue to occur in portions of the planning area, where summer-motorized travel is allowed. This could affect travel management if restrictions or emergency closures became necessary, to mitigate soil erosion or minimize effects on soil profiles.

Effects from Special Status Species

Travel can be impacted through specific limits on OHV use or trail development within areas that contain Special Status Species. Proposed or permitted uses such as trail construction or designation would be analyzed and measures enacted to minimize impacts to these species. If it is determined that OHV use or trail construction may negatively affect a Special Status Species, the use may be limited to seasons when the species is not present, or the type of use or trail relocated to areas where the species is unlikely to be encountered.

Effects from Vegetative Communities

Measures to protect and/or restore healthy functioning watersheds, riparian areas, and associated vegetative communities could directly affect travel management if routes or areas were restricted or closed, to protect sensitive resource species. Effects would be short- or long-term, depending on the duration of the restrictions or closures, and could result in an overall net decrease of acres available for OHV use.

Effects from Visual Resources

VRM generally benefits travel management by helping to maintain scenic character within an area designation. VRM decisions would have long-term, beneficial impacts on travel activities that include scenic qualities as part of the experience. Minor effects may result if restrictions are placed on travel or OHV use, in areas that possess increasing recreation demands.

Managing visual resources may impact the design and layout of transportation facilities depending on the VRM Class. Areas assigned VRM Class I allow very limited management activities. The level of change to the characteristic landscape should be very low and must not attract attention of a casual observer. This objective will allow for transportation facilities that do not attract attention.

VRM Class II objective is to retain the existing character of the landscape where the level of change to the characteristic landscape should be low and management activities may be seen, but should not attract the attention of the casual observer. This will allow for some transportation facilities development that do not attract attention.

VRM Class III objective is to partially retain the existing character of the landscape where the level of change to the characteristic landscape can be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. This will allow for some transportation facilities development that may attract attention.

VRM Class IV objective is to allow for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. This will allow for transportation facilities development that may dominate the landscape.

Effects from Water Resources

Managing watersheds to ensure that they are in, or making significant progress towards, a properly functioning physical condition could affect travel management if restrictions or emergency closures were enacted, to mitigate impacts on water resources. Routes that cross streams or contribute to non-point pollution, supporting the impairment of the hydrologic regime (such as ground water, streamflow, water quality, biologic integrity, or riparian connectivity), would be temporarily or permanently closed to the type of use causing the effect.

Effects from Wildland Fire Ecology and Management

Existing and future structures and facilities will be prioritized for protection. Construction of fire lines if not rehabilitated may create new trails that would be available for OHV users. Travel and OHV use would likely not be interrupted due to wildland fire management activities except on a short-term, temporary basis. In forested areas, falling trees may affect trail travel after a fire occurs. It is anticipated that there would be little impact to travel management and OHV from wildland fire management.

Effects from Salable Minerals

Disposal of sand, gravel, rock, and other salable minerals must be compatible with the management of the subunit as designated. It is most likely that gravel sales on BLM lands would occur for BLM projects such as trails and roads. Mineral material sales could help facilitate development or improvement of trails as a source of materials close to the project site. Material sales could increase the opportunities available for OHVs by constructing gravel pits and access roads.

Effects from Subsistence

Federally qualified subsistence users would continue to have reasonable access to subsistence resources on all public lands within the planning area. In areas with either yearlong or seasonal restrictions on OHV use, subsistence access could be allowed by permit. If the number of federally qualified subsistence users becomes too large in any given area, impacts from this use could result in trail or area closures and impacts other users.

4.3.2.7.2. Cumulative Effects

Management actions described under the RMP and subsequent Travel Management plans developed for each unit will maintain travel access. Improved transportation corridors in all alternatives on BLM-managed lands will lead to long-term increased use due to the size and scale of remote lands not managed by BLM by adjacent to the planning area.

Under Alternatives B–D, motorboat use will be permitted per ANILCA 1110(a) on all rivers including non-navigable "wild" segments of designated WSRs. The No Action Alternative does not allow use of motorboats on non-navigable "wild" segments with the exception of subsistence users. There is no baseline data for comparison of impacts; however an increase in use is expected would be expected with increased access. Alternative E lifts the prohibition of airboats and hovercraft on all river segments. This would represent a one-hundred percent increase of use types in "wild" segments of WSRs. Conflicts in non-motorized and motorized users could arise if a substantial number of motorized users increase. Improvements in road access or other boat launch locations on non BLM-managed lands may increase motorized users. There is one such launch planned in the Steese subunit, but no indications of other launches or improvements in the remaining subunits at this time.

Proposed language changes in the action alternatives from GVWR to curb weight for OHVs will reduce confusion for users and will be similar to the State of Alaska regulatory language for OHV use. This will increase compliance on trails and reduce impact of resources.

Outside factors may impact travel management. An increase in population in Interior Alaska will likely cause use number to increase over the life the plan; however management for the Recreational Opportunity Spectrum and the use of indicators should prevent negative impacts. Increases in tourism in Interior Alaska may also show an increase in use numbers although the same strategy as described above would be employed. Improved highway transportation corridors on non BLM-managed lands may enhance access and thus increase use pressure. Enhancements, developments or closing of other federal and state recreation areas will also impact use numbers. These changes cannot be predicted, but can be monitored. Most impacts are likely in Frontcountry and Middlecountry zones. Advancements in technology related to ATVs, UTVs, motorboats may increase ability to reach more remote lands; however the use of the Recreational Opportunity Spectrum and the size, scale and scope of the landscape will be limiting factors.

Climate change would have an effect on Travel Management, but how and to what extent is unknown. The trends of climate change show warmer temperatures, more wildland fire activity, change in vegetation from a boreal dominated forest to a deciduous dominated forest (Rupp and Springsteen, 2009b). Trends also predict more precipitation in the form of rain and snow, but generally drier conditions due to warmer temps and changes in vegetation. Travel management would have to adapt as conditions change. Some areas may become less suitable for trail routes

while other areas may become more suitable. Temperature change predictions over the next 20 years indicate a minimal increase, thus effects to Travel Management are expected to be negligible.

4.3.3. Research Natural Areas

Effects on existing ACECs (Research Natural Areas) from Forest and Woodland Products, Land Use Authorizations, Recreation and Travel Management (White Mountains and Steese Subunits): Existing Research Natural Areas (RNAs) are also described in 3.4.1.2 and Appendix C. Evaluation of ACEC Nominations.

The federal government established a system of RNAs in 1927. RNAs are tracts of federal land and water established and managed for the primary purpose of research and education (43 CFR 8223.0-1). RNAs were selected to contain examples of significant natural ecosystems, areas suitable for ecological study, and rare species of plants and animals (these were referred to in the selection process as "Type Needs"). Federal and state agencies have cooperated in Alaska since 1973 in selecting, documenting, and describing RNAs.

Four RNAs were designated in the planning area in 1986 (BLM 1986a and 1986b). The RNAs were designated to provide areas where natural ecosystems and processes are undisturbed so that they can be studied and understood, and to provide an undisturbed area for comparison with other areas so that effects of management and use can be assessed. The principle of maintaining reference conditions for scientific comparison is basic to the purposes of the system of RNAs.

Four RNAs currently exist in the planning area. Two occur wholly in the White Mountains NRA (Serpentine Slide and Limestone Jags RNAs), one occurs wholly in the Steese National Conservation Area (Big Windy Hot Springs RNA), and a fourth (Mount Prindle) is shared between the White Mountains NRA and National Conservation Area. Effects will be discussed here rather than individual subunits.

Type needs identified during RNA selection and establishment are:

Mount Prindle:

- Geologic features: solifluction lobes, glaciated and unglaciated landforms, debris torrent channels
- Wildlife habitat: wheatear nesting habitat, Dall sheep (escape terrain) and caribou, historic Fortymile caribou calving.
- Uncommon vascular plants: *Draba paysonii* and rare moss species

Serpentine Slide:

- Geologic features: serpentine soils, fault line features
- Plant communities:
- Wildlife: grizzly, beaver

Limestone Jags:

- Geologic features: caves, limestone exposures, cliffs, emergent cold springs, soils, underground stream, fossils, fault line features.
- Wildlife: Dall sheep, marmot, falcon nesting.
- Plant communities:

Big Windy Hot Springs:

- Geologic features: Hot Springs – An undisturbed spring issuing hot water and containing thermophytic (high temperature dependent) organisms such as green and red algae and cyanobacteria; possibly also silica cinters or travertine deposits. Cliffs.
- Wildlife: Dall sheep, and ungulate mineral lick.
- Plant communities: Upland white spruce, Floodplain white spruce, Birch dry upland dwarf shrub, Foliose lichen

During ACEC evaluations conducted for the Eastern Interior RMP, all RNAs were identified as having relevant and important scenic values as well as the type needs listed above (Appendix C).

Summary of Alternatives

Alternative A: Managed to maintain a Primitive recreation setting; closed to mineral location, mineral leasing and motorized vehicles. No surface-disturbing activities allowed except BLM-authorized research projects (and hiking trails in Steese National Conservation Area). Closed to camping. Primitive campsites and trail access may be developed outside the RNA. Personal use of timber and local (within the White Mountains NRA or Steese National Conservation Area) use of forest products are not specifically prohibited, but no commercial uses are allowed. (Harvest of forest products or ROW management not specifically addressed in RNA management).

Alternative B: Same as A except that subsistence use of snowmachines is allowed with a permit, the RNAs are right-of-way avoidance areas, and no personal use of timber is allowed, but personal use of forest products is allowed.

Alternative C: Same as B except primitive camping and development of primitive hiking trails would be allowed in the RNAs and commercial timber salvage sales would be considered. The RNAs are not right-of-way avoidance areas.

Alternative D: Same as C, except that personal use of timber and of forest products is allowed.

Alternative E: Same as D, except that winter snowmachine use (by all users) is allowed and commercial use of forest products would be considered.

In Alternative E the RNAs are managed to maintain a Primitive recreation setting; closed to mineral location and mineral leasing; the OHV designation is changed to “Limited” and winter OHV use is allowed; no surface-disturbing activities are allowed except BLM-authorized research projects and primitive hiking trails; primitive camping is allowed; RNAs are not right-of-way avoidance areas; personal use of timber and commercial timber salvage sales would be considered; personal use of forest products would be allowed and commercial use would be considered.

Effects:

This analysis will focus on management actions which have the potential to affect ongoing research or education or the potential for future research of undisturbed ecosystems and features. Although Type Needs were identified when RNAs were designated, research and education may focus on any of the natural features of these areas.

Summary of Effects

The alternatives generally describe management that will result in a spectrum of potential impacts to RNA values, with Alternative A allowing the least impact to RNA values, and Alternatives B through E allowing progressively greater impact to RNA values. In Alternative A, winter snowmobile use is prohibited, as are trail-building (in White Mountains NRA) and camping. Alternative E will allow the greatest impact to RNA values, primarily due to the potential impacts from winter snowmachine use (by all users). Trail building, camping, and harvest of timber and forest products would also affect RNA values. Those activities requiring a permit or NEPA analysis (trail building, harvest of timber and forest products) could be managed to control impacts to RNA values (through denial of proposed action, design features, or mitigating measures). Harvest of timber and forest products would be limited to those which did not create surface-disturbance.

4.3.3.1. All Alternatives

Effects from Forest and Woodland Products:

The alternatives vary in what forest products are allowed to be harvested for personal or commercial use. Alternatives A and B are most protective of the scientific and educational values of RNAs. Alternative A allows only personal use of timber and local use of forest products.

Timber harvest of any kind would generally be inconsistent with maintenance of the scientific and educational values of RNAs and the intent of RNAs to provide areas where natural ecosystems and processes are undisturbed. However, in the permitting process, uses which are inconsistent could be denied or impacts mitigated. Because all alternatives state that surface-disturbing activities would not be allowed, it is assumed that permits would not be issued for activities which would likely result in surface-disturbance. Use of forest products may also be inconsistent with research, depending on the type of material removed. Activities such as casual berry picking would generally not affect the value of the area for research, whereas commercial gathering might. The harvest of trees for commercial or personal use would impact the scenic value of the landscape by changing the vegetation values in line, form, color and texture.

Effects from Land Use Authorizations:

Only Alternative B designates the RNAs as right-of-way avoidance areas. Some rights-of-ways (such as roads or trails) can have significant impacts on RNA scientific and educational values, whereas others (such as communication sites) may have minor impacts. These potential impacts will be considered during the NEPA process and proposals could be modified or denied. Because all alternatives state that surface-disturbing activities would not be allowed, it is assumed that permits would not be issued for activities which would likely result in surface-disturbance and impact the natural ecosystems and process. The development of road, trails, or other linear rights-of-ways, as well as site rights-of-ways such as communication sites would impact the scenic value of the landscape by changing the vegetation, landform and structure characteristics of the existing RNAs.

4.3.3.2. Additional Effects under Alternatives C and D

Effects from Recreation and Travel Management:

Trail construction and camping: Development of primitive hiking trails and camping in Alternatives C and D will create surface disturbance and removal and/or trampling of vegetation. This could result in disturbance of ongoing research and/or the potential to make the area less suitable for future research. The amount of trail development and the level of human use will determine impacts. Location and amount of trails developed could be designed to reduce potential impacts, as could location of hardened campsites. However, locations and amount of public use are generally not controllable in an area open to public use. Constructed trails would increase visitation and use of RNAs and visitor impacts. Although many users would remain primarily on such trails (reducing off-trail impacts), overall levels of use off-trail would likely increase due to increased visitation and use. The development of trails and camping areas would impact the scenic value of the landscape by changing the vegetation, landform and structure characteristics of the existing RNAs.

Mount Prindle RNA is likely to experience the most trail construction and camping activity due to greater accessibility and attractions. Increased hiking and camping in the Mount Prindle area may result in disturbance of Dall sheep and caribou. Trails, camping, and off-trail hiking may impact rare plant species such as *Draba densifolia*, prevalent on granitic soils on ridges. Any activity which disturbs vegetation could potentially affect RNA values.

Trail development to and in the Big Windy Hot Springs RNA could have relatively greater impact due to the small size of the area and the fragility of geothermal features at the hot springs. Frequent camping at the hot springs may also damage geothermal features. Shallow pools at the hot springs have been excavated and deepened by visitors in the past to allow for bathing. The hot springs area is very small and could easily be affected by visitor use.

Primitive trails constructed in the Serpentine Slide and Limestone Jags would likely receive relatively little use due to remote locations and difficult access during summer.

Subsistence use of snowmachines by subsistence users who obtain a permit will increase impacts to RNA values in Alternatives B–D. Vegetation, soils, wildlife, and soils may be impacted by snowmachine use. Use of snowmachines can mechanically damage vegetation which is not covered by sufficient snow and modern snowmobiles are capable of pushing over and crushing shrubs or small trees. All RNAs contain steep terrain traversable by modern snowmobiles. Snowmobiles used in steep terrain typically have powerful engines and are outfitted with deep "paddle" tracks with lugs longer than 1.5 inches. Spinning of the track is common and largely unavoidable when traversing steep terrain. This can in seconds remove snow, damage or remove vegetation, and even excavate soil. Wind exposure in high/steep terrain will produce low snow levels in some areas, making impacts more likely even in mid-winter. Use of these areas by snowmachines could result in changes to the scenic values through changes in the vegetative landscape features of line, form, color and texture.

Compaction of snow can cause changes in vegetation, soils, and hydrology. Snow compaction increases heat flow through snow, leading to colder snow and soil temperatures, increases snow retention in spring, and changes snow pore space and crystal structure resulting in reduced water holding capacity of snow which reduces ability of snow to slow runoff and to moderate effects of thawing in spring (Fahey and Wardle 1998). The compaction and heat conduction result in glaciering on some slopes. Increased frost penetration and increased time for soils to thaw can affect soil microbiota, which can affect nutrient availability, which will affect vegetation growth. Effects on some vegetation/soil types can be very long-lasting. Jorgenson et al. (2010) documented severe effects of seismic survey traffic on Arctic tundra persisting two decades after

disturbance. These trails generally change scenic landscape characteristics in line, color and texture. There possibility that snowmachines can transport invasive plant seeds or reproductive parts into RNAs. Establishment would normally be unlikely except in burned areas or where soils have been exposed.

Primary impacts of snowmachine use would be direct and indirect damage to vegetation, potential direct damage to research projects (e.g., plot markers) and, in some situations, changes to soils. Level of impact will vary by levels of use. Impacts which may not be large from a landscape perspective could nevertheless radically impact individual research projects and could reduce suitability of each area for many types of research.

4.3.3.3. Alternative E

Allowance of winter snowmachine use by all users in Alternative E will result in this alternative having a higher potential negative impact than all other alternatives. The magnitude of the impacts (described above for Alternatives C and D) would be much higher in this alternative due to allowance of all snowmachine use. Recreational use is generally less utilitarian in nature than subsistence use. Recreating on snowmobiles would more likely involve multiple passes over extensive area, higher speeds, and "high-marking" in steep terrain. Where recreational snowmachine use is present, changes to vegetation and soils are likely. Changes to vegetation and soils will impact scenic values of structure and vegetation in line, form, color and texture. In addition, recreational snowmachine activity is more likely to disturb wildlife species. In response, Dall sheep may reduce use of areas distant from rocky escape terrain or in areas where escape terrain is not extensive (such as the Quartz Creek Tors portion of the Prindle RNA). Dall sheep use of the northern end of the Limestone Jags RNA may also be reduced, and travel to and from the mountainous terrain north of Windy Creek may be inhibited. Steep terrain at the Big Windy Hot Springs RNA would concentrate snowmobile use (and resulting impacts) of snowmobiles in the creek bottom and hot springs area. The development of motorized and hiking trails would impact the scenic value of the landscape by changing the vegetation, landform and structure characteristics of the existing RNAs.

4.3.4. Social and Economic Conditions

4.3.4.1. Economics

Summary of Effects

The economic effects from Forest Products, Leasable Minerals, Renewable Energy, Lands and Realty, and Recreation would be low. Recreation use is expected to grow slowly with increased population in the region. Economic effects would be low for all alternatives, but slightly higher in Alternative D than in Alternatives A, B, C, and E.

Non-market and Non-use values would be highest in Alternative A, as ANCSA 17(d)(1) withdrawals prevent most development. Under Alternatives B, C, D, and E, these values would decrease in proportion to acreage protected through recommended mineral withdrawal, Primitive or Semi-Primitive recreational settings, maintenance of wilderness characteristics or special designations.

The largest economic effect would be from fluid leasable (oil and gas) and locatable minerals. The effects of these programs are discussed under the subunit specific impact analyses later in this Chapter.

4.3.4.1.1. Effects Common to All Alternatives

The following resources, resource uses, and programs would have no economic effects and are not analyzed further: Air and Atmospheric Values, Cave and Karst Resources, Cultural and Paleontological Resources, Fish and Aquatic Species, Soil Resources, Special Status Species, Vegetative Communities, Visual Resources, Water Resources, Wildland Fire, Wildlife, Salable Minerals, and Hazmat.

Anticipated levels of BLM Resource Management

The BLM predicts that monitoring and oversight activities would increase in all subunits under the action alternatives. These increases would be similar for all subunits and all would be relatively small. There would be no increase in activities in any subunit under Alternative A. While there would be no economic effect resulting from Alternative A, effects under all other alternatives would be similar. There would be a small increase in spending in procurement of aircraft and other transportation. These increases would be expected to apply primarily to Fairbanks and Tok, where most air taxi services are based.

Effects from Forest and Woodland Products

Due to the inaccessibility and lack of valuable timber, a large commercial timber sale would be unlikely to occur during the life of the plan. The BLM may receive applications for small biomass projects. However, given the inaccessibility and distance of BLM lands from local communities, demand for these types of projects is expected to be low. Forest product sales would be small and the level similar to that which has occurred over the past 20 to 30 years. Authorized use of forest products in the planning area over the last 10 years has totaled three free-use permits and one small vegetative sale contract for the entire period. While there would be no economic effect resulting from forest products under the Alternative A, effects under all other alternatives would be similar and very low.

Effects from Leasable Minerals

No exploration or development for coal, coalbed natural gas, geothermal, or oil shale is anticipated on BLM lands during the life of the plan. A decision on leasing for coal is deferred. The only hot springs on BLM land is Big Windy Hot Springs, which is a RNA and is not located near a population center or infrastructure. There is no occurrence of oil shale on BLM lands and potential for other leasable minerals is very low.

Coal, geothermal, coal bed natural gas, and oil shale related activities would not occur and would not contribute to economic effects.

Effects from Renewable Energy

Considering such factors as the amount and intensity of sunlight, wind velocity, proximity to roads and electric transmission facilities, and population size, no applications would be received to permit commercial construction of solar or wind facilities on BLM-managed lands. The BLM

could construct small solar or wind facilities to support BLM administrative sites or campgrounds. The economic effect under all alternatives would be negligible.

Effects from Lands and Realty

There would be continued demand for rights-of-way and various types of leases and permits. The demand for these land use authorizations would fluctuate with the degree of economic growth and development occurring within the region, but would generally remain minimal. Based on applications over the past five years, it is anticipated that no more than 30 applications would be received annually. Economic effects, if any, would be analyzed in future site-specific NEPA analyses required for land use authorizations.

Non-Market and Non-use Values

Natural amenities and the quality of life are recognized as economic factors of some rural communities in the American West and elsewhere (Rudzitis and Johnson 2000). While these factors do not directly generate income as do mining, tourism charters, or logging, they do attract residents, recreational users and may attract new businesses. Open spaces, scenery, and protected lands are important to residents and recreational users in the west for example. These values are thought to contribute to healthy economies and lifestyles (Rasker et al. 2004). The relationships are difficult to qualify, as it is difficult to assess or quantify effects of management on economic activities. Non-market values have been best quantified for subsistence activities in Alaska (Colt 2001).

Non-use values represent the value assigned to a resource by individuals, independent of the use of the resource. These represent the value that individuals obtain from knowing that the resource exists and will be available to future generations. Wilderness has been the subject of numerous non-use studies, and willingness-to-pay estimates for protection or designation identified a range of values (Krieger 2001, Loomis and Richardson 2001).

Non-market and non-use values would be preserved through a variety of RMP decisions, several of which may apply to the same piece of ground. Decisions that would generally help preserve non-market and non-use values include recommended withdrawal from locatable mineral entry, closure or no surface occupancy for leasable minerals, special designations, maintenance of wilderness characteristics, Primitive or Semi-Primitive recreational settings, and visual resource management. Non-market and non-use values would increase in proportion to acreage protected under each alternative.

4.3.4.1.2. Alternative A

Effects from Recreation

Under Alternative A, commercial outfitting or guiding permits issued by the BLM are relatively low in all subunits. Recreation use is expected to grow slowly with increased population in the region. Economic effects would be correspondingly low. Effects would be somewhat higher in the White Mountains subunit compared to other subunits, due to its proximity to Fairbanks and the focus on recreation oriented activities in the White Mountains NRA.

Non-Market and Non-Use Values

Non-market and non-use values would be the highest in Alternative A, as ANCSA 17(d)(1) withdrawals prevent development on more than six million acres. Existing special designations including the Steese National Conservation Area, White Mountains NRA, RNAs, and three Wild and Scenic Rivers would also help preserve non-market and non-use values.

4.3.4.1.3. Alternative B

Effects from Recreation

Same as Alternative A.

Non-Market and Non-Use Values

Non-market and non-use values would be somewhat lower in Alternative B than under Alternative A, as 834,000 acres would be opened to mineral location and solid mineral leasing in the Fortymile and Steese subunits. New locatable mineral activity is likely in these subunits and non-market and non-use values would be affected. However, seventy-six percent of the planning area would remain closed to mining activity, 2,813,000 acres would be designated as ACECs, and wilderness characteristics would be maintained on 5,059,000 acres. Five rivers would be recommended suitable for designation under the Wild and Scenic Rivers Act. All existing special designations would be retained.

Non-market and non-use values in the Upper Black River Subunit could be enhanced under this alternative due to the designation of the Salmon Fork ACEC and recommendation of the Salmon Fork as suitable for designation as a Wild and Scenic River.

Non-market and non-use values in the White Mountains Subunit would essentially remain the same as Alternative A.

4.3.4.1.4. Alternative C

Effects from Recreation

Same as Alternative A.

Non-Market and Non-Use Values

Non-market and non-use values would be lower in Alternative C than under Alternative B, as 3,887,000 acres would be opened to mineral location and solid mineral leasing in the Fortymile, Steese, and Upper Black River subunits. New locatable mineral activity is likely in the Fortymile and Steese subunits and non-market and non-use values would be affected. Only 2,051,000 acres would be designated as ACECs, and wilderness characteristics would be maintained on thirty-one percent of the land. No new rivers would be recommended as suitable for designation under the Wild and Scenic Rivers Act. However, all existing special designations would be retained.

Although, the Upper Black River Subunit would be opened to locatable minerals, no mining activity is anticipated due to the lack of mineral potential. If exploration or development did occur, it would likely only affect small areas within the subunit. Thus non-market and non-use values would generally remain on most of the subunit.

Non-market and non-use values in the White Mountains Subunit would be the same as Alternative B.

4.3.4.1.5. Alternative D

Effects from Recreation

Commercial outfitting or guiding permits issued by the BLM would increase slightly over Alternatives A, B, and C. Possible economic effects would be include additional seasonal jobs, increased air charter service use, and income from guiding and outfitting for recreational users. These effects would be low.

Non-Market and Non-use Values

Non-market and Non-use values would be lower in Alternative D than under Alternative C as 4,755,000 acres would be opened mineral location and solid mineral leasing in the Fortymile, Steese, and Upper Black River subunits. Additionally, 5,204,000 acres would be opened to mineral leasing in all four subunits. Only 1,551,000 acres would be designated as ACECs and wilderness characteristics would be maintained on eleven percent of the land. All existing special designations would be retained.

Although, all of the Upper Black River Subunit would be opened to locatable minerals, no mining activity is anticipated due to the lack of mineral potential. If exploration or development did occur, it would likely only affect small areas within the subunit. Thus non-market and non-use values would generally remain on most of the subunit.

Non-market and non-use values in the White Mountains Subunit could be lower than in Alternatives B, C, or E. Approximately 451,000 acres in the White Mountains NRA would be available for solid mineral leasing. No exploration or leasing is anticipated during the life of the plan, but if it occurred, non-use and non-market values would be reduced in the vicinity of the activity.

4.3.4.1.6. Alternative E (Proposed RMP)

Effects from Recreation

Same as Alternative B.

Non-Market and Non-use Values

These values would be higher under this alternative than under Alternatives C and D, but lower than under Alternative B.

Non-market and Non-use values would be lower in Alternative E than under Alternative B as 2,412,000 acres would be opened mineral location and solid mineral leasing in the Fortymile, Steese, and Upper Black River subunits. Additionally, 2,412,000 acres would be opened to fluid mineral leasing in all four subunits. Only 1,022,000 acres would be designated as ACECs and wilderness characteristics would be maintained on 53 percent of BLM lands. All existing special designations would be retained.

Although, 53 percent of the Upper Black River Subunit would be opened to locatable minerals, no mining activity is anticipated due to the lack of mineral potential and limited access. If exploration or development did occur, it would likely only affect small areas within the subunit. Thus non-market and non-use values would generally remain on most of the subunit.

4.3.4.1.7. Cumulative Effects

Alternative A

Cumulative Effects to economics would be low if current management is continued under Alternative A. The ANCSA 17(d)(1) withdrawals prohibiting mineral development would remain in place, allowing for very little new economic activity in the planning area. Current regional employment and income from mining would continue to provide economic benefits for residents in the planning area. Currently, less than two percent of statewide and non-resident mining employment results from activities on BLM-administered mining claims.

Recreation activities are expected grow with population, and jobs could be created. Under Alternative A, no new guiding would result.

Current Regional Employment and Income from Mining

Pogo Mine, located near Delta Junction, and Fort Knox Mine, north of Fairbanks, are the largest gold producers in Alaska. Fort Knox (Fairbanks Gold Mining Inc.) employs 400-425 people at the mine and mill, operating on two shifts, 24 hours per day, 365 days per year. In 2010, the Pogo Mine workforce was approximately 300 employees (Szumigala et al. 2011). These mines are expected to continue operation during the life of the RMP.

Mining companies are the largest taxpayers in Fairbanks North Star Borough. Fort Knox paid $2.8 million in property taxes to the Fairbanks North Star Borough in 2008. Payment in lieu of taxes or similar payments to communities provide additional economic benefits. The city of Delta Junction received $500,000 from Pogo in 2008.

New Projects

Oil and gas projects in the planning stage or affecting the region include pipelines and oil and gas production. A natural gas pipeline carrying product from the North Slope has been under consideration since the 1970s. Doyon, Limited, is currently considering exploration of oil and gas resources on Native owned land in the Yukon Flats basin northeast of Fairbanks. Gold mining activity north of Fairbanks may increase with development of prospects near Livengood, owned by International Tower Hill Mines, Ltd. True North Mine, owned by the Fairbanks Mining Company, is another prospective mine within 25 miles of Fairbanks. Any of these projects would contribute to economic benefits in the region, particularly in the Fairbanks area. These projects involve private land within the planning area.

Alternatives B, C, D, and E

Cumulative Effects to economics are similar for Alternatives B, C, D, and E. Although the net effect would differ slightly between alternatives, the marginal addition to employment and income would be similar.

Recreation activities are expected grow with population, and new jobs could result from additional guiding activities. These effects would vary slightly between subunits. However, the total effect to economics would be marginal and low.

Oil and gas potential exists in three subunits and is assumed to result in exploration only in the Upper Black River and Steese subunits. Exploration would have economic consequences additive to the current condition. However, as discussed in section 4.5.4.1 Effects Specific to the Steese

Subunit, effects to employment and income would be very low. This is due to the limited effort predicted on BLM-managed lands (e.g., only 20 miles of seismic lines). Seismic exploration on BLM-managed lands in either subunit, would likely only result if Doyon, Limited, conducted exploration on private lands in the Yukon Flats basin. The primary economic effects would result from Doyon, Limited, exploration and it would be difficult to isolate jobs and income resulting from the extension of exploration activities onto BLM-managed lands. Due to low level of exploration anticipated on BLM-managed lands, the additive economic affects would be marginal and very low.

The State of Alaska attributes 4,366 direct jobs, and 4,700 total direct and indirect jobs to all mining in the state of Alaska (Athey 2013). Cumulative effects resulting from mining on BLM-managed lands in any subunit would result from placer type mining at scales far smaller than existing mining or proposed projects in the region. Table 4.12, "Employment and Income Under Action Alternatives" shows resulting employment in new gold mining. The cumulative effect to mining industry employment would be less than two percent for any alternative. The Alaska Division of Geological and Geophysical Services (DGGS) reports 282 placer gold mining jobs in the state (Szumigala et al. 2009).

4.3.4.2. Environmental Justice

Summary of Effects

This section discusses programs, activities, and resources that will be little affected by planning decisions. In these cases, effects on environmental justice populations are negligible.

The following programs would have no economic effects and are not analyzed any further: Air, Cave and Karst Resources, Cultural and Paleontological Resources, Fish and Aquatic Species, Soil Resources, Special Status Species, Vegetative Communities, Visual Resources, Water Resources, Wildland Fire Ecology and Management, Wildlife, Salable Minerals, and Hazmat.

4.3.4.2.1. Effects Common to All Alternatives

In twelve communities within the planning area, minorities make up forty-seven (Tetlin) to one-hundred percent (Birch Creek) of the population…primarily Alaska Natives. Minority populations are highest in the Black River and Fortymile subunits. These communities have significantly subsistence oriented economies characterized by high unemployment, low labor force participation, and relatively low income, and where energy and retail goods are expensive. Activities restricting subsistence practices, access, and resources may affect a segment of the local population.

Activities likely to occur in the planning area, other than those associated with mineral extraction or oil and gas, would primarily be transitory in nature, of short duration, and highly localized. Under all alternatives, the effects of recreation and forestry would be similar. Activities could temporarily divert, deflect, or disturb subsistence species from their normal patterns. These activities could alter the availability of subsistence species in traditional harvest areas, which could in turn affect harvest patterns by requiring hunters to travel further in pursuit of resources. Increased travel distances would result in greater expenditures for fuel and equipment, and increased wear and tear on equipment. There could be an effect on the subsistence hunting activities of local minority populations as a result of these activities. The effects would likely be minor, short-term, and highly localized.

Effects to subsistence and wildlife are addressed in greater detail in sections 4.3.3.4, and 4.3.1.12.

4.3.4.2.2. Cumulative Effects

Cumulative Effects to environmental justice populations from BLM decisions would be low if current management is continued under the No Action Alternative (Alternative A). Effects of additional recreation resulting from population growth would be low.

Withdrawals prohibiting mineral development would remain in place allowing for very little new economic activity. Current regional employment and income from mining would continue to provide economic benefits for residents in the planning area. For more detail, see section 4.4.4.1 Economics, analyzing current regional employment and income from mining, for description of existing mines and possible new developments on private land.

Cumulative Effects to environmental justice populations are similar under Alternatives B, C, D, and E. Recreation activities are expected grow with population, and new jobs could result from additional guiding activities as described in section 4.3.3.1 Economics. These effects would vary slightly under the alternatives in each subunit. However, the total effect to would be low.

Exploration for oil and gas could occur on lands in the Upper Black River and Steese subunits. Exploration would have economic consequences additive to the current condition. However, effects to employment and income would be very low due to the limited exploration predicted on BLM-managed lands (e.g., 20 miles of seismic line). It is likely exploration on BLM-managed lands in either subunit would only result from expansion of exploration in the Yukon Flats basin by Doyon, Limited. The primary economic effects would result from Doyon, Limited, exploration, so it is difficult to isolate jobs and income resulting from activities on BLM-managed lands. Due to low level of effort on BLM-managed lands the additive environmental justice affects would be very low.

Cumulative effects resulting from mining on BLM-managed lands in any subunit would result from placer mining at scales far smaller than existing mining or proposed projects in the region. Table 4.12, "Employment and Income Under Action Alternatives" shows resulting employment due to new gold mining. Previous studies indicate changes in basic employment actually result in some opposite changes in employment in other sectors of the local economy, as individuals move from job to job within a community (Robertson 2003). It is possible that new employment for workers in small eastern Alaska communities would result. However, economic inputs multiplied would continue to register higher effects on a regional and statewide level.

4.3.4.3. Social Conditions

Many human impacts cannot easily be measured in economic terms, and are considered as social impacts. These include detractions from existing lifestyles, sense of place, community values, and beliefs. In some cases, social impacts are described in terms of effects to social well-being or quality of life. These terms include many aspects of individual or community life, such as amount and quality of available resources, from basic needs like food and water to recreation and creative opportunities. Beliefs that could affect well-being include the sense of personal control over decisions affecting one's future, or the confidence that the government strives to act in ways that consider all stakeholders' needs.

Additional factors include the availability of public services such as schools, perceptions of public safety, and transportation constraints. Less tangible factors may include sense of place, community character, community values, and sense of community. Sense of place addresses the connection to an aspect or aspects of the landscape of the area. Community character is something that makes one community distinctive from others. Community values suggest shared values, shared experiences, or other homogeneous characteristics. Sense of community incorporates many, if not all, of the less tangible factors. For small towns and villages in the area, local schools provide a social focus and lend to the sense of community.

The social analysis included groupings that have been identified as most likely to be affected by this plan. These social groups are defined to facilitate the discussion of social impacts. The grouping action greatly simplifies members' beliefs and values, and does not address commonalities. In other words, individuals may identify with several groups. For this area, many individuals participate in or benefit from subsistence activities, whether they are Alaskan Native, miners, recreational users, or any other designation. As such, management actions that may benefit an individual in one aspect may have a negative impact to another aspect of his activities or well-being.

Summary of Effects

Impacts to social conditions will result from a wide range of management decisions. Most impacts result in positive benefits to some individuals and groups, with negative impacts to others. For example, restrictions on OHV use may limit the range of federally qualified subsistence users and reduce use of an area by OHV recreational users, but expand opportunities for non-motorized recreation. Most impacts to individuals and groups are minor to moderate in part because other opportunities exist for the activities within the planning area and on nearby lands managed by the State of Alaska or a Native corporation. While it is possible for impacts for multiple resources to adversely affect individuals and groups in a cascading fashion, most individuals and communities exhibit sufficient resiliency to adapt. The only community where local concern was expressed about community viability before consideration of impacts was Central, and it was relayed that since the Circle Hot Springs resort closed, the town has been in decline, and the school is one pupil from closing. The potential lack of this key component of social web is an indicator of impaired resiliency, and the community may have greater difficulty adapting to some impacts.

4.3.4.3.1. Effects Common to All Alternatives for all Subunits

Effects from Air and Atmosphere

Smoke from wildland fire increases with the number and duration of fires in the area. Some effects on humans are noted elsewhere (See Air and Atmosphere, Recreation) – primarily short-term health risks with some decrease in tourism and recreation activities. Socially, communities with frequent or long-term fire smoke issues have a decreased sense of well-being, and sometimes feel a reduced sense of community as individuals deal with the physical stress.

Effects from Cultural Resources

Accomplishing the research and awareness program goals will strengthen connections with the past and the land among some residents. If preservation activities preclude locally valuable economic or social activities, some members of the community may have a reduced quality of life.

Effects from Fish and Aquatic Species

Efforts to maintain or improve fish habitats have mixed impacts in the local communities. Abundant subsistence species provide for physical well-being and a sense of food security, particularly when other subsistence resources are in short supply or out of season. Access to gravel, placer, and other mining activities provide the infrastructure and economic opportunities that allow some residents to remain in the area, and give some communities their character. Communities relying on placer mining (Chicken and Central, in particular) are less viable with reduced mining activity unless some other economic activity replaces mining. In both communities, mining opportunities also exist on state land.

Effects from Non-Native Invasive Species

Impacts cannot be evaluated until step-down plans, with changes to SOPs and leasing stipulations, are completed. If the result is to reduce economic activities within an area that has few cash-generating activities, personal and community well-being may be diminished, or it may be strengthened by protecting subsistence species from competition.

Effects from Paleontological and Soil Resources Minor positive or negative social impact may occur related to protection of resources or limiting human activities.

Effects from Special Status Species

Existence of species provides a sense of well-being for individuals and groups that value resource existence and diversity. Additional restrictions or mitigation measures due to presence of Special Status Species may result in fewer projects and thus fewer employment opportunities, reducing well-being for some individuals and groups. Other impacts will not be known until Special Status Species management plans are developed.

Effects from Vegetative Communities

Requirements to revegetate fire lines reduces the number of possible OHV routes where areas are closed to off-trail travel, potentially limiting motorized recreation opportunities and reducing the areal extent of subsistence activities due to time required for off-trail travel.

Effects from Visual Resources

To the extent that human activities are restricted by VRM class designations, there will be local positive (unimpaired senses of natural world and solitude) and negative (economic and possibly subsistence) impacts with broad existence-value benefits to some individuals and groups.

Effects from Water Resources

Minor positive or negative social impact may occur related to protection of subsistence resources or reduced economic activities.

Effects from Wilderness Characteristics

Under current management, no area is designated as wilderness, yet significant tracts continue to retain wilderness characteristics. Wilderness characteristics will not be a priority resource in any subunit or alternative. In some areas impacts to wilderness characteristics will be reduced during site-specific permitting. Minor positive or negative social impacts may occur.

Effects from Wildland Fire Ecology and Management

A segment of the population views current wildland fire management options as opportunities for small fires to grow quite large and require more substantial fire fighting resources than if addressed at a smaller stage. This observation is in part a reaction to the smoke and community disruption from large firefighting actions. The result is heightened frustration by the time firefighters are called in to fires near communities, but outside community protection zones. Wildland fire is a necessary component of this ecosystem, however years (such as 2004, 2005, and 2009) when several large fires consume significant areas of the Interior create greater emotional and physical stress, reduce subsistence in the immediate area for the short-term, and can limit tourism and recreation in the smoke-influenced area in both the short- and long-term.

Effects from Wildlife

Minor positive or negative social impact may occur related to protection of subsistence resources or reduced economic activities. Other effects would be similar to those discussed for Special Status Species.

Forest and Woodland Products

Harvest of cabin logs and home firewood are not considered subsistence uses and will be allowed with appropriate permits and in compliance with the SOPs. Not all areas will be open to such use, though recreational firewood harvest of dead or downed wood is available throughout the planning area. For recreationists, this allows a more familiar camping experience, as long as low or moderate fire danger allows campfires. For residents, few live close enough to public land for it to be a convenient source of firewood. The exceptions are at Circle and Eagle. Land close to Circle may be disposed of to consolidate BLM lands and activities. Land close to Eagle is part of the Fort Egbert Historic Site or BLM's campground, and is unavailable for firewood in order to preserve some of the natural and historic environment. Given the other nearby sources, including recent fire-scorched trees, there is no significant impact to communities in the planning area.

Lands and Realty

Impacts are expected to be minor, and may be positive or negative. Opportunities for renewable energy may help individuals at scattered cabin sites or within villages, but no community- or region-level projects are likely, so the cost of energy will likely continue to be a large portion of individual and community budgets, affecting well-being and quality of life.

Effects from Leasable and Salable Minerals

Social impacts are expected to be minor because of limited resource availability.

Effects from Locatable Minerals

Extensive withdrawals have limited this activity within the planning area. To the extent that withdrawals exist, mining will cease to be a significant aspect of public land use within the planning area. No remnant activities will occur on public land to give context to the various displays of the mining era. Reduced opportunities for participation at a lifestyle or recreational level will reduce individual well-being, and community well-being in Center and Chicken.

Preventing or reducing placer mining may improve subsistence catches of some fish species. This will increase the sense of well-being among populations targeting such species, and will increase food security if other food sources are displaced by wildland fire, climate change, or other factors.

Effects from Recreation

Minor positive or negative social impact related to reduced subsistence or economic activities, while maintaining or improving a spectrum of recreational opportunities.

Effects from Travel Management

Minor positive or negative social impact related to reduced economic activities, while maintaining or improving a spectrum of recreational opportunities.

Effects from Withdrawals

In the action alternatives, some areas are recommended to be open to new mineral claims and leasing for the first time in over a generation. Additional placer mining could reduce target fish species, creating a reduced sense of food security for federally qualified subsistence users. Those that benefit economically from mineral extraction could have increased quality of life. Among recreationists, those who see human impacts as detrimental to their experience would have a reduced quality of life, while those that participate in recreational mining or enjoy the connection to the past would have an increased quality of life. Those who value opportunities for resource use would have a greater quality of life with withdrawals lifted, while those who value semi-pristine landscapes would have a reduced quality of life.

Effects from Special Designations

Wild and Scenic Rivers - Minor positive or negative social impact related to reduced subsistence or economic activities, while maintaining or improving a spectrum of recreational opportunities.

Effects from Hazardous Materials

Minor positive or negative social impact because of limited activities.

Effects from Subsistence

A high priority among resource uses is to provide for habitat conservation to support abundant target species populations, in part by limiting other resource uses. As subsistence is key to physical and cultural well-being of many people within the planning area, this supports individuals and communities. It can also displace cash market activities, limiting economic well-being of those not participating in subsistence activities, as well as limiting the means to earn cash for subsistence participants to acquire equipment and supplies required from the cash market.

In addition to food security, subsistence is a key component of Alaska Native culture; a personal and social responsibility, a connection with kin and the broader community, and a connection with the land in a manner that defines aspects of individual communities. Protection of subsistence rights and resources increases Alaska Native social well-being.

4.3.4.3.2. Alternative A (No Action)

While some groups have a higher level of well-being and quality of life, others feel their interests have not been taken into consideration, so have a reduced quality of life. Some current management decisions are made on a project-specific basis, which can lead to a sense of inequity or uncertainty when activities are proposed or when attempting to comply with requirements, which results in a lower quality of life by challenging belief systems for both resource users and

resource protectors. In particular, some individuals and groups can feel that their interests are not considered.

4.3.4.3.3. Alternative B

Institutes significant changes from current management, causing distractions from existing lifestyles for some residents and visitors. These changes result in improved quality of life for those who value non-motorized recreation, existence of wilderness or near-pristine natural conditions, and provide potential improvement in well-being for individuals using some subsistence resources and areas that will be protected. Current users relying on motorized vehicles will have a decline in well-being and quality of life because they will not able to access some remote locations for recreational activities, including retrieving non-subsistence game by using motorized transport. Federally qualified subsistence users desiring to access closed areas (RNAs) will need to acquire free OHV permits, available at several locations or by telephone and mail. OHV use permits for federally qualified subsistence users will be available under this alternative to access portions of the Steese National Conservation Area that are limited to no summer use. The use of free permits for federally qualified subsistence users creates an administrative burden. Opportunities for improved well-being include limited openings to mineral exploration and development.

4.3.4.3.4. Alternative C

Alternative C seeks to provide a higher level of protection to highly valued resources and locations while maintaining or increasing resource use, resulting in a minor net change to quality of life that may be positive or negative to communities and groups. Protection areas are greater than current management or Alternative D, but less than Alternatives B and E. Individuals and groups that value non-motorized recreation, existence of wilderness or near-pristine natural conditions, and those who use subsistence resources provided greater protection will still see an improved well-being or quality of life, but to a lesser degree than Alternatives B or E and a greater degree than Alternative A or D. Users relying on motorized vehicles will have a decreased sense of freedom as some areas and activities, but to a lesser degree than Alternatives B or E and to a greater degree than Alternative A and D. OHV restrictions provide some areas where travel off designated routes allow hunters to retrieve game, which will improve the well-being of recreational hunters over Alternative B, but less than Alternatives A or D. Opportunities for improved economic and potential well benefits for the mining community include limited openings to mineral exploration and development, including 20 percent of the Steese National Conservation Area.

4.3.4.3.5. Alternative D

Alternative D recommends lifting withdrawals after conveyances, and institutes some protections by restricting current uses. This alternative limits OHV travel in all subunits, but to a lesser degree than all other alternatives except A. Users relying on motorized vehicles will have a decreased sense of freedom as some areas and activities, but to a lesser degree than in other alternatives. Individuals who value non-motorized experiences may have a decreased quality of life compared to Alternatives B or C. The alternative opens more areas to economic and potential well-being net benefits from mineral entry including the “scenic” segment of the Fortymile WSR and portions of the Steese National Conservation Area.

4.3.4.3.6. Alternative E (Proposed RMP)

This alternative institutes significant changes from current management, causing distractions from existing lifestyles for some residents and visitors. These changes result in improved quality of life for those who value non-motorized recreation, existence of wilderness or near-pristine natural conditions, and provide potential improvement in well-being for individuals using some subsistence resources and areas that will be protected, similar to Alternative B.

Travel management decisions are mostly deferred to a travel management plan more detailed impact analysis will occur at that time. Small areas in the Steese and White Mountains that are currently closed to all motorized use would be open to snowmobile use and areas open for the use of hovercraft and airboats would increase. Assuming individuals take advantage of these change, it would increase the sense of freedom for those who favor motorized access, while deterring from the well-being of those who value non-motorized experiences.

4.3.4.3.7. Cumulative Effects for all Subunits

Since of the varied land ownership, with multiple levels of opportunities and protections available, the communities within the planning area are likely to retain current characters and values through the anticipated activities included in the cumulative case.

Groups will feel pressures from a variety of sources. Subsistence users will be affected by changes in the amount and quality of available resources resulting from climate change and related events, primarily related to losses of the sense of food security and sense of personal control over decisions affecting one's future. Decisions pertaining to the public lands seek to protect subsistence resource habitat. Mineral development on and off public land may lead to challenges for Alaska Natives, while providing economic opportunities that improve well-being in terms of basic needs. Recreationists may face decreased opportunities for certain activities and decreased solitude, reducing their quality of life to the extent they do not embrace other activities or if they feel their needs have not been considered. The public lands are only one component of an array of recreational opportunities, and changes in the different alternatives do not preclude activities. Most of the planning area has been closed to mineral entry for a generation, and the action alternatives are written in expectation that some withdrawals will be lifted. Nearby lands have been open to mineral entry, though they may not have the mineral potential of some public lands. Miners who seek recreational and commercial opportunities will have an improved quality of life under the action alternatives, but also have opportunities away from public lands if the withdrawals are not lifted. Groups that prioritize resource protection may have a net increase or reduction in quality of life resulting from the sense that new protections do or do not outweigh continued use and new development in the area.

4.3.4.4. Subsistence

Summary of Effects

ANILCA Title VIII § 802(2) provides that "nonwasteful subsistence uses of fish and wildlife and other renewable resources shall be the priority consumptive uses of all such resources on the public lands of Alaska when it is necessary to restrict taking in order to assure the continued viability of a fish or wildlife population or the continuation of subsistence uses of such population, the taking of such population for nonwasteful subsistence uses shall be given preference on the

public lands over other uses." Restricting other uses of fish and wildlife to provide a preference for subsistence uses is outside the scope of this plan and is regulated through the Federal Subsistence Board, as established through ANILCA.

Other renewable resources include mushrooms, firewood, timber, berries, bark, and other vegetation.

Any land disturbing activities have the potential to alter habitat (change vegetation structure either by removal and or introduction of less desirable communities or invasive species), create barriers or directly disturb subsistence resources and impact distribution and availability of the resources. Subsistence resources include fish, wildlife, timber and woodland products, berries, and other vegetation.

ANILCA Title VIII § 810(a) requires an evaluation of effects on subsistence resources and uses from proposed land use activities on public lands. Impacts of management decisions on subsistence within each alternative and subunit are analyzed in this chapter and in the ANILCA § 810 Analysis of Impacts to Subsistence (Appendix J, *ANILCA Section 810 Analysis*).

4.3.4.4.1. Effects Common to All Alternatives

Proposed management of the following resources, resource uses and programs would have no anticipated negative impacts to subsistence uses or resources and will not be analyzed further: Cave and Karst, Visual Resources, Wilderness Characteristics, Renewable Energy, Special Designations, and Hazardous Materials.

The following resources, resource uses and programs would have minor effects on subsistence and would not be analyzed under impacts specific to subunits: Air and Atmospheric Values, Cultural and Paleontological Resources, Fish and Aquatic Species, Non-Native Invasive Species, Soil Resources, Special Status Species, Vegetative Communities, Water Resources, Wildland Fire Ecology and Management, and Wildlife. All other resources, resource uses and programs, including recreation, travel management, and locatable and leasable minerals, would be discussed by subunit.

Effects from Air and Atmospheric Values

Management of air and atmospheric values is expected to have minimal impact on subsistence uses and resources. Wildland fire suppression actions initiated to meet air quality laws and regulations may interrupt natural fire cycles that benefit subsistence resources. Impacts are not expected to be significant because although wildland fire can be deferred, it cannot be eliminated, especially in fire dependent ecosystems, such as the interior boreal forest.

Effects from Cultural and Paleontological Resources

Management of cultural and paleontological resources on BLM-managed lands is conducted under the National Historic Preservation Act, other federal laws and regulations, Executive Orders and other applicable BLM guidance for the protection of these resources. Some activities could include use of helicopter for access, which would temporarily displace wildlife resources. Most of these activities would be conducted outside of periods important for wildlife (calving and post-calving seasons) and harvest of subsistence wildlife resources, therefore impacts are expected to be minimal. Where conflicts could occur, Inventory, research, rehabilitation, protection, use or

other related program activities are not expected to impact subsistence uses or resources in any of the subunits or under any of the alternatives.

Effects from Fish and Aquatic Species Resources

Fish and wildlife resources in the planning area are important to most federally qualified subsistence users in and adjacent to the planning area. Some fish and wildlife activities may include use of helicopter for access, which would temporarily displace wildlife resources. Most of these activities are conducted outside of periods important for harvest of subsistence wildlife and impacts are expected to be minimal. Management of fish resources and mitigation of impacts to fish are expected to benefit subsistence resources through maintenance of healthy, functioning watersheds, riparian areas and associated fish habitats. (Refer to Fish and Aquatic Species in Chapter 2 and Chapter 4 for further discussion on management of and impacts to fish resources.)

Effects from Non-native Invasive Species

Invasive species can alter vegetative communities, and fish and wildlife habitat, which impacts subsistence resource populations. Under all alternatives and subunits, the intent for management of invasive species would be to reduce their impact within and adjacent to the planning area. Management of invasive species in Alaska is largely possible through early detection and rapid response. In some cases, more intensive integrated pest management could be employed. Management of non-native invasive species would use best integrated pest management (IPM) practices that reduce impacts to other resources, including subsistence resources, uses and access to resources. A step-down Invasive Species Management Plan would be developed within five years of signing the RMPs. Proposed IPM treatments would be analyzed at the project level through NEPA and an ANILCA Title VIII § 810 Evaluation and Finding would be conducted.

Effects from Soil Resources

Management decisions to reduce erosion and impact to soil profiles from all authorized surface-disturbing activities and to maintain watersheds in proper functioning condition would protect subsistence opportunities, uses and resources. Decisions that would protect soil resources would also protect subsistence resources, which include weight limits on OHV use, and weight and depth of frozen ground and snow cover for winter overland travel. No adverse impacts are expected from management of soil resources.

Effects from Special Status Species

No adverse impact to subsistence resources or uses is expected from management prescriptions for special status animal and plant resources and communities. Management that safeguards against the need to list species under the Endangered Species Act would benefit subsistence resources by protecting habitats and plant communities upon which they rely.

Effects from Vegetative Communities Management

No adverse impacts to subsistence resources or uses or access to resources is expected from management of vegetative communities within the planning area. Vegetation management decisions would benefit subsistence resources by ensuring that habitats support healthy, productive, and diverse populations and communities of native plants and animals.

Effects from Water Resources

No adverse impacts to subsistence resources or uses are anticipated from management of water resources. The management focus is on maintaining or improving water quality, which would benefit subsistence resources. Ensuring maintenance of sufficient instream flow in the three Wild and Scenic Rivers in the planning area would also benefit subsistence resources.

Effects from Wildland Fire Ecology and Management

Wildland fire has been and continues to be a normal and dominant feature in ecosystem processes in the planning area. Boreal forests are fire dependent systems and disturbance by wildland fire is important as a natural agent of change. Much of BLM-managed lands in the planning area are in Limited or Modified fire management options, allowing a more natural fire regime. Fire management options can be amended to respond to changing ecological and other conditions (BLM 2005b). Options in critical habitats can be changed to lower or higher protection levels to allow or defer wildland fire from the area.

Decades of wildland fire deferral in Alaska have resulted in buildup of fuels. Drought conditions have occurred in some regions of the planning area. Potential results from wildland fire deferral and changes in climatic conditions are larger and more frequent fires. Increased emphasis on suppression to avoid larger fires (whether to protect air quality, timber or other resources), could impact wildlife habitat by changing ecosystem processes.

Wildland fire occurrence and active fire management have the potential to impact subsistence resources by altering the distribution and movements of a species or through direct changes to a population. The impacts can be positive or negative. Alteration of distribution and migration patterns may be relatively long-term, as in the case of fire on winter caribou range (Collins et al. 2011), or short-term, as in renewal of moose browse. The effects of wildland fire on caribou winter range can alter availability of resources to federally qualified subsistence users for many years. Impacts to subsistence resources (wildlife, fish, vegetative communities, forests and woodland products) as a result of wildland fire and fire management decisions are discussed further in sections 4.3.1.4, 4.3.1.8, 4.3.1.12, and 4.3.2.1, and under discussion of impacts to specific subunits. A discussion of fire regimes on the century scale and under climate change are discussed in section 4.3.1.12.

Impacts on subsistence resources and uses as a result of wildland fire and fire suppression activities would be expected to be minimal within the planning area. Mitigation designed to reduce impacts of fire suppression activities would include limitations on use of dozer lines and off-road vehicles, rehabilitation of lines, and measures to prevent the introduction and spread of non-native invasive plants. (Impacts to vegetative communities and wildlife habitat by non-native invasive plants are discussed in sections 4.3.1.8 and 4.3.1.12, and in sections on specific subunits).

Prescribed burns and hazard fuel reduction could be proposed within the planning area over the life of the plan. In most cases, either action would be beneficial to subsistence resources. Such actions would be fully analyzed through an environmental assessment and include rigorous stipulations to mitigate impacts to subsistence and other resources.

Effects from Wildlife Resources

Wildlife resources in the Eastern Interior are important to federally qualified subsistence users in and adjacent to the planning area. Management of wildlife resources and mitigation of impacts to wildlife would be expected to benefit subsistence resources through maintenance of ecosystem functions and the quality and quantity of habitat to support healthy populations of wildlife. (See

Chapter 2 Wildlife for management decisions for wildlife and Chapter 4 for impacts to wildlife.) Specific decisions that will benefit wildlife subsistence species include reducing risk of disease transmission to Dall sheep by limiting use of domestic sheep, goats, and llamas in Dall sheep habitat, limiting activities in wildlife habitat during lambing and calving/post-calving, and maintaining movement corridors for wildlife when permitting land use activities.

Effects from Forest and Woodland Products

Decisions on forest and woodland product management could impact subsistence use through reduction in availability of these products and other subsistence resources. Commercial harvest of forest and woodland products and some personal harvest of forest products on lands managed by the BLM would require a permit. Personal use of woodland products, such as berries and mushrooms, would not require a permit for quantities less than five gallons. Personal use products cannot be sold. Subsistence use of woodland products would be subject to customary barter and trade provisions regulated by the Federal Subsistence Board and are not discussed in this document.

Low levels of forest product sales would be expected in the planning area (three free-use permits and one small sales vegetative contract have been issued during past 10 years) and impacts of forest product management on subsistence use would be anticipated to be low in all subunits and alternatives. The low value of timber resources on BLM-managed lands in the planning area would limit the extent of roads and trails build for access to forest resources. However, most alternatives would allow commercial harvest in areas where it has not been previously allowed and improved access to timber form other developments could result from access built for other activities, such as the road to Pogo Mine.

A NEPA process would be conducted for commercial permits. Impacts to subsistence resources and uses would be analyzed and appropriate stipulations would be applied to the permit to mitigate impacts.

Decisions for personal use of timber and woodland products vary by subunit and alternative. Where personal use of timber would be allowed, Free Use Permits would be available for personal use of up to 10 cords of firewood and approximately 5 units of 1000 board feet (MBF) of timber. Gathering of woodland products (i.e., berries and mushrooms) for personal use would be allowed in all subunits and action alternatives. Personal use of woodland products up to five gallons per species could be harvested without a permit. BLM forestry regulations require a permit for quantities above this amount. These requirements would apply to subsistence uses of timber and woodland products. Where alternatives include closures to free-use of timber resources, impacts would be analyzed by alternative within subunits.

Effects from Lands and Realty

Land conveyances to the State or Native Corporations would become managed under state regulations only for fishing, hunting, trapping and use of vegetation and forest products. In some cases, harvest regulations on these lands may be more restrictive than the federal regulations on BLM-managed lands. Where access to federal public lands is across lands conveyed through ANCSA, easements may be created to the benefit of subsistence and all users. Land conveyances to State or Native Corporations are required by law and are outside the scope of this plan.

Lands acquired by the BLM would be managed under federal subsistence and state management regulations unless the area is closed to all but federally qualified subsistence users through

regulations promulgated by the Federal Subsistence Board. In most of the planning area, state and federal regulations allow the same bag limits, seasons, methods and means, differences primarily being in season dates. Where seasons currently differ, little BLM public land would be identified for exchange, disposal or acquisition.

Within the planning area, the transfer of lands identified for potential acquisition, disposal or exchange would not be expected to impact subsistence uses or resources. In most cases changes in land tenure would be beneficial for federally qualified subsistence users. Consolidation of scattered lands into blocks would make it easier for users to identify land status on the ground, lessening uncertainly of which regulations affect the area. Common to all action alternatives for the Steese and Upper Black River Subunits would be the identification for exchange of lands around the village of Circle.

Effects from Recreation

Subsistence activities and resources would continue to be impacted by recreational uses in all subunits and alternatives. Impacts would vary in scope depending on the recreation management zones and decisions on travel management prescriptions within each subunit and alternative. These will be analyzed further by subunit.

4.3.4.4.2. Cumulative Effects

Cumulative impacts on subsistence are discussed under impacts specific to the subunits and in Appendix J, *ANILCA Section 810 Analysis*.

4.4. Impacts Specific to the Fortymile Subunit

4.4.1. Resources

4.4.1.1. Cultural and Paleontological Resources Fortymile Subunit

Summary of Effects

See section 4.3.1.3 Effects Common to All Alternatives, Impacts common to All Subunits.

4.4.1.1.1. Alternative A (No Action)

Effects from Locatable Minerals

At present, direct and indirect adverse effects from the locatable minerals program on cultural and paleontological resources occur only on existing, federal mining claims, of which there are currently 9,900 acres in the subunit. All other lands, more than 1,866,000 acres, are presently withdrawn from mineral entry and leasing under ANCSA 17(d)(1) withdrawals. Most if not all locatable mineral mining that is presently occurring is surface-disturbing, open-air mining, and not underground mining which is accessible through shafts and adits, which would otherwise leave the upper ground surface undisturbed.

Three types of placer mining operations could occur: (1) suction dredge operations, where the only surface disturbance relates to the supporting camp, (2) small-scale placer mines, where disturbance is limited to less than five acres per operation, with an assumed total area of 20 to 30 acres for the life of each mine, and (3) large-scale placer mines, where disturbance is estimated at five to twenty acres per operation, with an assumed total area of 60 to 80 acres for the life of each mine.

Further assumptions for locatable minerals for Alternative A in the Fortymile Subunit indicates six suction dredge operations annually, 27 small-scale placer mines, and two large-scale mines. This equates to 684-994 acres of disturbed ground, in areas that very likely contain evidence of prior, historic mining operations, which have occurred throughout the Fortymile drainage for at least the previous 120 years. Disturbance to prehistoric sites by any particular operation would have to be assessed on project-specific basis. In sum, locatable mineral mining will likely directly and adversely impact all manner of cultural and paleontological resources.

In addition, new access roads often need to be constructed in order to reach new mineral claims. The construction of new roads not only has direct adverse impacts on cultural and paleontological resources, but would also have an indirect effect by providing new access to previously isolated lands. With improved access, there would be an increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

Effects from Recreation

A wide range of recreational opportunities are available and are authorized in the Fortymile Subunit, including established campgrounds, private and commercial floating, and both motorized and non-motorized overland travel. The construction of infrastructure to support these activities can be ground disturbing, and thus could directly affect cultural and paleontological resources.

Also, visitors to the public lands may find surficial cultural and paleontological resources, and thus have the potential to adversely impact such resources, either intentionally or unintentionally.

Special recreation management areas (SRMA), recreation settings, and recreation management zones are not currently addressed in existing plans, and thus have no effects upon cultural resources.

Effects from Travel Management

Current management indicates that OHV use of vehicles greater than 1,500 pounds are prohibited without a permit inside the Fortymile WSR Corridor (248,000 acres). OHV use in the remainder of the Subunit (1,628,000 acres) is limited to 6,000 pounds; in excess of this would require a permit.

The use of motorized watercraft within the Fortymile WSR Corridor is currently not allowed on non-navigable "wild" segments of the river system, and is allowed on "scenic" and "recreational" segments. Use of watercraft has minimal direct impact on cultural and paleontological resources. Use of watercraft has the potential for indirect impacts on these resources by providing access to otherwise inaccessible lands. With river access, there is an increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

Based upon current trends, the BLM assumes ever increasing travel visitation and use, both motorized and non-motorized in the Fortymile Subunit, with OHV use accounting for the majority of travel-related activities. The current visitation rate of increase is approximately ten percent per year, which is expected to continue for the foreseeable future. At this rate, travel visitation in the Fortymile Subunit would be expected to double within the next 10 years. Additional trails and mechanisms for managing these trails would be necessary. Some new trails, for both motorized and non-motorized activities, as well as other travel facilities such as boat launches, may need to be constructed. Construction of new trails, like any other surface-disturbing activities, would have the potential to directly and adversely affect cultural and paleontological resources.

In addition, the construction of new trails would also have an indirect effect by providing new access to previously isolated lands. With improved access, there would be an increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

4.4.1.1.2. Alternative B

Effects from Locatable Minerals

Alternative B would have the same direct and indirect effects on cultural and paleontological resources as Alternative A, except the potential impacts to these resources would be increased as new areas would be opened to potential mining activities and more roads would potentially need to be built to access those areas. In Alternative B, 1,076,000 acres would be closed and 800,000 acres of previously withdrawn lands would be recommended open to locatable mineral entry (Map 26). Closed areas include all of the Fortymile WSR, the Fortymile SRMA, the Fortymile ACEC, one mile around ungulate mineral licks, disposal lands, BLM administrative sites, Fort Egbert, and the Eagle recreation withdrawal.

See Alternative A for assumptions about the nature and type of placer mining operations that are likely to occur within the Fortymile Subunit. Further assumptions for Alternative B indicates 10

suction dredge operations in any given year, 31 small-scale placer mines, and three large-scale mines. This equates to approximately 840–1,210 acres of disturbed ground, in areas that very likely contain evidence of prior, historic mining operations, which have occurred throughout the Fortymile drainage for at least the previous 120 years. Disturbance to prehistoric sites by any particular operation would have to be assessed on a project-specific basis. In sum, locatable mineral mining will likely directly and adversely impact all manner of cultural and paleontological resources.

Effects from Recreation

In Alternative B, the Fortymile SRMA would be created (798,000 acres). A wide range of recreational opportunities would be available and/or authorized in seven Recreation Management Zones (RMZs). The "setting characteristics" for these RMZs range from Semi-Primitive, Backcountry, Frontcountry, Middlecountry, and Rural settings (Map 44). See also Table 2.5. The recreation management objectives associated with each of these is well defined, with differing emphases on building and maintaining facilities, trails, and a range of summer and winter OHV uses. Construction of public and administrative facilities by the BLM to meet recreational demand can directly and adversely impact surface and subsurface cultural and paleontological resources. The BLM assumes a ten to fifteen percent increase over the life of the plan in demand for recreational users and visitation (both motorized and non-motorized), resource damage, and user-resource conflicts. The construction of infrastructure to support these activities would likely be ground disturbing, and thus can potentially directly affect cultural and paleontological resources. Also, any increased visitation to the public lands has a concurrent potential increase for inadvertently finding surficial cultural and paleontological resources and adversely impacting such resources, either intentionally or unintentionally.

Effects from Travel Management

Under Alternative B, OHV use is not permitted during the summer on 626,000 acres (corresponding to the Semi-Primitive RMZs in this alternative), and is limited to existing routes and weights (see Alternative A) in the summer to the remaining 1,250,000 acres in the Subunit. All lands in the Subunit (1,876,000 acres) are limited to existing OHV weights and widths during the winter months.

There would be little to no direct impacts to cultural or paleontological resources by the proposed OHV uses in this alternative, as they are limited to existing trails and routes in the summer, and the winter ground cover of snow would protect most types of cultural resources and all paleontological resources. Indirect impacts to cultural resources would be likely, however, as the development of unauthorized trail development would likely continue in the Subunit.

The use of motorized watercraft within the Fortymile WSR Corridor would not be allowed on non-navigable "wild" segments of the river system excepting downstream of the Kink on the North Fork, and would be allowed on all "scenic" and "recreational" segments. Same as Alternative A, the use of watercraft has minimal direct impact on cultural and paleontological resources.

The current visitation rate of increase is approximately ten percent per year, which is expected to be maintained for the foreseeable future. Even if most of this is assumed to be by OHV users, there is still a probable increase in use by non-motorized users in the subunit, both on and off established trails. With more resource users accessing BLM-managed lands, there would be an increased potential of more people finding surface cultural resources and potentially adversely impacting them, either intentionally or unintentionally.

4.4.1.1.3. Alternative C

Effects from Locatable Minerals

Alternative C would have the same direct and indirect effects on cultural and paleontological resources as Alternative A, except the potential impacts to these resources would be increased as more land would be opened to potential mining activities and more roads would potentially need to be built to access those areas. In Alternative C, 623,000 acres would be closed and 1,253,000 acres of previously withdrawn lands would be recommended open to locatable mineral entry (Map 28 The closed areas in Alternative C would be the same as those in Alternative B, except more of the Fortymile ACEC would be opened to potential development. Alternative C has more acres opened to potential mineral activity than Alternative B, and thus would have a greater potential for adverse impacts to cultural and paleontological resources.

See Alternative A for assumptions about the nature and type of placer mining operations that are likely to occur within the Fortymile subunit. Further assumptions for locatable minerals for Alternative C indicates 14 suction dredge operations in any given year, 33 small-scale placer mines, and three large-scale mines. This equates to approximately 896–1,286 acres of disturbed ground, in areas that very likely contain evidence of prior, historic mining operations, which have occurred throughout the Fortymile drainage for at least the previous 120 years. Disturbance to prehistoric sites by any particular operation would have to be assessed on a project-specific basis. In sum, locatable mineral mining will likely directly and adversely impact all manner of cultural and paleontological resources.

Effects from Recreation

In Alternative C, a smaller Fortymile SRMA would be created (248,000 acres). A wide range of recreational opportunities would be available and/or are authorized in nine RMZs, covering a wide range of established and well defined "setting characters" ranging from Semi-Primitive, Backcountry, Frontcountry, Middlecountry, and Rural settings (Map 45). See also Table 2.5. Alternative C is overall very similar to Alternative B, except there are more acres in Frontcountry and Middlecountry RMZs and fewer acres in Semi-Primitive and Backcountry RMZs. There would be a concomitant rise in potential adverse effects on cultural and paleontological resources under Alternative C, as there would be more emphasis on recreational infrastructure development.

Effects from Travel Management

Same as Alternative B, except for a decrease in the number of acres closed to summer OHV use (144,000), and an increase in the number of acres opened up to OHV use on existing routes and weights (1,732,000). The impacts to cultural and paleontological resources would be the same as Alternative B, except for an increased likelihood of indirect impacts to cultural resources owing to a decreased number of acres being closed to summer OHV use.

4.4.1.1.4. Alternative D

Effects from Locatable Minerals

Alternative D would have the same direct and indirect effects on cultural and paleontological resources as outlined in Alternative A, except the potential impacts to these resources would be increased as more lands would be opened to potential mining activities and more roads would potentially need to be built to access those areas. In Alternative D, 163,000 acres would be

closed and about 1,713,000 acres of previously withdrawn lands would be recommended open to locatable mineral entry (Map 30), including the "scenic" segments of the Fortymile WSR Corridor and portions of the Wade Creek "recreational" segment; Alternatives A, B, C, and E exclude the entire Fortymile WSR Corridor. Alternative D has more acres opened to potential mineral activity than any alternative, and thus would have a greater potential adverse impact to cultural and paleontological resources. In addition, the number of known cultural resources within the "scenic" and "recreational" segments of the WSR corridor is quite dense relative to areas in the "wild" segments and outside of the corridor. The adverse impacts upon cultural and paleontological resources by Alternative D, relative to Alternatives B, C, and E would be much greater.

See Alternative A for assumptions about the nature and type of placer mining operations that are likely to occur within the Fortymile Subunit. Further assumptions for locatable minerals for Alternative D indicates 18 suction dredge operations in any given year, 40 small-scale placer mines, and three large-scale mines. This equates to approximately 1,052–1,512 acres of disturbed ground, in areas that very likely contain evidence of prior, historic mining operations, which have occurred throughout the Fortymile drainage for at least the previous 120 years. Disturbance to prehistoric sites by any particular operation would have to be assessed on a project-specific basis. In sum, locatable mineral mining will likely directly and adversely impact all manner of cultural and paleontological resources.

Effects from Recreation

Same as Alternative C, except there would be 10 RMZs created (see Map 46and Table 2.5), with even more acreage devoted to Frontcountry and Middlecountry RMZs and less acreage to Semi-Primitive and Backcountry RMZs. As a result, there would be an increased potential for adverse effects on cultural and paleontological resources under Alternative D relative to Alternative C, as there would be more emphasis on recreational infrastructure development.

Effects from Travel Management

Same as Alternative B and C, except for a further decrease in the number of acres closed to summer OHV use (54,000), and a further increase in the number of acres opened up to OHV use on existing routes and weights (1,822,000). The impacts to cultural and paleontological resources would be the same as Alternative B and C, except for a further increase in the likelihood of indirect impacts to cultural resources owing to a decreased number of acres being closed to summer OHV use.

4.4.1.1.5. Alternative E (Proposed RMP)

Effects from Locatable Minerals

In Alternative E, 745,000 acres would be closed and 1,132,000 acres of previously withdrawn lands would be recommended open to locatable mineral entry (Map 31). Areas closed include the Fortymile WSR, the proposed Fortymile ACEC, the proposed Mosquito Flats ACEC, within one mile of ungulate mineral licks, the BLM's administrative site, historic Ft. Egbert, and the Eagle recreation withdrawal. Alternative E has more acres opened to potential mineral activity than Alternative B, but less than Alternatives C and D, and thus would have greater or lesser potential adverse impacts to cultural and paleontological resources, accordingly.

See Alternative A for assumptions about the nature and type of placer mining operations that are likely to occur within the Fortymile subunit. Further assumptions for numbers and types of locatable minerals operations for Alternative E are the same as Alternative B.

Effects from Recreation

Same as Alternative C in terms of the numbers of the size of the Fortymile SRMA and acres devoted to Semi-Primitive, Backcountry, Middlecountry, Frontcountry, and Rural RMZs, except there would be only five RMZs created (see Map 47 and Table 2.5). The overall result of the particulars of this Alternative is that the potential for adverse effects on cultural and paleontological resources under Alternative E relative to Alternative C would be the same, but it would be more than Alternative B, and less than Alternative D.

Effects from Travel Management

A Travel Management Plan would be developed for the Fortymile Subunit after approval of the

RMP. Until that time, interim management would be the same as Alternative A, with a few exceptions, including a decrease in the weight limits of summer and winter OHVs in certain portions of the Subunit, a removal of the prohibition of motorboat use in "wild" segments of the Fortymile WSR, and implement a summer restriction on OHVs in the proposed Mosquito Flats ACEC. These new exceptions to current management practices would not directly affect cultural and paleontological resources, except to potentially increase the indirect effects on cultural resources by the removal of the motorboat prohibition by providing access to otherwise previously inaccessible lands. With access, there is an increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

4.4.1.2. Fish and Aquatic Species Fortymile Subunit

Summary of Effects

Fish and aquatic resources would be primarily affected by surface-disturbing activities (such as placer mining or trail construction) which alter stream channels, remove or damage riparian vegetation, or result in soil erosion and sedimentation to fish and aquatic habitat. The level of impact would depend on the success and adequacy of protective measures.

Table 4.8. Stream Miles and Acres Open to Locatable Mineral Entry, Fortymile Subunit

FORTYMILE SUBUNIT	ALTERNATIVES				
(BLM-managed lands)	A	B	C	D	E
Stream miles	3,393	3,393	3,400	3,393	3,393
Stream miles open to locatable minerals (proposed)	0	1,300	2,000	2,900	1,900
Stream miles open to locatable minerals (proposed) plus miles within current valid federal claims	78	1,400	2,100	3,000	2,000
Stream miles within RCAs in areas open to locatable minerals (proposed)	N/A	9	0	0	0
Stream miles outside RCAs in areas open to locatable minerals (proposed)	N/A	1,300 (99%)	2,000 (97%)	2,900 (98%)	2,000 (99%)

FORTYMILE SUBUNIT	ALTERNATIVES				
(BLM-managed lands)	**A**	**B**	**C**	**D**	**E**
Acres open to locatable minerals (proposed)	0	800,000	1.2 million	1.7 million	1.1 million
Acres open to locatable minerals (proposed) plus acres within current valid federal claims	10,300	810,000	1.2 million	1.7 million	1.1 million
Anticipated stream gravel disturbance by suction dredging during life of plan measured in cubic yards	240,000	400,000	560,000	720,000	400,000
Potential impacts to fish and aquatic habitat (1-4, 4 = greatest)	**1**	**2**	**4**	**5**	**3**

4.4.1.2.1. Alternative A (No Action)

Effects from Leasable Minerals

No lands within the Fortymile Subunit are open to leasing of either fluid minerals (oil and gas) or solid minerals (coal). There are no existing mineral leases. Under this alternative, impacts to fisheries and aquatic resources would be non-existent.

Effects from Locatable Minerals

No lands within the Fortymile Subunit are open to new locatable mineral entry subject to valid existing claims. Current active federal mining claims occur on 10,000 acres, but not all of those acres are being mined. Including current valid federal claims, this alternative has 73 stream miles open to locatable minerals which is the least amount as compared to Alternatives B, C, D, and E (Table 4.8, "Stream Miles and Acres Open to Locatable Mineral Entry, Fortymile Subunit"). The anticipated number of acres directly disturbed by small- and large-scale placer mines under Alternative A is estimated at up to 970 acres, or approximately 14 miles of stream over the life of the plan.

It is anticipated that during the life of the plan 60 suction dredging operations would occur within the subunit. It is assumed that each operation would last two years (this applies to all alternatives). The amount of stream gravel disturbed from one suction dredging operation is estimated to be 2,000 cubic yards per year. During the life of the plan 240,000 cubic yards of stream gravel could be disturbed. In general, the impacts associated with suction dredging are described in the Common to All Alternatives section 4.3.1.4. Impacts from suction dredging would be localized and minor if suction dredging operations were restricted in areas where fish are actively spawning or where spawning has recently occurred. Suction dredging in this alternative would have the lowest impact due to the least amount of gravel disturbance (Table 4.8, "Stream Miles and Acres Open to Locatable Mineral Entry, Fortymile Subunit").

Fish species impacted from locatable mineral activity in the this subunit would typically be Arctic grayling and whitefish species, since they are the predominant species in the subunit. Under Alternative A, protection of fish and aquatic habitat would rely on current regulations and mitigation measures developed during project-specific NEPA analysis. Impacts to fish and aquatic resources in this alternative would be considered low to moderate, but could have long-term effects resulting in an overall decrease in levels of fish populations at the local level. Compared to the other alternatives, Alternative A would likely provide the greatest protection to fisheries and aquatic resources, because it would result in the least amount of potential disturbance (Table 4.8,

"Stream Miles and Acres Open to Locatable Mineral Entry, Fortymile Subunit"). However, under this alternative, fish and aquatic resources may not benefit from the higher reclamation standards and SOPs proposed in this plan which are designed to minimize impacts and reduce recovery time. As such, Alternative A may have similar adverse long-term impacts than other action alternatives.

Effects from Recreation Management

Impacts would be similar to those described in Common To All Alternatives. There are no SRMAs that would identify recreation objectives or establish visitor use limits. Unmanaged trail proliferation would continue to occur with no established standards to ensure the proper construction and placement of new trails. Alternative A would provide the least protection to fish and aquatic habitats from recreation activities, however impacts to fish and aquatic habitat are expected to be minimal.

Effects from Travel Management

Within the Fortymile WSR Corridor, OHV use is limited to 1,500 GVWR and less and off-road travel is authorized. Travel outside the Fortymile WSR is generally unrestricted providing for off-road travel for vehicles weighing under 6,000 pounds GVWR. OHV use is assumed to increase during the life of the plan, therefore trail proliferation would be expected to increase under this alternative with a resulting increase in erosion and sediment impacts. Based on these assumptions, this alternative could have moderate adverse short- and long-term impacts on fish and aquatic resources. This alternative has more potential to effect fish and aquatic habitat than Alternatives B, C, and D and the same potential as Alternative E.

Effects from Special Designations

The Fortymile WSR corridor is withdrawn from mineral entry and mineral leasing, except for valid existing claims. Fish and aquatic habitats benefit in areas closed to mineral entry, because the habitat generally remains intact. These withdrawals reduce future adverse impacts on fish and aquatic habitat from mineral development.

4.4.1.2.2. Alternative B

Effects from Leasable Minerals

Under Alternative B, 800,000 acres would be open to mineral leasing. Although lands would be open to fluid minerals (oil and gas) and solid minerals (coal) leasing, limited potential exists for these resources within the subunit. Industry has shown no interest in leasing or development in the Fortymile Subunit. If leasing occurred, further NEPA analysis would be required. Based on the limited leasable mineral potential in the subunit, it is assumed that seismic surveys would not occur. Given those assumptions, impacts to fisheries and aquatic habitat would be minimal or nonexistent.

Effects from Locatable Minerals

Under Alternative B, 800,000 acres would be open to locatable mineral entry (Map 26). A large portion of the fish and aquatic habitats in the subunit are located within the Fortymile WSR Corridor, Fortymile ACEC, and the Fortymile SRMA,which would be closed to locatable minerals. Including valid existing federal mining claims, approximately 1,400 miles, or forty-one percent of the stream miles within the entire subunit would be open to locatable minerals. Less

than one percent of those miles occur within RCAs, which require higher reclamation standards. Under Alternative B, ninety-nine percent of the stream miles open to locatable minerals would rely on the current regulations, reclamation requirements and SOPs outlined in this plan, and mitigation measures developed during project-specific NEPA analysis to ensure sustained yield of fisheries resources. The likelihood of impacts would be greatest in areas of medium to high mineral potential, which equates to roughly 822 of the 1,400 miles that are open to locatable mineral entry. The anticipated number of acres directly disturbed by small- and large-scale placer mines under Alternative B is estimated at 1,200 acres, or approximately 17 miles of stream over the life of the plan (BLM 2015 RFD).

One hundred suction dredging operations are anticipated during the life of this plan (BLM 2015 RFD). The amount of stream gravel disturbed from one suction dredging operation is estimated to be 2,000 cubic yards per year. During the life of the plan 400,000 cubic feet of stream gravel could be disturbed. In general, the impacts associated with suction dredging are described in the Impacts Common to All Alternatives section 4.3.1.4. Potential impacts from suction dredging under this alternative are greater than in Alternative A due to increased disturbance (Table 4.8, "Stream Miles and Acres Open to Locatable Mineral Entry, Fortymile Subunit").

Over 800 miles of stream with medium to high mineral potential and forty-one percent of the stream miles within the entire subunit would be open to locatable minerals, impacts to fish and aquatic resources in this alternative may be low to moderate with long-term (10–20 years) effects. This would result in decreased levels of fish populations and habitat condition at the local level. Based on the amount of potential disturbance, adverse impacts to fish and aquatic habitat under this alternative would be greater than under Alternative A and less than Alternatives E, C, and D.

Effects from Recreation Management

Impacts would be similar in type to those discussed under Common to All Alternatives. Under Alternatives B, C, D, and E, SRMAs would contain RMZs, each of which would be managed for specific activities, experiences, and benefits in a corresponding prescribed setting (Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry and Rural). Impacts to fisheries and aquatic resources would be lowest in Primitive Zones and would gradually increase across the range of management zones with the greatest impacts being realized in the Rural Zones. In these zones, impacts would be associated with increased visitor use and landscape alterations, such as roads and trails leading to increased trampling of riparian vegetation and potential erosion. This alternative has the greatest number of RMZs on the Primitive end of the scale and thus provides the least potential impacts. In this alternative the Fortymile SRMA would contain 792,000 acres and have seven different management zones. This alternative would provide more protection to fish and aquatic habitat than Alternative A, D, and, C, but less than E.. Impacts to fish and aquatic habitat are expected to be minimal under this alternative.

Effects from Travel Management

In this alternative, OHV use is restricted to existing routes (off-road travel is prohibited) and to vehicles weighing 1,500 GVWR and less. Thirty percent of the subunit would be designated as Semi-Primitive, which prohibits the summer use of OHVs. Alternative B would provide the greatest protection to fish and aquatic habitat. Impacts to fish and aquatic habitat are expected to be minimal under this alternative.

Effects from Special Designations

The effects from the Fortymile WSR are similar to those in Alternative A. In addition, the Fortymile ACEC would be established for the protection of caribou and Dall sheep habitats. This ACEC would close an additional 516,000 acres to entry, location, and leasing of minerals subject to valid existing rights. A mining Plan of Operations would be required on any mining activity within the ACEC. Fish and aquatic resources within the ACEC would benefit from mineral entry closure by limiting the adverse impacts from mining to valid and existing claims. In addition, the Plans of Operation requirement would entail the incorporation of specific fisheries rehabilitation measures. Outside of the Fortymile WSR Corridor, habitats would potentially benefit from the increased resource protection accompanying the special designation.

Under Alternative B, five miles of Dome Creek and four miles of Gold Run Creek would be recommended as suitable for designation as WSRs. These creeks are likely to support Arctic grayling and whitefish species. Fisheries and aquatic resources benefit from WSR designations because of development limitations and closures to mineral entry and leasing. This Alternative would be more beneficial to fish and aquatic resources than Alternatives A, C, and D, but not as beneficial as E.

4.4.1.2.3. Alternative C

Effects from Leasable Minerals

Under Alternative C, 1.2 million acres would be open to mineral leasing. Although lands would be open to fluid minerals (oil and gas) and solid minerals (coal) leasing, the limited potential exists for these resources within the subunit. Industry has shown no interest in leasing development in the Fortymile subunit. If leasing occurred, further NEPA analysis would be required. Based on the limited leasable mineral potential in the subunit, it is assumed that seismic surveys would not occur. Given those assumptions, impacts to fisheries and aquatic habitat would be minimal or nonexistent. Impacts under this alternative are potentially greater than in Alternatives A, B, and E because more acres are open to disturbance.

Effects from Locatable Minerals

Under Alternative C, 1.3 million acres would be open to locatable minerals. The Fortymile WSR Corridor, a smaller Fortymile ACEC, and the Fortymile SRMA would remain closed to locatable minerals (Map 28). Including valid existing federal mining claims, this alternative allows for an additional 700 stream miles to be opened to locatable minerals as compared to Alternative B (Table 4.8, "Stream Miles and Acres Open to Locatable Mineral Entry, Fortymile Subunit"), none of which would be within RCAs requiring a higher standard for reclamation. Under Alternative C, fisheries and aquatic resources open to locatable minerals would rely on the current regulations, reclamation requirements and SOPs outlined in this plan, and mitigation measures developed during project-specific NEPA analysis.

Of the 2,100 miles of stream open to locatable minerals, approximately 1,200 stream miles fall within areas having medium to high mineral potential. The anticipated number of acres directly disturbed by small- and large-scale placer mines under Alternative C is estimated at up to 1,200 acres, or approximately 18 miles of stream over the life of the plan. In addition, 140 suction dredging operations are anticipated during the life of this plan. The amount of stream gravel disturbed from one suction dredging operation is estimated to be 2,000 cubic yards per year. Over the life of the plan 560,000 cubic yards of stream gravel could be disturbed. Impacts from suction dredging are discussed in section 4.3.1.4 Impacts Common to All Alternatives.

Over 1,200 miles of stream with medium to high mineral potential and sixty-two percent of the stream miles within the entire subunit would be open to locatable minerals. Impacts to fish and aquatic resources in this alternative may be moderate with long-term (10 to 20 years) effects. This would result in decreased levels of fish populations and habitat condition at the local level. Based on the amount of potential disturbance, adverse impacts to fish and aquatic habitat under this alternative would be greater than under Alternatives A, B, and E, but less than Alternative D.

Effects from Recreation Management

Impacts would be similar in type to those discussed under Common to All Alternatives. In this Alternative, the Fortymile SRMA would contain 248,000 acres and have nine management zones. This alternative allows for increased development of visitor facilities, landscape modifications, and group size as compared to Alternative B and E. Alternative C has greater potential impacts than Alternative B and E. This alternative would provide more protection to fish and aquatic habitat than Alternative A and D, but less than B and E. Impacts to fish and aquatic habitat are expected to be minimal under this alternative.

Effects from Travel Management

In this alternative, OHV use is restricted to existing routes (off-road travel prohibited) and to vehicles weighing 1,500 GVWR and less (same as Alternative B). In this alternative, only six percent of the subunit would be designated as Semi-Primitive which prohibits the summer use of OHVs. Alternative C would provide less protection to fish and aquatic habitat than Alternative B and E, but more than Alternatives D and A. Impacts to fish and aquatic habitat are expected to be minimal under this alternative.

Effects from Special Designations

The effects from the Fortymile WSR designation are similar to those in Alternative A. In addition, the Fortymile ACEC would be established for the protection of caribou and Dall sheep habitats. This ACEC would close an additional 554,000 acres to entry, location, and leasing of minerals subject to valid existing rights. Fisheries and aquatic resources within the ACEC would benefit from mineral entry closure by limiting the adverse impacts from mining to valid and existing claims. In addition, the Plans of Operation requirement would entail the incorporation of specific fisheries rehabilitation measures. Outside of the Fortymile WSR Corridor, habitats would potentially benefit from the increased resource protection accompanying the special designation. This alternative would provide less protection to fisheries and aquatic resources than Alternative B and E, but more than Alternatives A and D.

4.4.1.2.4. Alternative D

Effects from Leasable Minerals

Under this alternative, 1.7 million acres would be open to fluid mineral leasing. Although lands would be open to fluid minerals (oil and gas) and solid minerals (coal) leasing, the limited potential exists for these resources within the subunit. Industry has shown no interest in leasing development in the Fortymile subunit. If leasing occurred, further NEPA analysis would be required. Based on the limited leasable mineral potential in the subunit, it is assumed that seismic surveys would not occur . Given those assumptions, impacts to fisheries and aquatic habitat would be minimal or nonexistent. This alternative has the greatest potential to impact fish and aquatic resources because it has the greatest amount of acres open to disturbance.

Effects from Locatable Minerals

Approximately 1.7 million acres would be open to locatable minerals under this alternative (Map 30). Including valid existing federal mining claims, this alternative allows for an additional 900 stream miles to be opened to locatable minerals as compared to Alternative C (Table 4.8, "Stream Miles and Acres Open to Locatable Mineral Entry, Fortymile Subunit") and none of those stream miles would be within RCAs requiring a higher standard for reclamation. Under Alternative D, fisheries and aquatic resources open to locatable mineral entry would rely on the current regulations, reclamation requirements and SOPs outlined in this plan, and mitigation measures developed during project-specific NEPA analysis.

This alternative allows for the greatest number of stream miles and acres available for locatable minerals (Table 4.8, "Stream Miles and Acres Open to Locatable Mineral Entry, Fortymile Subunit"). Of the 3,000 miles of stream open to locatable minerals, 1,440 (forty-eight percent) stream miles occur within areas having medium to high mineral potential. The anticipated number of acres directly disturbed by small- and large-scale placer mines under Alternative D is estimated at up to 1,400 acres, or approximately 21 miles of stream over the life of the plan. Roughly 180 suction dredging operations are anticipated during the life of this plan. The amount of stream gravel disturbed from one suction dredging operation is estimated to be 2,000 cubic yards per year. Over the life of the plan 720,000 cubic yards of stream gravel could be disturbed.

Over 1,400 miles of stream with medium to high mineral potential and ninety percent of the stream miles within the entire subunit would be open to locatable minerals; impacts to fish and aquatic resources in this alternative may be moderate with long-term (10 to 20 years) effects. This would result in decreased levels of fish populations and habitat at local and potentially subunit levels. Based on the amount of potential disturbance, Alternative D would have the greatest potential for adverse impacts on fisheries and aquatic resources.

Effects from Recreation Management

Impacts would be similar in type to those discussed under "Common to All Alternatives." In this alternative, the Fortymile SRMA would contain 248,000 acres and have 10 management zones. This alternative would allow for the greatest amount of visitor facility development and landscape modifications, while also authorizing the largest group size. This Alternative would provide more protection to fish and aquatic habitat than Alternative A, but less than E, B, and C.

Effects from Travel Management

This alternative limits OHVs to 1,500 GVWR and less and off-road travel would be allowed in ninety-seven percent of the subunit. Only three percent of the subunit would be designated as Semi-Primitive, which prohibits the summer use of OHVs. Trail proliferation would continue to occur with no established standards to ensure the proper construction and placement of new trails. Given the assumption of increased OHV use during the life of the plan, the unauthorized and unmanaged proliferation of trails would likely increase with a resulting increase in erosion and sediment impacts. Coupled with such a large area (ninety-seven percent of the subunit) open to off-road travel, this alternative could have minor long-term adverse impacts on fish and aquatic habitats. Alternative D has more potential to impact fish and aquatic resources than Alternatives E, B, and C, but less than Alternative A.

Effects from Special Designations

The effects from the Fortymile WSR designation are similar to those in Alternative A, except the "scenic" segments of the river would be recommended open to locatable minerals. In addition, the Fortymile ACEC (554,000 acres) would be established for the protection of caribou and Dall sheep habitats. The "wild" segments of the Fortymile WSR Corridor would be closed to locatable mineral entry and mineral leasing subject to valid existing rights, but the remainder of the ACEC would be open to locatable mineral entry subject to the SOPs and to mineral leasing subject to minor constraints. A mining Plan of Operations would be required on any mining activity within an ACEC (43 CFR 3809.11(c)(3)). Fish and aquatic habitats benefit in areas closed to mineral entry, because the habitat generally remains intact. Fish and aquatic habitat could potentially benefit from the increased resource protection within the ACEC. This alternative would provide less protection to fish and aquatic habitat than Alternatives E, B, and C, but more than Alternative A.

4.4.1.2.5. Alternative E (Proposed RMP)

Effects from Leasable Minerals

Under this alternative, 900,000 acres would be open to fluid mineral leasing. Although lands would be open to fluid minerals (oil and gas) and solid minerals (coal) leasing, the limited potential exists for these resources within the subunit. Industry has shown no interest in leasing development in the Fortymile subunit. If leasing occurred, further NEPA analysis would be required. Based on the limited leasable mineral potential in the subunit, it is assumed that seismic surveys would not occur . Given those assumptions, impacts to fisheries and aquatic habitat would be minimal or nonexistent. This alternative has the greatest potential to impact fish and aquatic resources because it has the greatest amount of acres open to disturbance.

Effects from Locatable Minerals

Approximately 1.1 million acres would be open to locatable minerals under this alternative (Map 31). Including valid existing federal mining claims, this alternative would allow for 100 fewer stream miles to be opened to locatable minerals as compared to Alternative C. Under Alternative E, fisheries and aquatic resources open to locatable mineral entry would rely on the current regulations, reclamation requirements and SOPs outlined in this plan, and mitigation measures developed during project-specific NEPA analysis.

Of the 2,000 miles of stream open to locatable minerals, 1,400 (seventy percent) stream miles occur within areas having medium to high mineral potential. The anticipated number of acres directly disturbed by small- and large-scale placer mines under Alternative E is the same as described in Alternative B. The type and amount of impacts from suction dredging are the same as described in Alternative B.

Over 1,400 miles of stream with medium to high mineral potential and fifty-nine percent of the stream miles within the entire subunit would be open to locatable minerals; impacts to fish and aquatic resources in this alternative may be low to moderate with long-term (10 to 20 years) effects. All of the stream miles within RCAs in Alternative E are closed to locatables which means that the highest value fish and aquatic resources would likely remain intact and functioning in there current or natural state. Based on the amount of potential disturbance, Alternative E would have more potential adverse impacts to fisheries and aquatic resources than Alternatives A and B, and fewer impacts than Alternative C and D.

Effects from Recreation Management

Impacts would be similar in type to those discussed under Common to All Alternatives. In this Alternative, the Fortymile SRMA would contain 248,000 acres and have five management zones. The setting prescriptions for the five zones would remain the same as in Alternative C. This alternative allows for more development of visitor facilities, landscape modifications, and group size as compared to Alternative B, but less than A, C, and D. This alternative would provide more protection to fish and aquatic habitat than Alternative A, C, and D, but less than Alternative B. Impacts to fish and aquatic habitat are expected to be minimal under this alternative.

Effects from Travel Management

Impacts would be the same as described in Alternative A, with the following exceptions: Alternative E would remove the prohibition on motorboat, hovercraft, and airboat use on the non–navigable, "wild" segments of the Fortymile WSR. Those types of transportation generally have little impact on fish and aquatic resources. Based on these assumptions, this alternative could have moderate adverse short- and long-term impacts on fish and aquatic resources. This alternative has more potential to effect fish and aquatic habitat than Alternatives B, C, and D and the same potential as Alternative A.

Effects from Special Designations

The effects from the Fortymile WSR are similar to those in Alternative A. In addition, the Fortymile ACEC (362,000 acres) and Mosquito Flats ACEC (37,000 acres) would be established. These ACECs would be closed to mineral entry, location, and leasing of minerals subject to valid existing rights. A mining Plan of Operations would be required on any mining activity within the ACECs. Fish and aquatic resources within these ACECs would benefit from mineral entry closure by limiting the adverse impacts from mining to valid and existing claims. In addition, the Plans of Operation requirement would entail the incorporation of specific fisheries rehabilitation measures. Outside of the Fortymile WSR Corridor, habitats would potentially benefit from the increased resource protection accompanying the special designation. Special designations in Alternative E would provide the most protection to fish and aquatic resources of all the alternatives.

4.4.1.3. Invasive Species Fortymile Subunit

Summary of Effects

Use of BLM-managed lands consists primarily of placer and suction dredge mining, non-motorized and motorized recreation, and subsistence activities. Prevention of nonnative invasive species nonnative invasive species (invasive species) being introduced and spread in the planning area is discussed in section 4.3.1.5 and includes outreach and education of applicants and recreational and other users. Although the introduction and spread of invasive species would be reduced through mitigation, and outreach and education, effects could still occur. Plants are the nonnative invasive species most likely to be impacted and the analysis focuses on plants rather than nonnative invasive animals and pathogens.

Under all alternatives, surface-disturbing activities would increase the risk of the introduction and spread of invasive plants. Of the action alternatives, Alternative D would have highest potential for the introduction and spread of invasive plants and Alternative B would have the lowest potential. Early detection and rapid response (EDRR) and inventory and monitoring would further halt the introduction and spread of invasive plants.

Invasive plants can thrive in marginal habitats, such as compacted and dry soils and those contaminated by road treatments. Invasive plants can outcompete native vegetation at these sites and some can move into adjacent undisturbed sites, such as white sweetclover (*Melilotus officinalis* formerly *M. alba*) and orange hawkweed (*Hieracium aurantiacum*).

4.4.1.3.1. Effects Common to All Alternatives

In addition to the effects discussed as common to all subunits in section 4.3.1.5 the following effects would occur in the Fortymile Subunit.

Effects from Forest and Woodland Products

The management decisions for commercial timber sales would vary among the action alternative, however the impacts in all alternatives are expected to be the same. Commercial timber sales would be considered at the project level on lands open to sales. Demand for commercial timber in the subunit has been low and stipulations will assist in keeping the potential for introduction of invasive species low. No impacts to invasive plant management are expected from commercial timber sales under any alternative.

Personal use and commercial timber salvage sales would vary among the alternatives. Demand for personal use and salvage timber sales has been lacking and future demand is predicted to be little to none over the life of the plan. No impacts would be anticipated from these activities. Much of the area open to authorized activities is remote and costs of getting there and getting resources to markets would be prohibitive.

Demand for commercial forest products can be fairly high in the subunit, primarily for mushrooms after wildland fire. Commercial operations for harvest of mushrooms move from burn to burn, across the U.S. and Canada, increasing the potential for transport of invasive plants, as well as other nonnative species currently not found in Alaska. Burned areas, depending on the severity of the burn, provide favorable conditions for invasive plants to become established. Impacts from commercial mushroom harvest would be mitigated through stipulations to the permits and through education of the applicants on invasive species prevention practices.

Effects from Lands and Realty

Lands and realty actions resulting in ground disturbance, would increase the potential for invasive plants to become established. Vehicles and equipment used for construction and maintenance can import invasive plants and nonnative animals and pathogens to the disturbed area. The potential for introduction and spread of invasive plants from these actions would be expected to be significant. Impacts would be mitigated to the extent possible through permit stipulations and education and outreach efforts directed at applicants.

Utility corridors would be not designated under any alternative. Without corridor designations a web of rights-of-ways could be developed across the area. Corridors such as roads and trails act as conduits for the spread of invasive plants particularly where ground and canopy cover is removed. Invasive plants are able to become established in marginal conditions and dominate, suppressing the growth of native vegetation.

Effects from Salable Minerals

Although management decisions for salable minerals vary slightly by alternative impacts to invasive plant management are not expected to vary by alternative because the demand for salable minerals from BLM lands would be very low and would not vary by alternative. The percentage of the area open to salable minerals would range from forty-seven percent in Alternative B to one-hundred percent in Alternative A.

Material sites, including gravel pits, are often infested with invasive plants and substantial seed banks would be available in the materials. invasive plants can easily spread to new areas with the contaminated mineral materials. Vehicles and equipment brought into the sites may also be contaminated with invasive plant seed. Gravel and other materials are generally mined from areas near the project and materials from these sites are likely to be used for road and highway maintenance along the Taylor Highway. Material sites would be inspected for invasive plants and seed, and treated as possible before being transported to project sites. Impacts to invasive plants from material sales would be mitigated as practicable through permit stipulations, outreach, and education.

Effects from Leasable Minerals

No impacts to nonnative invasive plant and animal species or pathogens would occur from leasable mineral exploration or development in the Fortymile Subunit. Due to lack of high potential oil and gas, coal, or oil shale resources on BLM lands, no activity is expected. Any exploration that might be proposed would require a permit and impacts would be mitigated through permit stipulations.

Effects from Recreation

Management of recreation areas through recreation setting character (RSC) classes largely set the stage for the level of protection or development afforded an area. The size and location of RMZs, and therefore RSC settings, change with each alternative and are reflected in the decisions for travel management and related activities. Impacts to invasive species are discussed under these other resource uses.

Effects from Travel Management

Interim alternatives for travel management for the action alternatives include a range of limits on OHV weights, permit requirements, designated trails and cross-country summer use. Limitations on OHV use would help prevent the introduction of invasive plants and aid EDRR efforts by concentrating use and reducing disturbance to native vegetation. Permitting use would provide opportunities to attach mitigation and to educate applicants on the threats from invasive plants and measures they can take to prevent spread of invasive plants.

In each alternative, a part or all of BLM lands within the Fortymile Subunit would be managed as limited to vehicles 1,500 pounds curb weight and less without a permit or approved Plan of Operations. The size of the affected area varies by alternative. Within Semi-Primitive RMZs, summer use of OHVs 1,500 pounds curb weight and less would be by permit. Use of OHVs over 1,500 pounds curb weight would require a permit in all areas. New transportation and utility systems (including airstrips) and relocation of existing roads may be authorized under certain conditions in all alternatives.

Motorized boat use would be allowed on the Fortymile WSR and would impact invasive plant management, rare plants, and fish and wildlife habitat. Motorized boats represent a threat because they could introduce aquatic and terrestrial invasive species, especially if the boats had been

launched in lakes and rivers that harbor invasive species. EDRR, outreach, and education would help mitigate introduction and spread of invasive species for uses which do not require permits.

4.4.1.3.2. Alternative A (No Action)

Effects from Lands and Realty

Right-of-way avoidance areas would not be created under Alternative A. Few rights-of-way would be anticipated under this alternative as lands would remain closed to new mineral entry.

Long-term camping (LTC) in the Fortymile WSR would be allowed in all but the "wild" segments of the river. Trampling and clearing of vegetation has occurred at long-term campsites permitted in the past and would be expected to increase if the number of active LTC permits increases. Impacts to invasive plants would be similar for any land disturbing action, which provide ideal seed beds for invasive plants to become established. Boats associated with use of the LTC could have similar impacts to those discussed as common to all subunits in section 4.3.1.5.1. Monitoring of LTC sites in all alternatives would help with early detection and rapid response to control any species during present or future management. Education and outreach efforts for LTC permit holders would help with prevention of invasive plants and other nonative invasive animal and pathogen infestations.

Effects from Locatable Minerals

Under Alternative A, all BLM lands would remain closed to locatable mineral entry. Impacts to invasive plants would continue to occur at the current levels on valid existing mining claims. Mining results in removal of vegetation and overburden, and the potential for introduction and spread of invasive plants from these actions would be expected to be significant. Impacts would be mitigated as possible through permit stipulations and education and outreach efforts directed at applicants.

Effects from Travel Management

Within the Fortymile WSR Corridor, OHV use is limited to vehicles 1,500 pounds GVWR and less without a permit or approved Plan of Operations. Travel outside the corridor is not restricted and no OHV designations are in place. Potential for introduction and spread of invasive plants would be the greatest under Alternative A and impacts could be significant. Much of the use of motorized vehicles is recreational and as such would not require a permit, through which mitigation could be stipulated. EDRR, outreach and education, and larger scale control efforts would be used in a attempt to mitigate impacts.

4.4.1.3.3. Alternative B

Effects from Lands and Realty

Decisions in Alternative B would designate the Fortymile WSR Corridor and the Fortymile ACEC as right-of-way avoidance areas. The potential for introduction and spread of invasive plants would be reduced as a result. However, few rights-of-way are anticipated under this alternative. Land and realty actions would be evaluated at the project level. Impacts would be mitigated to the extent possible through permit stipulations and education and outreach efforts directed at applicants.

No LTC would be allowed on BLM lands in the Fortymile WSR Corridor. Some impacts to invasive plants would continue from LTC on state land, below ordinary high water. Monitoring of LTC sites in all alternatives would help with early detection and rapid response to control any species during present or future management.

Effects from Locatable Minerals

Under Alternative B, forty-seven percent of BLM lands would be open to locatable minerals. The mineral potential is high for substantial portions of the open areas, and large- and small-scale placer development would likely occur. Extraction practices for locatable minerals result in removal of vegetation and overburden from large areas, resulting in little or no fines to hold water and nutrients. Invasive plants tolerate marginal conditions and can more readily colonize these sites than native plants. Potential impacts to invasive plants management could be significant, but would be reduced by mitigation. Proposed mining operations would be analyzed for risk of invasive plants introduction and spread. Although stipulations on mining activity would include practices to reduce impacts from introduction and spread of invasive plants, some effects could still occur.

Effects from Travel Management

Alternative B offers the best protection against the introduction and spread of invasive plants by limiting summer use of OHVs 1,500 pounds curb weight and less on 1,459,000 acres (undesignated recreation area, Backcountry, Middlecountry, Frontcountry and Rural RMZs) to existing routes only, and requiring a permit for all but non-motorized and winter snowmobile use in the Semi-Primitive RMZs. Limiting motorized use to existing trails reduces disturbance from pioneering of new routes, which protects against pathways for new infestations. EDRR would be enhanced by concentration of OHV on trails. Where permits would be required, stipulations would reduce the threat of potential introductions of invasive plants. Other active management, including outreach and education at potential entry points could be used to mitigate impacts.

4.4.1.3.4. Alternative C

Effects from Lands and Realty

Long-term camping in the Fortymile WSR would have the same impacts as Alternative A.

Under Alternative C, there would be no right-of-way avoidance areas. Few rights-of-way would be anticipated under this alternative as most lands would remain closed to mineral entry. Impacts to invasive species would be minimal.

Effects from Locatable Minerals

Approximately seventy percent of BLM lands would be open to locatable minerals under Alternative C. The mineral potential is high for portions of the open areas. Impacts would be much the same as Alternative B, but with more acreage vulnerable to introduction of invasive plants. Mitigation of impacts would be the same as for Alternative B.

Effects from Travel Management

Alternative C differs from Alternative B in the location and size of the RMZs and that off-route travel for game retrieval would be allowed on ninety-four percent of BLM lands. The remaining six percent, the Semi-Primitive RMZ, would be closed to summer OHV use. The potential for

introduction and spread of invasive plants would increase in this alternative. Off-route travel for game retrieval would be concentrated during seasons when many of the weeds of concern will be in seed. Many of the OHV will come from outside the area, increasing the likelihood of introducing new invasive plant species to the area. EDRR, outreach and education, and larger scale control efforts would be used to try to mitigate impacts.

4.4.1.3.5. Alternative D

Effects from Lands and Realty

Consequences of realty actions for rights-of-way from Alternative D would be the same as Alternative A.

Long-term camping (LTC) would be allowed in all sections of the Fortymile WSR. Impacts to nonnative invasive plants (invasive plants) from this management prescription would be greatest in this alternative. Trampling and clearing of vegetation would continue to occur at sites permitted in the past. The number of permitted LTCs would be expected to increase depending on the gold market, and because the "scenic" segments of the river would be opened to new locatable mineral entry under this alternative. Impacts to invasive plants would be similar to other land disturbing actions, which provide ideal seed beds for invasive plants to become established. Education and outreach efforts for LTC permit holders would help with prevention of invasive plants and nonnative invasive animal and pathogen infestations.

Effects from Locatable Minerals

Under Alternative D, ninety-two percent of BLM lands would be open to locatable minerals. The mineral potential is high for portions of the open areas. Impacts would be much the same as Alternative B, but with more acreage vulnerable to introduction of invasive species. Mitigation of impacts would be the same as for Alternative B.

Effects from Travel Management

Alternative D differs from Alternative B in the location and size of the RMZs and that cross-country summer use of OHV 1,500 pounds curb weight and less would be allowed on ninety-seven percent of BLM lands. The Semi-Primitive RMZ (three percent) would be closed to summer OHV use. Of the action alternatives, Alternative D would have highest potential for the introduction and spread of invasive plants. Similar to other alternatives, EDRR, outreach and education, and control efforts would be used to try to mitigate impacts.

4.4.1.3.6. Alternative E (Proposed RMP)

Alternative E differs from Alternative C in that 10 watersheds would be managed as RCAs, more acres would be closed to leasable and locatable minerals (745,000 acres), commercial timber sales would not be considered in the ACECs, commercial use of forest products would be considered on all lands, personal use of timber would be allowed on all lands, interim travel management would be the same as Alternative A except that GVWR would be changed to 1,500 pounds curb weight for all lands, and motorized boats would be allowed on non-navigable wild segments of the WSR.

The impacts from the following programs or resources would be the same as Common to All or to Alternative B: commercial use of timber, personal use of timber, and fluid leasable minerals.

Effects from Lands and Realty

Long-term camping (LTC) would be allowed in all sections of the Fortymile WSR. Impacts to nonnative invasive plants (invasive plants) from this management prescription would be similar to Alternative D. Trampling and clearing of vegetation would continue to occur at sites permitted in the past. The number of permitted LTCs may increase depending on the gold market. Impacts to invasive plants would be similar to other land disturbing actions, which provide ideal seed beds for invasive plants to become established. Education and outreach efforts for LTC permit holders would help with prevention of invasive plants and nonnative invasive animal and pathogen infestations.

Effects from Travel Management

Potential for introduction and spread of invasive plants would be the greatest under Alternatives A and E. Impacts would be expected to be significant on the management of invasive plants and fish and wildlife habitat and rare plants. The cost and effort of control would be a significant burden on BLM and other land managers and owners.

Cross-country use of OHV would be allowed on all lands except no summer OHV use would be allowed in the Mosquito Flats ACECs in Alternative E. Much of the use of motorized vehicles is recreational and as such would not require a permit, through which mitigation could be stipulated. EDRR, outreach and education, and larger scale control efforts would be used in an attempt to mitigate impacts.

Limits on summer use of OHV in the Mosquito Fork ACEC would have positive impacts on invasive plant management in the ACEC since a major threat of introduction and spread would be eliminated. Motorized boat use would be allowed and would impact invasive plant management, rare plants, and fish and wildlife habitat. Motorized boats represent a threat because they could introduce aquatic and terrestrial invasive species, especially if the boats have been launched in lakes and rivers that harbor invasive species.

Aquatic and terrestrial invasive species could be introduced into more remote areas, by allowing motorized boats in the non-navigable segments of the WSR. This use would be largely recreation or in support of state suction dredge operations therefore no mitigation through permit stipulations would be possible. Over the life of the plan, this use could contribute to the introduction of invasive species, including aquatic species such as zebra mussels, Elodea and Eurasian watermilfoil, which would be expensive and difficult to control.

4.4.1.3.7. Cumulative Effects

Cumulative impacts would be similar among the alternatives but vary in extent of effect. Alternative A considered with the cumulative case would have the least impacts from mineral development since all BLM-managed lands would remain closed to minerals; however, cross-country summer use of OHV would likely threaten continued introduce of invasive species throughout the subunit. Alternative B would contribute least to cumulative effects since summer OHV use would be on existing trails and locatable and leasable minerals would be open on 43 percent of BLM-managed lands. Alternative C would provide a balance of management of invasive species while providing for multiple uses of BLM-managed lands (existing trails and 67 percent open to minerals). Alternative D would contribute the most to cumulative effects while allowing the most resource use. Impacts from Alternative E and the cumulative case would initially be similar to Alternative A in that the interim travel management plan would allow

cross-county summer OHV use. Disturbance from locatable and leasable minerals and therefore potential introduction of invasive species in Alternative E when combined with the cumulative case would be comparable to Alternative C.

Demand for recreational use is anticipated to increase over the life of the plan as populations in the state increase and as technological advancements in recreation equipment continue to occur. Currently placer mining is occurring on both valid federal mining claims and state mining claims in the Fortymile Subunit. Levels of placer mining would increase on BLM-managed lands as additional lands are opened to mineral entry through Alternatives B–E of this plan.

BLM-manged lands in the Fortymile Subunit are more interspersed among state and corporation lands than lands in the other subunits. Levels of mineral development, other development, and travel management on these adjacent lands when combined with alternatives allowing higher levels of mineral development and cross-country OHV use would be expected to increase introduction and spread of invasive species.

Decisions within Action Alternatives that would result in the greatest impacts on invasive species would also have the greatest cumulative impacts when considering the effects of changing climate in Interior Alaska. Longer frost free seasons and continued rises in temperature would allow some marginally adapted invasive species to become established. Invasive species that are established now would be expected to continue to expand, particularly to the north, along vectors of spread (waterways, roads and trails).

4.4.1.4. Soil and Water Resources Fortymile Subunit

Summary of Effects

Because much of the Fortymile Subunit is underlain by permafrost, even relatively minor surface disturbances can lead to long-term adverse impacts to soil and water resources. A variety of decisions in the action alternatives protect soil and water resources including proposed RCAs to protect fish habitat, proposed ACECs, WSRs, and RMZs, as well as weight restrictions for OHVs. On the other hand, surface disturbance associated with locatable mineral development, recreation development, and increased OHV travel activities would likely result in varied adverse impacts to soil and water resources.

There is reasonable likelihood of increased development associated with locatable minerals in the Fortymile Subunit, though much of the activity may be centered in previously disturbed placer-mine areas. Generally, the potential for direct adverse impacts increases sequentially from Alternative A to Alternatives B and E, Alternative C, and Alternative D. Appropriate stipulations and SOPs for soil and water resources would be implemented to ensure that long-term adverse impacts would be minimized or avoided.

Additional impacts beyond those discussed under 4.3.1.5.1 Effects Common to All Alternatives, are discussed in the following sections.

4.4.1.4.1. Alternative A (No Action)

Effects from Locatable Minerals

The Fortymile Subunit is closed to new locatable mineral entry. Approximately 10,000 acres of valid federal claims exist, with mining presently occurring on some of these claims. Projected

locatable minerals activity for Alternative A includes six suction dredge operations per year, 27 small-scale placer mines, and two large-scale placer mines (section 4.2.1.3.4). An estimated 700 to 1,000 acres would be disturbed, with much of the disturbed areas having been previously worked by recent or historic mining operations—placer mining has occurred throughout much of the Fortymile area since the late 1800s.

It is unlikely extensive additional access roads would need to be constructed to reach known mineral deposits. Nonetheless, impacts to soil and water resources could result through increased activity on current mining claims. Impacts to soil and water resources from authorized mining operations would be reduced through site-specific analysis of subsequent authorizations.

Effects from Recreation

Under Alternative A the Fortymile WSR Corridor (249,000 acres) would continue to be managed as an SRMA. Facility enhancements such as roads, toilets, boat ramps, and parking areas, may be added to accommodate increasing recreation demand. These enhancements would likely have limited negative impacts on soil and water resources. All public lands outside of the Fortymile WSR Corridor would be managed the same as other BLM lands. Recreation user activities outside of the SRMA may have increased impacts to resources because of limited oversight. Under Alternative A, no substantial disturbance of soils or impacts to water quality would be expected unless there were a substantial increase in development or recreation use levels.

Effects from Travel Management

Travel within the Fortymile WSR Corridor would be limited to vehicles with a GVWR of no more than 1,500 pounds . The use of larger motorized vehicles within the corridor could be permitted on a project-specific basis. Impacts to soil and water resources would vary depending on the size of vehicle, season of travel, and the number of trips; but would be mitigated through stipulations on proposed projects. Travel on BLM-managed lands outside of the WSR corridor is currently unrestricted. With no OHV designation in place for lands outside of the WSR corridor, Alternative A may result in detrimental impacts to soil resources and watersheds from proliferation of user-created trails, subsequent soil erosion, and increased siltation in streams.

4.4.1.4.2. Alternative B

Effects from Locatable Minerals

Impacts to soil and water resources from locatable minerals would be greater under Alternative B than Alternative A because new areas would be opened to placer mining activity with subsequent construction of roads and/or staging areas to work selected areas. Under Alternative B, 800,000 acres of withdrawn lands would be recommended open to locatable mineral entry. Impacts to soil and water resources from the extraction of locatable minerals would vary depending on the methods used, the size of operation and the number of mines. An estimated 10 suction dredge operations, 31 small-scale placer mines, and three large-scale placer mines would be developed within the Fortymile Subunit during the life of the plan. Each suction dredging operation would typically have a camp with a footprint of less than one acre. Impacts from suction dredge camps are anticipated to be less than 10 acres annually. Total expected surface disturbance from projected small- and large-scale placer mine operations would be 620 to 930 acres.

Placer mine operations utilizing heavy equipment have the potential to adversely impact soil resources and water quality through erosion, unintended discharge of sediment laden water,

and subsequent increased downstream turbidity. Depending on the methods used and size of operation, mining operations could adversely impact the natural water quality and flow characteristics of selected river segments. Disturbance to soil and water resources from a particular mining operation would be reduced through SOPs and the site-specific analysis of subsequent authorizations.

Approximately 1,076,000 acres would be closed to locatable mineral entry, including the Fortymile WSR Corridor, the Fortymile SRMA, and the Fortymile ACEC, providing additional protection to soil and water resources in these areas.

Effects from Recreation

The Fortymile SRMA would be substantially larger (792,000 acres) than under Alternatives C and D. Most of the SRMA would be managed for Semi-Primitive and Backcountry settings (Maps 44, 45, and 46), with minimal facility development. Non-SMRA lands would be about 1,284,000 acres. Use of trails, picnic and camping areas, and facilities would likely result in moderate soil disturbance and limited impacts to water quality because these are low impact activities.

Effects from Travel Management

Alternative B would establish OHV designations and eliminate unrestricted use of OHVs. All OHVs would be restricted to curb weights of 1,500 pounds or less (including snowmobiles). No summer OHV use would be allowed within the Semi-Primitive RMZ, which includes the "wild" segments of the Fortymile WSR. Summer OHV use would be limited to existing trails in the remainder of the subunit, including portions of the WSR corridor and the Backcountry RMZ (Map 44).

No substantial adverse impacts to soil or water resources are expected under Alternative B because measures to reduce impacts to soil and water resources include trail maintenance on existing authorized trails, summer OHV use restrictions, and OHV weight restrictions.

4.4.1.4.3. Alternative C

Effects from Locatable Minerals

Under Alternative C, 1,253,000 acres would be open to locatable minerals. Placer gold potential is high for portions of the lands that would be opened and new development would likely occur in some areas. Projected locatable mineral development includes; 14 suction dredge operations, 33 small-scale placer mines, and three large-scale placer mines. Soil disturbance from suction dredge camps are anticipated to be less than 10 acres annually. Total expected surface disturbance from projected small- and large-scale placer mine operations would be 800 to 1,100 acres. Impacts on soil and water resources would vary depending on the methods used, the size of operation, and the number of mines as discussed under Alternative B. Compared to Alternative B, more acres would be open to mineral development, consequently there would be greater potential for adverse impacts to soil and water resources. Based on expected area of disturbance, adverse impacts to soil and water resources, would generally be progressively greater for Alternative A, B, C, then D. Impacts would be reduced through application of SOPs and site-specific analysis of subsequent authorizations.

Effects from Recreation

Under Alternative C the Fortymile WSR Corridor (249,000 acres) would be managed an SRMA (Maps 44, 45, and 46). Compared to Alternative B, the SRMA acreage would decrease by 543,000 acres, hence less acres would be managed to maintain Semi-Primitive or Backcountry settings. Since the area managed as an SRMA would decrease, the potential for adverse impacts to soil and water resources from recreation users would increase because of less restrictive management oversight.

Effects from Travel Management

Alternative C allows summer OHV use on more acres than Alternative B. All OHVs, including snowmobiles, would be restricted to a curb weight of 1,500 pounds or less. Summer OHV use would be limited to existing trails in about ninety percent of the subunit, including some segments of the WSR corridor and the Backcountry RMZ. Compared to Alternative B, impacts to soil and water resources would be somewhat greater for this alternative, primarily because of the increased acreage open to summer OHV use.

4.4.1.4.4. Alternative D

Effects from Locatable Minerals

Compared to other alternatives, Alternative D would likely result in the greatest disturbance to soil resources and adverse impacts to water quality. Approximately 1,713,000 acres would be open to locatable minerals. Projected development includes; 18 suction dredge operations, 40 small-scale placer mines, and three large-scale placer mines with an estimated total disturbance of 900 to 1,300 acres. Impacts to soil and water resources would vary depending on the development methods used, the size of operation and the number of mines as discussed under Alternative B. Since more acres would be open to mineral development under Alternative D than other alternatives, there would be a greater potential for adverse impacts to soil and water resources. Impacts would be reduced through application of SOPs and site-specific analysis of subsequent authorizations.

Effects from Recreation

Effects to soil and water resources would be similar to Alternative C based on the amount of potential disturbance. Approximately 249,000 acres would be managed as SRMA and 1,827,000 acres managed as other BLM lands (Maps 44, 45, and 46).

Effects from Travel Management

Similar to Alternatives B and C, all OHVs would be restricted to a curb weight of 1,500 pounds or less including snowmobiles. However, Alternative D differs in that cross-country summer use of OHVs would be allowed on all but 54,000 acres of the Semi-Primitive Zone. Since Alternative D would increase the acreage open to summer OHV travel compared to other alternatives it would have the greatest potential for direct and indirect adverse impacts to soil and water resources associated with OHV use.

4.4.1.4.5. Alternative E (Proposed RMP)

Alternative E is intended to provide a mix of land management actions that best satisfies issues and concerns in consideration of all values and programs and adopts a blend of actions that would balance moderate development with protection of the environment.

Effects from Locatable Minerals

Under Alternative E, 745,000 acres would be open to new locatable mineral entry encompassing about 1,500 stream miles. Placer gold potential is high for portions of the lands that would be opened and new development would likely occur. Areas closed to mineral entry include the Fortymile WSR, the proposed Fortymile ACEC, the proposed Mosquito Flats ACEC, within one mile of ungulate mineral licks, the BLM's administrative site, historic Ft. Egbert, and the Eagle recreation withdrawal.

Projected locatable mineral development includes; 14 suction dredge operations, 33 small-scale placer mines, and 3 large-scale placer mines. About fifty percent of the 3,393 stream miles within the subunit would be open to locatable mineral development. Surface disturbance from suction dredge camps are anticipated to be less than 10 acres annually. Surface disturbance from projected small- and large-scale placer mine operations is estimated to be a rotating average of about 1,000 acres per year, with ongoing reclamation of previously disturbed areas and subsequent new disturbance from active operations.

Placer mine operations utilizing heavy equipment have the potential to adversely impact soil resources and water quality through erosion of disturbed soils, periodic discharge of sediment laden water, and subsequent increased downstream turbidity. Depending on the methods used and size of operation, mining operations could adversely impact the natural water quality and flow characteristics of selected river segments. Impacts from the various types of mining operations are described in section 4.3.1.6.

Based on the amount of projected surface disturbance, Alternative E would have more potential adverse impacts to soil and water resources than Alternative A, would have similar impacts to Alternative B, and fewer impacts than Alternative C and D. Impacts would be reduced through application of SOPs and site-specific analysis of subsequent authorizations.

Effects from Recreation

Effects under Alternative E would be the same as Alternative C in terms of the numbers of the size of the Fortymile SRMA and acres devoted to Semi-Primitive, Backcountry, Middlecountry, Frontcountry, and Rural RMZs, with the exception that there would be only five RMZs. This alternative allows for more development of visitor facilities, landscape modifications, and group size as compared to Alternative B, but less than A, C, and D.

The overall result is that the potential for adverse effects on soil and water resources under Alternative E relative to Alternative C would be the same, but would be more than Alternative B, and less than Alternative D. Potential impacts to soil and water resources from recreation actions are expected to be mitigated through application of SOPs and site-specific analysis of authorizations.

Effects from Travel Management

Alternative E allows for a Travel Management Plan to be developed for the Fortymile subunit after approval of the RMP. Interim management would be the same as Alternative A, with a few exceptions, including a decrease in the weight limits of summer and winter OHVs in certain portions of the Subunit, a removal of the prohibition of motorboat use in "wild" segments of the Fortymile Wild and Scenic River corridor, and implementation of a summer restriction on OHV use in the proposed Mosquito Flats ACEC.

Under Alternative E, open cross-country travel on BLM lands is restricted to summer motorized vehicles with 1,500 pounds curb weight or less and a width of 64 inches or less and winter motorized vehicles with 1,000 pounds curb weight or less and 50 inches in width or less outside the Fortymile Wild and Scenic River corridor. Allowing summer and winter cross-country travel by OHVs could result in an increase of user-created travel routes and may impact soil by disturbing vegetation and by clearing of travel routes, potentially resulting in increased erosion and sedimentation.

OHV use within the Fortymile Wild and Scenic River corridor is limited to existing trails and winter use by vehicles with 1,000 or less curb weight and a width of 50 inches and summer motorized vehicles weighing up to 1,500 pounds curb weight and a width of up to 64 inches. The Fortymile ACEC (362,000 acres) and the Mosquito Flats ACECs (37,000 acres) limits use to winter only with motorized vehicles weighing up to 1,000 pounds curb weight and 50 inches in width without a permit. Summer motorized use may be allowed by permit only. Limiting OHV weights would likely benefit soil and water resources by decreasing erosion of soils disturbed by heavier OHVs and potentially decreasing sedimentation in nearby waters.

4.4.1.5. Visual Resources Fortymile Subunit

Summary of Effects

VRM Classes outline the level of change that could occur within that class. Identifying an area as a specific management class does not guarantee that change will take place. The discussion below identifies the number of acres that may retain or lose visual quality due to management in a specific VRM Class; however, the potential for every acre to lose visual quality due to management in a specific VRM Class is extremely low. The analysis logically assumes that areas designated as VRM Class III and IV objectives would permit more surface-disturbing impacts and potentially have greater adverse impacts on visual resources and scenic quality than those areas designated as VRM Class I and II objectives.

In addition to those impacts discussed under section 4.3.1.9 Impacts Common to all Subunits, the following impacts may occur in the Fortymile Subunit. The results of the Visual Resources Inventory are in Appendix D, *Visual Resource Inventory*.

Alternatives — VRM Management Class Designations		**VISUAL RESOURCES INVENTORY CLASS DESIGNATION**							
		VRI Class I		VRI Class II		VRI Class III		VRI Class IV	
		145,000	7%	1,878,000	90%	6,000	1%	47,000	2%
Alternative A[a]	Acres	Acres	%	Acres	%	Acres	%	Acres	%
VRM I	145,000	145,000	7						
VRM II	103,000			103,000	5				
VRM III									
VRM IV									
Total	**248,000**	**145,000**	**7**	**103,000**	**5**				
Alternative B	Acres	Acres	%	Acres	%	Acres	%	Acres	%
VRM I	144,000	144,000	7						
VRM II	970,000			968,000	47			3,000	<1
VRM III	4,000			3,000	<1			800	<1
VRM IV	957,000			907,000	44	6,000	<1	44,000	2
Total	**2,076,000**	**145,000**	**7**	**1,878,000**	**90**	**6,000**	**<1**	**47,000**	**2**
Alternative C	Acres	Acres	%	Acres	%	Acres	%	Acres	%
VRM I	144,000	144,000	7						

VRM II	452,000	300	<1	452,000	22				
VRM III	0								
VRM IV	1,480,000			1,426,000	69	6,000	<1	47,000	2
Total	**2,076,000**	**145,000**	**7**	**1,878,000**	**90**	**6,000**	**<1**	**47,000**	**2**
Alternative D	Acres	Acres	%	Acres	%	Acres	%	Acres	%
VRM I	144,000	144,000	7						
VRM II	0								
VRM III	100,000			100,000	5				
VRM IV	1,832,000	300	<1	1,778,000	86	6,000	<1	47,000	2
Total	**2,076,000**	**145,000**	**7**	**1,878,000**	**90**	**6,000**	**<1**	**47,000**	**2**
Alternative E	Acres	Acres	%	Acres	%	Acres	%	Acres	%
VRM I	144,000	144,000	8	3	<1				
VRM II	731,000	50	<1	728,000	39			3,000	<1
VRM III	11,000			11,000	1				
VRM IV	992,000	300	<1	942,000	50	6,000	<1	44,000	2
Total	**1,878,000**	**145,000**	**8**	**1,681,000**	**90**	**6,000**	**<1**	**47,000**	**2**

[a]Only 12% of BLM lands have assigned VRM Classes in Alternative A. The Fortymile WSR Corridor is Class I and II.

4.4.1.5.1. Alternative A (No Action)

Under continuation of current management, visual resources would be managed on a project-specific basis, outside of the designated wild river corridor (BLM Manual 8351), as no other visual resource management classes have been established. Visual resources would be protected through the use of management class inventory objectives and the visual contrast rating process.

Effects from Cultural Resources

Impacts from stabilization and maintenance efforts on cultural sites in the Fortymile subunit have the potential to impact visual resources by removal of vegetation and excavation at each site. The browns of disturbed soils and the natural revegetation process would continue to impact color for the long-term. Texture contrasts between soils and adjacent vegetation would also be impacted long-term. Replacement of roofing or other materials on historic structures could contrast with existing color and texture by introducing new materials where weathered materials exist.

Effects from Visual Resources

Under Alternative A, of VRI Class I acres (seven percent), one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character of the designated "wild" segments of the Fortymile WSR. These lands have an A rating for scenic quality, a high sensitivity, and occur in the Foreground-Middleground Zones. Additionally, of VRI Class II lands (ninety percent), six percent would be managed as VRM Class II allowing a low level of change. These lands are the designated "scenic" and "recreational" segments of the Fortymile WSR and have an A rating for scenic quality, a high sensitivity, and occur in the Foreground-Middleground zones. The remaining ninety-four percent would remain unclassified. Less than one percent of BLM lands had a VRI Class III, while two percent had a VRI Class IV.

Effects from Travel Management

The restriction of motorized use to OHVs weighing 1,500 pounds GVWR and less without permit within the Fortymile WSR Corridor helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape. However,

impacts will occur to vegetation and soils, resulting in changes to line from repeated travel or the creation of user routes. Color will change from the various hues of diverse vegetation to a more uniform grass cover or even browns of disturbed soils of from the construction of trails. Form will change by the removal of larger woody materials along the travel route and texture will change due to the removal of vegetation and the exposure of soils.

The use of larger motorized vehicles within the Fortymile WSR Corridor may be allowed under permit. The impacts from this travel would vary depending on the size of vehicle, season of travel, and the number of passes made.

Travel on other lands outside the Fortymile WSR Corridor is unrestricted and may impact visual resources by disturbing primarily vegetation by repeated passes and by clearing travel routes. These actions result in changes to color from various hues of green vegetation to a more brown color of disturbed soils. Changes in line result from clearing vegetation for easier travel resulting in a straight line instead of a predominately irregular landscape. Changes to texture occur from the removal of vegetation for travel routes, the disturbance of vegetation and resulting soils and the possible introduction of materials for surfacing hardening in an otherwise natural landscape. Unrestricted travel impacts 1,827,000 acres.

Major impacts on visual resources from new airstrips, if authorized, include changes in color, line, form and texture on the landscape. The removal of vegetation, which in turn results in soil exposure, creates a contrast between the adjacent greens of natural vegetation and the browns and grays of exposed soil and organic materials. A contrast in line occurs when the irregular characteristics of vegetation is altered by a more regular line of the airstrip. Texture characteristics change from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a cleared soil area. The excavation or removal of soil to create a level landing area may impact form by creating a flat horizontal line on the landscape.

4.4.1.5.2. Alternative B

In general, Alternative B anticipates the lowest level of resource development and adopts VRM classes that would be the most restrictive to development.

Effects from Cultural Resources

Impacts from stabilization and maintenance of sites would have the same impacts as Alternative A. Impacts to visual resources from creating seven public use areas (approximately 35 acres) would include changes in vegetation through the creation of trails, picnic and camping areas associated with increased use. Changes to line, form and color would result in contrast between exposed soils and adjacent vegetation.

Effects from Fish and Aquatic Species

Under Alternative B, Sam Patch Creek (Map 6) has been identified as a High Priority Restoration Watershed and would be emphasized for restoration and/or protection. Active restoration projects, such as willow plantings, seeding and fertilizing would have positive impacts to areas with surface disturbance. Changes to line, color and texture would result in that the area would be returned to a more natural looking landscape on disturbed areas within the 29,000-acre watershed. Lands within the High Priority Restoration Watershed were inventoried as a class II and all lands will be managed as VRM Class II.

There are 11 Riparian Conservation Areas (RCAs) identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 205,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

Of VRI Class I lands one-hundred percent or (73,000 acres) would be managed as Class I retaining the natural appearance of the landscape. Of VRI Class II lands, eighty-eight percent or 115,000 acres would be managed as Class II while twelve percent or 16,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class III lands (569 acres) one-hundred percent would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands one-hundred percent (150 acres) would be managed as Class III lands allowing some preservation of the existing visual character of these lands.

Effects from Visual Resources

Under Alternative B, of VRI Class I, 144,000 acres (seven percent), one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character of the designated "wild" segments of the Fortymile WSR. These lands have an A rating for scenic quality, a high sensitivity and occur in the Foreground-Middleground Zones. This is the same as Alternative A.

Of VRI Class II lands (ninety percent or 1,878,000 acres), fifty-one percent (968,000 acres) would be managed as VRM Class II allowing a low level of change. These lands include the designated "scenic" segments of the Fortymile WSR and other lands within the Fortymile SRMA, having an A rating for scenic quality, a high sensitivity, and occurring in the Foreground-Middleground Zones. Less than one percent (3000 acres) of VRI Class II lands would be managed as VRM Class III including "recreational" segments of the Fortymile WSR, potentially resulting in only partially retention of landscape characteristics, while forty-eight percent (907,000 acres) of VRI Class II lands would be managed as VRM Class IV, potentially resulting in a high level of change to the characteristic landscape. These lands are outside the Fortymile SRMA, have high and medium sensitivity, and occur in all three distance zones.

Less than one percent of BLM lands had a VRI Class III (6,000 acres) and one-hundred percent of these lands would be managed as VRM Class IV, potentially resulting in a high level of change to the landscape characteristics. Many of these lands are located outside the Fortymile SRMA.

Only two percent of BLM lands had a VRI Class IV (47,000 acres). Of VRI Class IV lands five percent or 3000 acres would be managed as VRM Class II allowing a low level of change to the characteristic landscape. These acres are associated with the Fortymile SRMA. Approximately two percent (838 acres) would be managed as VRM Class III potentially resulting on only partially retention of the characteristic landscape. These acres are also associated with the Fortymile SRMA. The remaining ninety-three percent (44,000 acres) would be managed as VRM Class IV potentially resulting on a high level of change to the characteristic landscape. These VRM Class IV lands are located outside the Fortymile SRMA.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance, and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities can contribute significantly in reducing impacts to visual resources regardless of VRM Class.

Effects from Wilderness Characteristics

Under Alternative B, wilderness characteristics will be maintained on 994,000 acres (forty-nine percent), including lands within the Fortymile ACEC and Fortymile WSR segments that do not contain mining claims, including limiting activities that impact the appearance of naturalness.

Of VRI Class I lands (122,000 acres) one-hundred percent would be managed as class II allowing a low level of change to the landscape. Of VRI Class II lands, one-hundred percent or 870,000 acres would be managed as Class II. No lands were identified as VRI Class III lands. Of VRI Class IV lands one-hundred percent (3,000 acres) would be managed as Class II lands resulting in preservation of the existing visual character of these lands.

Effects from Forest and Woodland Products

Under Alternative B personal use of timber, timber salvage sales, commercial timber sales, and commercial use of forest products (e.g., mushrooms, berries) would not be authorized within the Fortymile WSR Corridor, the Eagle Recreational withdrawal, and the Fort Egbert Historic Site. Temporary camps and various impacts from different harvest techniques would not impact 249,000 acres. These management actions would help protect visual resources.

These activities would be considered on the remainder of the subunit, 1,827,000 acres. Temporary camps and various impacts from different harvest techniques could occur on these lands. Timber and firewood harvest activities can primarily impact line, form, color, and texture. The size and scope of impacts would depend on the size of the area and harvest techniques used. Few timber sales are anticipated during the life of the plan due to limited access and lack of commercially valuable timber. Impacts from timber and forest product harvest are discussed in section 4.3.1.9 Effects Common to All Subunits.

Effects from Land and Realty

Under Alternative B, long-term camping for commercial purposes (i.e., camping in association with mining on state mining claims adjacent to BLM lands) in the “wild,” “scenic,” or “recreational” segments of the Fortymile WSR Corridor would not be allowed on BLM-managed lands, but could occur below ordinary high-water on state lands. Visual impacts to line, color and texture from temporary long-term camps, generally less than one acre in size, would no longer occur on approximately 248,000 acres.

Within the Fortymile WSR Corridor and the Fortymile ACEC, rights-of-way would generally not occur if other suitable locations are available. This would protect visual resources by not allowing clearance of vegetation and structures associated with different kinds of rights-of-way activities, maintain a natural landscape in line, form, color and texture on approximately 924,000 acres.

Effects from Fluid Leasable Minerals

Approximately 1,100,000 acres would be closed to fluid leasable minerals, including the Fortymile WSR Corridor, the Fortymile SRMA, the Fortymile ACEC, ungulate mineral licks, all disposal lands, BLM Administrative sites, and the Fort Egbert and Eagle recreation withdrawals. In addition 2,000 acres of split-estate lands would be open to fluid mineral leasing subject to major constraints such as no surface occupancy. These actions would protect visual resources.

Approximately 974,000 acres would be open to leasing. If exploration occurred, which is not anticipated, it could result in impacts such as green trails and the removal of vegetation in straight lines causing changes to color, line and texture.

No lands were identified as VRI Class I lands. Of VRI Class II lands, one percent or 13,000 acres would be managed as Class II, while ninety-nine percent (892,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class III lands, one-hundred percent or 4,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands, one-hundred percent or 43,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Solid Leasable Minerals

Approximately 1,100,000 acres would be closed to solid leasable minerals, including the same areas described as closed under Fluid Leasable Minerals above. Visual resources would not be impacted by mining solid leasable minerals on these lands.

Impacts to visual resources by exploration, development and production of solid leasable mineral resources on the remaining 976,000 acres would depend on the scale of the action and the number of mineral sites mined. However, it is assumed that no solid mineral exploration, leasing, or development would occur during the life of the plan.

Effects from Locatable Minerals

Under Alternative B, 1,100,000 acres would be closed to locatable mineral entry, including the Fortymile WSR Corridor, the Fortymile SRMA, the Fortymile ACEC, ungulate mineral licks, all disposal lands, BLM Administrative sites, and the Fort Egbert and Eagle recreation withdrawals. Visual resources would not be impacted by mining locatable minerals on these lands.

Approximately 976,000 acres would be open to mineral entry. The impacts from the extraction of locatable minerals would vary depending on the methods used, the size of operation and the number of mines.

Large-scale placer mining (semi-mobile plant) operations would impact visual resources through changes to line, form, color, and texture from mined areas and related facilities. It is anticipated that the subunit would have up to three large-scale placer mine operations. Each operation would have a disturbed annual footprint of approximately 36 acres over the life of the mine which is anticipated to be between 10 to 20 years for a total of 60 to 80 acres of disturbance. Impacts from all three operations would impact between 180 to 240 acres over the life of this plan.

The subunit is anticipated to have up to 31 small-scale placer mine operations. Operations would impact visual resources through changes to line, form, color, and texture from mined areas and related facilities. Each operation would have a disturbed annual footprint of 4.4 acres over the life of the mine which is anticipated to be between 10 to 20 years for a total of 20 to 30 acres of disturbance. Impacts from all 34 operations would impact between 620 to 930 acres over the life of this plan.

Approximately 10 suction dredge operations are anticipated to occur in this subunit. Each operation would have a camp with a footprint of less than one acre over the life of the mine which is anticipated to be between 10 to 20 years. The movement of materials occurs underwater and thus does not have a noticeable impact to visual resources and is generally redistributed each spring during break-up or high water events. Impacts from suction dredge camps are anticipated to be less than 10 acres annually over the life of this plan.

Mineral Exploration activities with resulting camp and field sampling would impact visual resources on between six to 104 acres annually. Reclamation would generally occur annually

with the only impacts to visual resources from camps. Up to two exploration operations may occur over the life of this plan.

No lands were identified as VRI Class I lands. Of VRI Class II lands, one percent or 13,000 acres would be managed as Class II, while ninety-nine percent (892,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class III lands, one-hundred percent or 4,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands, one-hundred percent or 43,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Salable Minerals

Approximately 246,000 acres would be closed to salable minerals, including "wild" and "scenic" segments of the Fortymile WSR Corridor and a one mile radius around ungulate mineral licks. Visual resources would not be impacted by mineral material sales in these areas.

The remaining 1,830,000 acres would be open. The impacts from the extraction of salable minerals would vary depending on the methods used and size of operation. Large mining operations would have the greatest impact to visual resources impacting line, form, color, and texture of mined areas, with the removal of vegetative cover and stockpiled materials creating form contrast between the mined areas and the stockpiled materials and the background landforms. Mining and material stockpiles would also create color contrast between the greens of vegetation and the browns of soils. Texture would change from a natural medium, subtle texture of vegetation to a course, rough contrast of disrupted soils and organic materials. Changes in line from the irregular, weak line of the natural landscape to a regular, strong line between natural vegetation and disturbed landscape could occur.

While most of the subunit is open to salable minerals it is anticipated that only 200 acres would be mined within the planning area and of that 200, approximately 100 acres would be mined within this subunit. Mining activities for salable minerals would generally occur along roads due to transportation requirements.

Effects from Recreation

Recreation Management Zones are managed for different physical settings which include remoteness, naturalness and visitor facilities. Of these, naturalness and visitor facilities impact visual resources by setting prescriptions for management, i.e., describing the amount of naturalness and how facilities will sit on the landscape. These prescriptions provide a range from Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and description of how facilities will sit on the landscape

Of VRI Class I lands (145,000 acres) less than one percent would be managed as Class II allowing a low level of change to the landscape while all other VRI Class I would be managed as Class I. Of VRI Class II lands (644,000 acres) less than one percent would be managed as Class III allowing some level of change to the landscape while other VRI Class II would be managed as Class II. No lands were identified as VRI Class III lands. Of VRI Class IV lands (3,000 acres), eighty-five percent would be managed as Class II lands resulting in preservation of the existing visual character of these lands while twenty-four percent (837 acres) would be managed as Class III lands resulting in some preservation of the existing visual character of these lands.

Under this alternative areas classed Semi-Primitive and associated with the wild river corridor would be managed as VRM Class I (144,000 acres). Semi-Primitive, but not associated with the wild river corridor and Backcountry Recreation Management Zones (RMZ) would have a VRM Class II (644,000 acres), Middlecountry, Frontcountry , and Rural RMZs would have a VRM Class III (4,000 acres), and all other BLM lands would have a VRM Class IV (1,284,000 acres).

Effects from Travel Management

Travel management for other BLM Lands outside the SRMA

The restriction of winter motorized use to OHVs weighing 1,000 pounds curb weight and less helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape on approximately 1,284,000 acres. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation.

Summer travel by OHVs weighing 1,500 pounds curb weight and less are allowed on existing routes only. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape because travel is limited to hardened existing routes. Repeated OHV use leads to destruction of vegetation, which in turn results in soil exposure, creating a contrast between the adjacent greens of natural vegetation and the browns and grays of exposed soil and organic materials. A contrast in line occurs when the irregular characteristics of vegetation is altered by a more regular line in the form of a developed route or constructed trail. Texture characteristics change from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a developed trail, trail hardening techniques or mineral soil area. These management activities help protect the visual resources on 1,284,000 acres

The use of larger vehicles could be allowed by permit. The impacts larger vehicles would vary depending on the size of vehicle, season of travel, and the number of passes made. They would be similar to impacts described under section 4.3.1.9 Effects Common to All Subunits, Visual Resources except on a larger scale.

Travel management within the SRMA

Common to All Zones

The restriction of winter motorized use to OHVs weighing 1,000 pounds curb weight and less without permit would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils even with cross-country travel allowed because of the frozen soils and snow cover on lower growing vegetation.

Semi-Primitive Zones

The restriction of summer motorized use to OHVs weighing 1,500 pounds curb weight and less within the Semi-Primitive RMZs (includes the “wild” segments of the Fortymile WSR) to permit would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape to 617,000 acres.

All Other Zones

The Backcountry, Middlecountry, Frontcountry, Rural Zones (including the "scenic" and "recreational" segments of the Fortymile WSR) would limit summer motorized use to OHV weighing 1,500 pounds and less curb weight on existing routes only. This would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape to 175,000 acres.

All other vehicle use would be by permit within the entire SRMA. The impacts larger vehicles would vary depending on the size of vehicle, season of travel, and the number of passes made. They would be similar to impacts described under Common to All Travel Management except on a larger scale.

Effects from Special Designations

Under Alternative B, 732,000 acres would be designated as the Fortymile ACEC to protect habitat for the Fortymile caribou herd and Dall sheep habitat. The entire ACEC will remain closed to entry, location, and leasing of minerals subject to valid existing rights. Management decisions to protect wildlife habitat helps to preserve the visual character of the area.

Of VRI Class I lands (55,000 acres) one-hundred percent would be managed as Class I. Of VRI Class II lands ninety-nine percent or 675,000 acres would be managed as Class II, while one percent (4,000 acres) would be managed as Class IV allowing visible change to the landscape. No lands were identified as VRI Class III lands. Of VRI Class IV lands one-hundred percent (2,000 acres) would be managed as Class II lands resulting in preservation of the existing visual character of these lands.

Approximately 1,300 acres associated with Gold Run would be maintained as a natural landscape under the eligibility as a "wild" river and would be assigned a VRM Class I. Approximately 1,300 acres associated with Dome Creek would be maintained as a natural landscape under the eligibility as a "recreational" river and would be assigned a VRM Class III. "Wild" are essentially primitive and undeveloped. "Recreational" rivers are readily accessible and may have some development along their shorelines. Management decisions to preserve these characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining natural vegetation and landform on a scale of development from "wild" to "recreational."

4.4.1.5.3. Alternative C

In general, Alternative C anticipates a moderate level of resource protection, use and enhancement of resources and adopts VRM classes that would allow a range of development and still protect visual resource in certain areas.

Effects from Cultural Resources

Same as Alternative B.

Effects from Fish and Aquatic Species

Same as Alternative B, Sam Patch Creek (Map 6 has been identified as a High Priority Restoration Watershed and would be emphasized for restoration and/or protection. Active restoration projects, such as willow plantings, seeding and fertilizing would have positive impacts to areas with surface

disturbance. Changes to line, color and texture would result in that the area would be returned to a more natural looking landscape on any disturbed areas within the 29,000-acre watershed.

Of VRI Class II lands, twenty-eight percent or 8,000 acres would be managed as Class II while seventy-two percent or 21,000 acres would be managed as Class IV lands. No lands were identified as VRI Class I, III or IV lands.

There is one RCA identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 569 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation. Of VRI Class III lands one-hundred percent would be managed as Class IV allowing a visible level of change to the landscape. No lands were identified as VRI Class I, II or IV lands.

Effects from Visual Resources

Under Alternative C, all VRI Class I, 144,000 acres (seven percent), one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character of the designated "wild" segments of the Fortymile WSR. These lands have an A rating for scenic quality, a high sensitivity, and occur in the Foreground-Middleground Zones. This is the same as Alternatives A and B.

Of VRI Class II lands (ninety percent or 1,878,000 acres), twenty-four percent (452,000 acres) would be managed as VRM Class II allowing a low level of change. These lands are designated "scenic" segments of the Fortymile WSR, having an A rating for scenic quality, a high sensitivity, and occurring in the Foreground-Middleground Zones. Approximately seventy-six percent (1,426,000 acres) of VRI Class II lands would be managed as VRM Class IV, potentially resulting in a high level of change to the characteristic landscape. These lands include the "recreational" segments of the Fortymile WSR and all lands outside the Fortymile SRMA and have an A rating for scenic quality, both high and medium sensitivity and occur in all three distance zones.

Less than one percent of BLM lands had a VRI Class III (6000 acres) and one-hundred percent of these lands would be managed as VRM Class IV, potentially resulting in a high level of change to the landscape characteristics. Most of these lands are located outside the Fortymile SRMA.

Only two percent of BLM lands had a VRI Class IV (47,000 acres) and one-hundred percent of these lands would be managed as VRM Class IV potentially resulting on a high level of change to the characteristic landscape. These VRM Class IV lands are located outside the Fortymile SRMA.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance, and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities can contribute significantly in reducing impacts to visual resources, regardless of VRM Class.

Effects from Wilderness Characteristics

Under Alternative C, wilderness characteristics would be maintained on 487,000 acres (twenty-four percent) within some sections of "wild" segments of the Fortymile WSR. Activities that impact the appearance of naturalness would be limited.

Of VRI Class I lands (122,000 acres) one-hundred percent would be managed as Class I retaining the natural appearance of the landscape. Of VRI Class II lands, one-hundred percent or 365,000 acres would be managed as Class II. No lands were identified as VRI Class III or IV lands.

Effects from Forest and Woodland Products

Under Alternative C, personal use of timber and commercial use of forest products would not be authorized within "wild" segments of the Fortymile WSR Corridor, the Eagle Recreational withdrawal, and the Fort Egbert Historic Site. Temporary camps and various impacts from different harvest techniques would not impact 146,000 acres. These management actions would help protect visual resources.

Timber salvage sales would be considered throughout the subunit (2,077,000 acres). The size and scope of impacts would depend on the size of the area and harvest techniques used. Temporary camps and various impacts from different harvest techniques could occur on these lands.

Commercial timber sales would not be allowed within the Fortymile WSR Corridor, the Eagle Recreation withdrawal, and Fort Egbert Historic Site. This would protect approximately 249,000 acres from associated impacts from commercial harvest of timber. Commercial timber sales would be allowed on all other BLM lands (1,827,000 acres). Timber and firewood harvest activities can primarily impact line, form, color, and texture. The size and scope of impacts would depend on the size of the area and harvest techniques used. Few timber sales are anticipated during the life of the plan due to limited access and lack of commercially valuable timber. Impacts from timber and forest product harvest are discussed in section 4.3.1.9 Effects Common to All Subunits.

Effects from Lands and Realty

Under Alternative C, long-term camping for commercial purposes (i.e., camping in association with mining on state mining claims adjacent to BLM lands) would be allowed in "scenic" and "recreational" segments of the Fortymile WSR Corridor. Visual impacts to line, color and texture from temporary long-term camps, generally less than one acre in size, would occur. Color would be the greatest impact. Impacts would be the same as Alternative A.

Effects from Fluid Leasable Minerals

Approximately 608,000 acres would be closed to fluid leasable minerals, including the Fortymile WSR Corridor, the Fortymile SRMA, core caribou habitat within the Fortymile ACEC, all disposal lands, BLM Administrative sites, and the Fort Egbert and Eagle recreation withdrawals. Approximately 157,000 acres would be open to fluid mineral leasing subject to minor constraints. These actions would protect visual resources.

Approximately 1,468,000 acres would be open to leasing and exploration, of this 157,000 acres within the Fortymile ACEC would be subject to minor constraints, such as seasonal closures. Minor constraints would protect visual resources by limiting surface disturbance activities associated with fluid minerals at least seasonally. If exploration occurred, it would result in impacts such as green trails and the removal of vegetation in straight lines causing changes to color, line and texture. However, no leasing or exploration is anticipated over the life of the plan.

No lands were identified as VRI Class I lands. Of VRI Class II lands, less than one percent or 14 acres would be managed as Class II, ninety-nine percent or 1,254,000 acres would be managed as Class IV lands while eleven percent (157,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape with minor constraints. Of VRI Class III lands,

one-hundred percent or 4,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands, one-hundred percent or 46,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Solid Leasable Minerals

Approximately 608,000 acres in the same areas described as closed to fluid leasable minerals (above) would also be closed to solid leasable minerals. Visual resources would not be impacted by mining solid leasable minerals on these lands. Impacts to visual resources by exploration, development and production of solid leasable mineral resources on the remaining approximately 1,311,000 acres would depend on the scale of the action and the number of mineral sites mined. However, no leasing or exploration is anticipated over the life of the plan.

Effects from Locatable Minerals

Approximately 608,000 acres would be closed to locatable mineral entry, including the Fortymile WSR Corridor, the Fortymile SRMA, core caribou habitat within the Fortymile ACEC, ungulate mineral licks, all disposal lands, BLM Administrative sites, and the Fort Egbert and Eagle recreation withdrawals. Visual resources would not be impacted by mining locatable minerals on these lands.

Approximately 1,469,000 acres would be open for mining. The impacts from the extraction of locatable minerals would vary depending on the methods used, the size of operation and the number of mines.

Large-scale placer mining (semi-mobile plant) operations would impact visual resources through changes to line, form, color, and texture from mined areas and related facilities. It is anticipated that the subunit would have up to three large-scale placer mine operations. Each operation would have a disturbed annual footprint of approximately 36 acres over the life of the mine which is anticipated to be between 10 to 20 years for a total of 60 to 80 acres of disturbance. Impacts from all three operations would impact between 180 to 240 acres over the life of this plan.

The subunit is anticipated to have up to 33 small-scale placer mine operations. Operations would impact visual resources through changes to line, form, color, and texture from mined areas and related facilities. Each operation would have a disturbed annual footprint of 4.4 acres over the life of the mine which is anticipated to be between 10 to 20 years for a total of 20 to 30 acres of disturbance. Impacts from all 34 operations would impact between 660 to 990 acres over the life of this plan.

Approximately 14 suction dredge operations are anticipated to occur in this subunit. Each operation would have a camp with a footprint of less than one acre over the life of the mine which is anticipated to be between 10 to 20 years. The movement of materials occurs underwater and thus does not have a noticeable impact to visual resources and is generally redistributed each spring during break-up or high water events. Impacts from suction dredge camps are anticipated to be less than 14 acres annually over the life of this plan.

Mineral exploration activities with resulting camp and field sampling would impact visual resources on between six and 156 acres annually. Reclamation would generally occur annually with the only impacts to visual resources from camps. Up to three exploration operations may occur over the life of this plan.

No lands were identified as VRI Class I lands. Of VRI Class II lands, less than one percent or 14 acres would be managed as Class II, ninety-nine percent or 1,411,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class III lands, one-hundred percent or 4,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands, one-hundred percent or 46,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Salable Minerals

Impacts would be the same as Alternative B.

Effects from Recreation

Recreation Management Zones are managed for different physical settings which include remoteness, naturalness and visitor facilities. Of these, naturalness and visitor facilities impact visual resources by setting prescriptions for management, i.e., describing the amount of naturalness and how facilities will sit on the landscape. These prescriptions provide a range from Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and description of how facilities will sit on the landscape

Of VRI Class I lands (144,000 acres) one-hundred percent would be managed as Class I. Of VRI Class II lands (104,000 acres), three percent (4,000 acres) would be managed as Class IV allowing a visible level of change to the landscape while ninety-seven percent or (100,000 acres) of VRI Class II would be managed as Class II. No lands were identified as VRI Class III lands. Of VRI Class IV lands (838 acres), one-hundred percent would be managed as Class IV.

The assignment of VRM Classes would be guided by BLM policy and guidance for designated Wild and Scenic Rivers in that, “wild” segments would be managed as VRM Class I (144,000 acres) while “scenic” segments would be managed as VRM Class II (100,000 acres). Recreation river segments (4,000 acres) and the remainder of the subunit (1,827,000 acres) would be managed as VRM Class IV. Some Recreation Management Zones will have different VRM classes due to the designation of the Wild and Scenic River segment.

Effects from Travel Management

Travel management for other BLM Lands outside the SRMA

The restriction of winter motorized use to OHVs weighing 1,000 pounds curb weight and less without permit would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape on approximately 1,827,000 acres. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils even with cross-country travel allowed because of the frozen soils and snow cover on lower growing vegetation. This is the same as Alternative B.

Summer travel by OHVs weighing 1,500 pounds curb weight and less are allowed on existing routes only. Travel off existing routes will be allowed to retrieve legally harvested game. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape because travel is limited to hardened existing routes except for game retrieval. Multiple passes over the same travel route for the retrieval of game could cause changes in color, line, and texture on the landscape. Repeated OHV use leads to destruction of vegetation, which in turn results in soil exposure, creating a contrast between the adjacent greens of natural vegetation and the browns and grays of exposed soil and organic

materials. A contrast in line occurs when the irregular characteristics of vegetation is altered by a more regular line in the form of a developed route or constructed trail. Texture characteristics change from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a developed trail, trail hardening techniques or mineral soil area. These management activities help protect the visual resources on 1,827,000 acres.

All other vehicle use would be by permit only on other BLM lands. The impacts larger vehicles would vary depending on the size of vehicle, season of travel, and the number of passes made. They would be similar to impacts described under open Cross-Country Travel except on a larger scale.

Travel management within the SRMA

Common to All Zones

The restriction of motorized use to OHVs weighing 1,000 pounds curb weight and less without permit to winter use would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape on approximately 249,000 acres. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils even with cross-country travel allowed because of the frozen soils and snow cover on lower growing vegetation. This is the same as Alternative B.

Semi-Primitive Zones

Requiring a permit for summer motorized use within the Semi-Primitive RMZs (including the "wild" segments of the Fortymile WSR) would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape to 121,000 acres.

All Other Zones

The Backcountry, Middlecountry, Frontcountry, Rural Zones (including the "scenic" and "recreational" segments of the Forymile WSR) would allow summer travel by OHVs weighing 1,500 pounds curb weight and less are allowed on existing routes only. Travel off existing routes will be allowed to retrieve legally harvested game. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape because travel is limited to hardened existing routes except for game retrieval. Multiple passes over the same travel route for the retrieval of game could cause changes in color, line, and texture on the landscape. Repeated OHV use leads to destruction of vegetation, which in turn results in soil exposure, creating a contrast between the adjacent greens of natural vegetation and the browns and grays of exposed soil and organic materials. A contrast in line occurs when the irregular characteristics of vegetation is altered by a more regular line in the form of a developed route or constructed trail. Texture characteristics change from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a developed trail, trail hardening techniques or mineral soil area. These management activities help protect the visual resources on 121,000 acres.

All other vehicle use may be allowed under permit on 212,000 acres. The impacts larger vehicles would vary depending on the size of vehicle, season of travel, and the number of passes made. They would be similar to impacts described under Common to All Travel Management except on a larger scale. This is the same as Alternative B.

Effects from Special Designations

Under Alternative C, 547,000 acres would be designated as the Fortymile ACEC to protect habitat for the Fortymile caribou herd and Dall sheep. Only 360,000 acres of the ACEC will remain closed to entry, location, and leasing of minerals subject to valid existing rights. Management decisions to protect wildlife habitat helps to preserve the visual character of the area.

Of VRI Class I lands (38,000 acres) one-hundred percent would be managed as Class I. Of VRI Class II lands (509,000 acres) sixty-nine percent or 352,000 acres would be managed as Class II while thirty-one percent or 157,000 acres would be managed as Class IV allowing a visible level of change to the landscape. No lands were identified as VRI Class III lands. Of VRI Class IV lands one-hundred percent (12 acres) would be managed as Class IV lands.

4.4.1.5.4. Alternative D

In general, this alternative anticipates the greatest amount of resource development and adopts the least restrictive VRM classes that would allow major development while protecting visual resource in certain areas. Additional impacts beyond those discussed under common to all are discussed below.

Effects from Cultural Resources

Same as Alternative B.

Effects from Fish and Aquatic Species

Under Alternative D, Sam Patch Creek (Map 7) has been identified as a High Priority Restoration Watershed and would be emphasized for restoration and/or protection. Active restoration projects, such as willow plantings, seeding and fertilizing would have positive impacts to areas with surface disturbance. Changes to line, color and texture would result in that the area would be returned to a more natural looking landscape on approximately 29,000 acres. Of VRI Class II lands, twenty-eight percent or 8,000 acres would be managed as Class III allowing some change to the natural landscape, while seventy-two percent or 21,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. No lands were inventoried as Class III or Class IV lands.

Effects from Visual Resources

Under Alternative D, all VRI Class I 144,000 acres (seven percent), one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character of the designated “wild” segments of the Fortymile WSR. These lands have an A rating for scenic quality, a high sensitivity and occur in the Foreground-Middleground Zones. This is the same as Alternatives A and B.

Of VRI Class II lands (ninety percent or 1,878,000 acres), five percent or 100,000 acres would be managed as VRM Class III potentially resulting in only a partial retention of landscape characteristics. These lands are designated “scenic” segments of the Fortymile WSR, having an A rating for scenic quality, a high sensitivity, and occurring in the foreground-middle ground zones. Approximately ninety-five percent (1,778,000 acres) of VRI Class II lands would be managed as VRM Class IV, potentially resulting in a high level of change to the characteristic landscape. These lands include the “recreational” segments of the Fortymile WSR and all lands outside the

Fortymile SRMA and have an A rating for scenic quality, both high and medium sensitivity and occur in all three distance zones.

Less than one percent of BLM lands had a VRI Class III (6,000 acres), and one-hundred percent of these lands would be managed as VRM Class IV, potentially resulting in a high level of change to the landscape characteristics. Most of these lands are located outside the Fortymile SRMA.

Only two percent of BLM lands had a VRI Class IV (47,000 acres), and one-hundred percent of these lands would be managed as VRM Class IV potentially resulting on a high level of change to the characteristic landscape. These VRM Class IV lands are located outside the Fortymile SRMA.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance, and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities can contribute significantly in reducing impacts to visual resources, regardless of VRM Class.

Effects from Wilderness Characteristics

Under Alternative D, wilderness characteristics would be maintained on 54,000 acres (three percent) within the Middle Fork of the Fortymile WSR. Activities that impact the appearance of naturalness would be limited.

Of VRI Class I lands (54,000 acres) one-hundred percent would be managed as class I. No lands were identified as VRI Class II, III or IV lands.

Effects from Forest and Woodland Products

Under Alternative D, personal use of timber would not be authorized within the Eagle Recreational withdrawal and the Fort Egbert Historic Site. Temporary camps and various impacts from different harvest techniques would not impact 850 acres in these areas.

Commercial use of forest products would not be allowed within the Fort Egbert Historic Site. This would protect approximately 13 acres from impacts associated with commercial use of forest products.

Impacts from timber salvage and commercial timber sales would be the same as Alternative C.

Effects from Lands and Realty

Under Alternative D, long-term camping for commercial purposes (i.e., camping in association with mining on state mining claims adjacent to BLM lands) would be allowed in “wild,” “scenic,” and “recreational” segments of the Fortymile WSR Corridor. Visual impacts to line, color and texture from temporary long-term camps, generally less than one acre in size, would occur along all segments of the Fortymile WSR potentially impacting 248,000 acres.

PLO 3432 on Eagle Recreation Site would be revoked. This revocation would allow 816 acres to be transferred out of BLM management and open for development and associated surface disturbance activities.

Effects from Fluid Leasable Minerals

Approximately 158,000 acres would be closed to fluid leasable minerals, including “wild” and “recreational” segments of the Fortymile WSR, all disposal lands, BLM Administrative sites, the

Fort Egbert and Eagle recreation withdrawals, and within one-half mile radius of ungulate mineral licks. These actions would protect visual resources in these areas. Approximately 507,000 acres in the Fortymile ACEC would be open to fluid mineral leasing subject to minor constraints such as seasonal closures. These actions would protect visual resources by limiting surface disturbance activities associated with fluid minerals at least seasonally.

An additional 1,411,000 acres would be open to leasing and exploration subject to standard stipulations. If exploration occurred, impacts from those activities would occur, such as green trails and the removal of vegetation in straight lines causing changes to color, line and texture. However, no fluid mineral exploration or leasing is anticipated in the Fortymile Subunit during the life of the plan.

No lands were identified as VRI Class I lands. Of VRI Class II lands seven percent (98,000 acres) would be managed under Class III retaining the natural appearance of the landscape while ninety-three percent (1,256,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape with 507,000 acres managed as Class IV lands with minor constraints. Of VRI Class III lands, one-hundred percent or 4,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands, one-hundred percent or 46,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Solid Leasable Minerals

Approximately 158,000 acres in the same areas described as closed to fluid leasable minerals (above) would also be closed to solid leasable minerals. Visual resources would not be impacted by mining solid leasable minerals on these lands.

Impacts to visual resources by exploration, development and production of solid leasable mineral resources on the remaining 1,411,000 acres would depend on the scale of the action and the number of mineral sites mined. However, no exploration or development of solid leasable minerals is anticipated during the life of the plan due to the low occurrence potential for these types of minerals in the subunit.

Effects from Locatable Minerals

Approximately 156,000 acres would be closed to locatable mineral entry, including “wild” segments of the Fortymile WSR Corridor, portions of the "recreational" segment of the Fortymile, ungulate mineral licks, all disposal lands, BLM Administrative sites, and the Fort Egbert and Eagle recreation withdrawals. Visual resources would not be impacted by mining locatable miners on these lands. The remainder of the subunit, 1,920,000 acres would be open for mining. The impacts from the extraction of locatable minerals would vary depending on the methods used, the size of operation and the number of mines.

Large-scale placer mining (semi-mobile plant) operations would impact visual resources through changes to line, form, color, and texture from mined areas and related facilities. It is anticipated that the subunit would have up to three large-scale placer mine operations. Each operation would have a disturbed annual footprint of approximately 36 acres over the life of the mine which is anticipated to be between 10 to 20 years for a total of 60 to 80 acres of disturbance. Impacts from all three operations would impact between 180 to 240 acres over the life of this plan.

The subunit is anticipated to have up to 34 small-scale placer mine operations. Operations would impact visual resources through changes to line, form, color, and texture from mined areas and related facilities. Each operation would have a disturbed annual footprint of 4.4 acres over the life of the mine which is anticipated to be between 10 to 20 years for a total of 20 to 30 acres of disturbance. Impacts from all 34 operations would impact between 680 to 1020 acres over the life of this plan.

Approximately 18 suction dredge operations are anticipated to occur in this subunit. Each operation would have a camp with a footprint of less than one acre over the life of the mine which is anticipated to be between 10 to 20 years. The movement of materials occurs underwater and thus does not have a noticeable impact to visual resources and is generally redistributed each spring during break-up or high water events. Impacts from suction dredge camps are anticipated to be less than 18 acres annually over the life of this plan.

Mineral exploration activities with resulting camp and field sampling would impact visual resources on between six and 208 acres annually. Reclamation would generally occur annually with the only impacts to visual resources from camps. Up to four exploration operations may occur over the life of this plan.

No lands were identified as VRI Class I lands. Of VRI Class II lands five percent (98,000 acres) would be managed under Class III allowing some change in the natural landscape while ninety-five percent (1,764,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class III lands, one-hundred percent or 4,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands, one-hundred percent or 46,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Salable Minerals

Approximately 145,000 acres would be closed to salable minerals, including the “wild” segments of the Fortymile WSR. Visual resources would not be impacted.

The remaining 1,931,000 acres would be available for mineral sales. Although this alternative would make an additional 101,000 acres available for salable minerals than in Alternatives B and C, impacts would essentially be the same because the level and location of mineral material sales is expected to be the same. Only 100 acres would be mined within the subunit and these sites would generally occur along existing roads.

Effects from Recreation

Recreation Management Zones are managed for different physical settings which include remoteness, naturalness and visitor facilities. Of these, naturalness and visitor facilities impact visual resources by setting prescriptions for management, i.e., describing the amount of naturalness and how facilities will sit on the landscape. These prescriptions provide a range from Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and description of how facilities will sit on the landscape

Of VRI Class I lands (144,000 acres) one-hundred percent would be managed as Class I. Of VRI Class II lands, ninety-seven percent or 100,000 acres would be managed as Class III allowing change to the natural landscape, while three percent would be managed as Class IV allowing a

visible level of change to the landscape. No lands were identified as VRI Class III lands. Of VRI Class IV lands one-hundred percent (837 acres) would be managed as Class IV lands.

Under this alternative the assignment of VRM Classes would be guided by BLM policy and guidance for designated Wild and Scenic Rivers in that, "wild" segments would be managed as VRM Class I while "scenic" segments would be managed as VRM Class III. The remainder of the subunit including "recreational" river segments would be managed as Class IV. Some Recreation Management Zones will have different VRM classes due to the designation of the Wild and Scenic River segment.

Effects from Travel Management

Travel management on other BLM lands outside the SRMA

The restriction of winter motorized use to OHVs weighing 1,000 pounds curb weight and less without permit would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape on approximately 1,827,000 acres. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils even with cross-country travel allowed because of the frozen soils and snow cover on lower growing vegetation. This is the same as Alternatives B and C.

Cross-country summer travel by OHVs weighing 1,500 pounds curb weight and less is allowed. The weight restriction would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape. Multiple passes over the same travel route could cause changes in color, line, and texture on the landscape. Repeated OHV use leads to destruction of vegetation, which in turn results in soil exposure, creating a contrast between the adjacent greens of natural vegetation and the browns and grays of exposed soil and organic materials. A contrast in line occurs when the irregular characteristics of vegetation is altered by a more regular line in the form of a developed route or constructed trail. Texture characteristics change from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a developed trail, trail hardening techniques or mineral soil area. These management activities help protect the visual resources on 1,827,000 acres.

All other vehicle use outside the SRMA would require a permit. The impacts larger vehicles would vary depending on the size of vehicle, season of travel, and the number of passes made. They would be similar to impacts described above under Cross-Country Travel except on a larger scale.

Travel management within the SRMA

Common to All Zones

The restriction of winter motorized use to OHVs weighing 1,000 pounds curb weight and less without permit would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape on approximately 249,000 acres. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils even with cross-country travel allowed because of the frozen soils and snow cover on lower growing vegetation. This is the same as Alternatives B and C.

Within the SRMA, vehicle use exceeding the travel management prescriptions (e.g., vehicles larger than 1,500 pounds curb weight) would require a permit. The impacts larger vehicles would vary depending on the size of vehicle, season of travel, and the number of passes made. They would be similar to impacts described above under Cross-Country Travel except on a larger scale.

Semi-Primitive Zones

The requirement for a permit for summer motorized use within the Semi-Primitive RMZs (including some of the "wild" segments of the Fortymile WSR) would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape to 54,000 acres.

All Other Zones

The Backcountry, Middlecountry, Frontcountry, and Rural Zones (including the "scenic", "recreational", and some "wild" segments of the Forymile WSR) would allow cross-country summer travel by OHVs weighing 1,500 pounds curb weight or less. The weight restriction would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape. Multiple passes over the same travel route could cause changes in color, line, and texture on the landscape. Repeated OHV use leads to destruction of vegetation, which in turn results in soil exposure, creating a contrast between the adjacent greens of natural vegetation and the browns and grays of exposed soil and organic materials. A contrast in line occurs when the irregular characteristics of vegetation is altered by a more regular line in the form of a developed route or constructed trail. Texture characteristics change from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a developed trail, trail hardening techniques or mineral soil area. These management activities help protect the visual resources on 195,000 acres.

Effects from Special Designations

Under Alternative D, 546,000 acres would be designated as the Fortymile ACEC to protect habitat for the Fortymile caribou herd and Dall sheep. The ACEC would be open to both locatable and leasable minerals. Management decisions to protect wildlife habitat helps to preserve the visual character of the area, but to a lesser extent than in Alternative C.

Of VRI Class I lands (38,000 acres) one-hundred percent would be managed as Class I. Of VRI Class II lands, less than one percent or 257 acres would be managed as Class III while ninety-nine percent (509,000 acres) would be managed as Class IV lands allowing a visible level of changes to the landscape. No lands were identified as VRI Class III lands. Of VRI Class IV lands one-hundred percent (13 acres) would be managed as Class IV lands.

4.4.1.5.5. Alternative E (Proposed RMP)

In general, Alternative E represents a mix and variety of actions that best resolves issues and concerns in consideration of all values and programs and adopts a blend of VRM classes that would allow major development while protecting visual resource in certain areas. It has the second highest percentage of VRM Class II and Class III lands of all Alternatives. Class II allows a low level of change to the characteristic landscape where management activities may be seen but not attract the attention of the casual observer while Class III allows a moderate level of change to the characteristic landscape where management activities may attract attention but not dominate the view of the casual observer.

Effects from Cultural Resources

Same as Alternative B.

Effects from Fish and Aquatic Species

Under Alternative E, Sam Patch Creek and Steele Creek-Fortymile River (Map 6) have been identified as High Priority Restoration Watersheds and would be emphasized for restoration and/or protection. Active restoration projects, such as willow plantings, seeding and fertilizing would have positive impacts to areas with surface disturbance. Changes to line, color and texture would result in that the area would be returned to a more natural looking landscape on any disturbed areas within the 49,000-acre watershed.

All of the lands identified as High Priority Restoration Watersheds have a VRI Class of I or II. Portions of these two watersheds will be managed as Class of IV. Of VRI Class II lands, twenty-eight percent or 8,000 acres would be managed as Class II while seventy-two percent or 21,000 acres would be managed as Class IV lands. No lands within a High Priority Restortation Watershed were identified as VRI Class I, III or IV lands.

There are 10 Riparian Conservation Areas (RCAs) identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 192,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

All of the lands identified as Riparian Conservation Areas have a VRI Class of I or II. Portions of the ten watersheds will be managed as Class of IV. Of VRI Class I lands one-hundred percent or (73,000 acres) would be managed as Class I retaining the natural appearance of the landscape. Of VRI Class II lands, eighty-eight percent or 115,000 acres would be managed as Class II while twelve percent or 16,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class III lands (569 acres) one-hundred percent would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands one-hundred percent (150 acres) would be managed as Class III lands allowing some preservation of the existing visual character of these lands.

Effects from Visual Resources

Under Alternative E, of VRI Class I, 145,000 acres (eight percent), almost one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character of the designated “wild” segments of the Fortymile WSR. These lands have an A rating for scenic quality, a high sensitivity and occur in the Foreground-Middleground Zones. This is the same as Alternative A.

Of VRI Class II lands (ninety percent or 1,681,000 acres), thirty–eight percent (728,000 acres) would be managed as VRM Class II allowing a low level of change. These lands include the designated “scenic” segments of the Fortymile WSR and other lands within the Fortymile SRMA, having an A rating for scenic quality, a high sensitivity, and occurring in the Foreground-Middleground Zones. Less than one percent (11,000 acres) of VRI Class II lands would be managed as VRM Class III including “recreational” segments of the Fortymile WSR, potentially resulting in only partially retention of landscape characteristics, while fifty percent (942,000 acres) of VRI Class II lands would be managed as VRM Class IV, potentially resulting in a high level of change to the characteristic landscape. These lands are outside the Fortymile SRMA, have high and medium sensitivity, and occur in all three distance zones.

Less than one percent of BLM lands had a VRI Class III (6,000 acres) and one-hundred percent of these lands would be managed as VRM Class IV, potentially resulting in a high level of change to the landscape characteristics. Many of these lands are located outside the Fortymile SRMA.

Only two percent of BLM lands had a VRI Class IV (47,000 acres). Of VRI Class IV lands less than one percent or 3000 acres would be managed as VRM Class II allowing a low level of change to the characteristic landscape. These acres are associated with the Fortymile SRMA. The remaining two percent (44,000 acres) would be managed as VRM Class IV potentially resulting on a high level of change to the characteristic landscape. These VRM Class IV lands are located outside the Fortymile SRMA.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance, and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities can contribute significantly in reducing impacts to visual resources regardless of VRM Class.

In summary, 144,000 acres will be managed as VRM Class I, 731,000 acres will be managed as VRM Class II, 11,000 acres will be managed as VRM Class III and 992,000 acres will be managed as VRM Class IV.

Effects from Wilderness Characteristics

Under Alternative E, no lands would be managed to protect wilderness characteristics as a priority over other resource values and multiple. Wilderness characteristics would be maintained on 784,000 acres, by limiting activities that impact wilderness characteristics of size, naturalness and opportunities for solitude or primitive and unconfined recreation.

Of VRI Class I lands managed to maintain wilderness characteristics (57,000 acres) almost one-hundred percent would be managed under Class I retaining the natural appearance of the landscape while less than one percent would be managed as Class II. Of VRI Class II lands managed to maintain wilderness characteristics, almost one percent or 648,000 acres would be managed as Class II lands while less than one percent would be managed as Class IV lands. Of VRI Class IV lands managed to maintain wilderness characteristics, one percent or 3,000 acres would be managed as Class II lands. No lands were identified as VRI Class III.

Effects from Forest and Woodland Products

Under Alternative E, personal use of timber and forest products as well as commercial timber salvage and commercial use of forest products would be considered on all BLM-managed lands (1,876,000 acres). Commercial timber sales would be considered on BLM–managed lands except within the Fortymile WSR Corridor, Eagle Recreational Withdrawal, Fort Egbert Historic site, and the Fortymile and Mosquito Flats ACECs (641,000 acres). These acres would be protected from impacts associated with commercial timber sales.

Impacts would depend on the location, size or the area and harvest techniques used, however, harvesting forest products would impact color, line and texture throughout the subunit by allowing the harvest of white and black spruce for firewood and house logs.

Effects from Lands and Realty

Same as Alternative D.

Effects from Fluid Leasable Minerals

Approximately 745,000 acres would be closed to fluid leasable minerals, including the Fortymile WSR Corridor, the Fortymile ACEC, and the Mosquito Flats ACEC, BLM Administrative sites, Fort Egbert Historic Site and the Eagle recreation withdrawal protecting visual resources of these areas.

Approximately 1,131,000 acres would be open to leasing subject to minor constraints such as seasonal closures. Minor constraints would protect visual resources by limiting surface disturbance activities over the life of the plan.. If exploration occurred, which is not anticipated, it could result in impacts such as green trails and the removal of vegetation in straight lines causing changes to color, line and texture.

Only 40 acres of lands open for leasable minerals were identified as VRI Class I lands and these lands will be managed as Class IV. Of VRI Class II lands open, one hundred percent or 1,081,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class III lands, one-hundred percent or 7,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands, one-hundred percent or 45,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Solid Leasable Minerals

Approximately 745,000 acres would be closed to solid leasable minerals, including the same areas described as closed under Fluid Leasable Minerals above. Visual resources would not be impacted by mining solid leasable minerals on these lands.

Impacts to visual resources by exploration, development and production of solid leasable mineral resources on the remaining 1,131,000 acres would depend on the scale of the action and the number of mineral sites mined. However, it is assumed that no solid mineral exploration, leasing, or development would occur during the life of the plan.

Effects from Locatable Minerals

Under Alternative E, 745,000 acres would be closed to locatable mineral entry, including the Fortymile WSR Corridor, the Fortymile ACEC, the Mosquito Flats ACEC, BLM Administrative sites, and Fort Egbert Historic Site and the Eagle recreation withdrawal. Visual resources would not be impacted by mining locatable minerals on these lands.

Remaining lands in the subunit, 1,132,000 acres, would be open to new locatable mineral entry. The level of mining activity is expected to increase slightly compared to Alternative A. Three large-scale placer mine operations are anticipated. Each operation would have a disturbed annual footprint of 16 acres over the life of the mine for a total of 60 to 80 acres of disturbance. Impacts from these operations would impact 180 to 240 acres over the life of this plan. Up to thirty-one small-scale placer mine operations, one more than in Alternative A, are anticipated over the life of the plan. Each operation would have a disturbed annual footprint of 4.4 acres over the life of the mine for a total of 20 to 30 acres of disturbance. Impacts from all thirty-one operations would impact 620 to 930 acres over the life of this plan.

Only 40 acres of lands open for locatable minerals were identified as VRI Class I lands and these lands will be managed as Class IV. Of VRI Class II lands open, one hundred percent or 1,081,000 acres would be managed as Class IV lands allowing a visible level of change to the

landscape. Of VRI Class III lands, one-hundred percent or 7,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands, one-hundred percent or 45,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Mineral exploration activities with resulting camp and field sampling would impact visual resources on between 6 to 156 acres annually. Reclamation would generally occur annually with the only impacts to visual resources from camps. Up to three exploration operations may occur over the life of this plan.

Impacts from suction dredging would be similar to Alternatives A, B, and C but would affect a larger area. Approximately ten suction dredge operations are anticipated annually, each with a camp footprint of less than one acre. The movement of materials occurs underwater and thus does not have a noticeable impact to visual resources and is generally redistributed each spring during break-up or high water events. Impacts from camps associated with suction dredging are anticipated to be less than 10 acres annually over the life of the plan. Impacts from the various types of mining operations are described under section 4.3.1.9.

Effects from Salable Minerals

Approximately 249,000 acres would be closed to salable minerals, including "wild" and "scenic" segments of the Fortymile WSR Corridor and a one mile radius around ungulate mineral licks. Visual resources would not be impacted by mineral material sales in these areas.

The remaining 1,627,000 acres would be open. The impacts from the extraction of salable minerals would vary depending on the methods used and size of operation. Large mining operations would have the greatest impact to visual resources impacting line, form, color, and texture of mined areas, with the removal of vegetative cover and stockpiled materials creating form contrast between the mined areas and the stockpiled materials and the background landforms. Mining and material stockpiles would also create color contrast between the greens of vegetation and the browns of soils. Texture would change from a natural medium, subtle texture of vegetation to a course, rough contrast of disrupted soils and organic materials. Changes in line from the irregular, weak line of the natural landscape to a regular, strong line between natural vegetation and disturbed landscape could occur.

While most of the subunit is open to salable minerals it is anticipated that only 200 acres would be mined within the planning area and of that 200, approximately 100 acres would be mined within this subunit. Mining activities for salable minerals would generally occur along roads due to transportation requirements.

No lands open for salable minerals were identified as VRI Class I lands. Of VRI Class II lands, forty-two percent or 722,000 acres would be managed as Class II while less than one percent would be managed as Class III and fifty-six percent or 948,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class III lands, one-hundred percent or 6,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands, six percent or 6,000 acres would be managed as Class II while ninety-three percent or 44,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Recreation

Recreation Management Zones are managed for different physical settings which include remoteness, naturalness and visitor facilities. Of these, naturalness and visitor facilities impact visual resources by setting prescriptions for management, i.e., describing the amount of naturalness and how facilities will sit on the landscape. These prescriptions provide a range from Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and description of how facilities will sit on the landscape.

Semi-Primitive (144,000 acres) and Backcountry (82,000 acres) will protect visual resources the most while Middlecountry (11,000 acres), Frontcountry (10,000 acres) and Rural (1,000 acres) will allow various levels of change to the natural landscape. Other BLM lands have no prescriptions for physical settings (1,628,000 acres).

Of VRI Class I lands (145,000 acres) almost one-hundred percent would be managed as Class I, while less than one percent around West Fork Campground will be managed as Class III and less than one percent around Chicken will be managed as Class IV. Of VRI Class II lands (ninety percent or 1,681,000 acres) thirty–nine percent or 728,000 acres would be managed as Class II, while less than one percent or 11,000 acres would be managed as Class III, allowing change to the natural landscape, and fifty percent would be managed as Class IV allowing a visible level of change to the landscape. Of VRI Class III lands (6,000 acres) one-hundred percent would be managed as Class IV. Of VRI Class IV lands almost one hundred percent (44,000 acres) would be managed as Class IV lands while less than one percent or 3,000 acres would be managed as Class II.

Under this alternative the assignment of VRM Classes would be guided by BLM policy and guidance for designated Wild and Scenic Rivers in that, “wild” segments would be managed as VRM Class I while “scenic” segments would be managed as VRM Class III. The remainder of the subunit including “recreational” river segments would be managed as Class IV.

Effects from Travel Management

Under Alternative E, open cross-country travel on BLM lands is restricted to summer motorized vehicles with 1,500 pounds curb weight or less and a width of 64 inches or less and winter motorized vehicles with 1,000 pounds curb weight or less and 50 inches in width or less outside the Fortymile Wild and Scenic River Corridor, and may impact visual resources primarily by disturbing vegetation by repeated passes and by clearing of travel routes. Weight restricted travel impacts 1,267,000 acres. The restriction of motorized use to OHVs weighing 1,500 pounds curb weight or less with a width of 64 inches or less helps reduce the amount of surface disturbance to vegetation with resulting changes to line, form, color and texture of the natural landscape on approximately 963,000 acres. However, allowing summer and winter cross-country travel by OHVs could result in an increase of user-created travel routes with impacts to vegetation in line, color and texture. Typically, user-created summer travel routes are more visible than winter travel routes that tend to be positioned near valley bottoms and are protected by snow and frozen ground. Summer travel routes are typically developed in areas that show changes to line, texture and color with repeated passes.

OHV use within the Fortymile Wild and Scenic River Corridor is limited to existing trails and winter use by vehicles with 1,000 or less curb weight and a width of 50 inches and summer motorized vehicles weighing up to 1,500 pounds curb weight and a width of up to 64 inches. The Fortymile ACEC (362,000 acres) and the Mosquito Fork ACECs (37,000 acres) limits use to winter only with motorized vehicles weighing up to 1,000 pounds curb weight and 50 inches in

width without a permit. Summer motorized use may be allowed by permit only. These restrictions will help reduce the impacts to line, form, color and texture of vegetation.

Effects from Special Designations

Under Alternative E, 362,000 acres would be designated as the Fortymile ACEC to protect habitat for the Fortymile caribou herd and Dall sheep. The ACEC would be closed to both locatable and leasable minerals. Use and development limits would apply to a small portion of the area seasonally from 10 May through 31 August. Winter motorized use will be limited by weight and require a permit. No lands were identified as VRI Class I, III or IV lands. Of VRI Class II lands within the ACEC (362,000 acres), one hundred percent would be managed as Class II lands protecting the existing landscape characteristics.

Under Alternative E, 37,000 acres would be designated as the Mosquito Flats ACEC to protect aquatic and wetland habitat diversity. The ACEC would be closed to both locatable and leasable minerals. Use and development limits would apply to a small portion of the area seasonally from 10 May through 31 August. Winter motorized use will be limited by weight and require a permit.

All the lands within this ACEC were identified as VRI Class II lands and would be managed as Class II.

Effects from Wild and Scenic Rivers would be the same as Alternative C.

4.4.1.6. Wilderness Characteristics Fortymile Subunit

Summary of Effects

There are 2,035,000 acres identified within the Fortymile Subunit as having wilderness characteristics of size, naturalness, and the opportunity for solitude or a primitive unconfined type of recreation experience. Managing lands for wilderness characteristics would limit surface-disturbing activities. See section 4.3.1.10 Impacts Common To All Subunits for impacts to wilderness characteristics. Alternative B would protect the most acres for wilderness characteristics while Alternative A would not identify any acres as having wilderness characteristic. Alternative C provides a balance between protection and resource use. Alternative D provides for resource development and protects the least amount of land for wilderness characteristics. Alternative E emphasizes other multiple uses while applying management restrictions to reduce impacts to wilderness characteristics.

4.4.1.6.1. Alternative A (No Action)

Effects from Wilderness Characteristics

No lands are managed for wilderness characteristic under this Alternative. Of the 2,035,000 acres identified as having wilderness characteristic, none would be directly managed to protect those values. Other actions and management strategies, and lack of activity may help protect those values indirectly.

4.4.1.6.2. Alternative B

Effects from Wilderness Characteristics

Of the 2,035,000 acres identified as having wilderness characteristic, 994,000 (forty-nine percent) would be directly managed to protect those values. These areas include the Fortymile SRMA and the Fortymile ACEC. Other actions and management strategies may help protect wilderness values indirectly on the remaining 1,041,000 acres. Mineral exploration or development is possible on 976,000 acres, however the reasonably foreseeable development scenario does not suggest a high percentage of development during the life of the plan. Even if all development is realized it would affect less than one percent of all available acres. If these mining claims were developed naturalness would be impacted within the view shed of the development until the site was reclaimed to the extent that it appeared natural looking see section 4.3.1.10 Impacts Common to All Subunits.

4.4.1.6.3. Alternative C

Effects from Wilderness Characteristics

Of the 2,035,000 acres identified as having wilderness characteristic, 487,000 (twenty-four percent) would be directly managed to protect those values. These areas include the core of the Fortymile ACEC, the West Fork RMZ (Backcountry RSC Class) and non-navigable "wild" river segments (Semi-Primitive RSC Class). Other actions and management strategies may help protect wilderness values indirectly on the remaining 1,547,000 acres. Mineral exploration or development is possible on 1,311,000 acres, however the reasonably foreseeable development scenario does not suggest a high percentage of development during the life of the plan. Even if all development is realized it would affect less than one percent of all available acres. If these claims were developed naturalness would be impacted within the view shed of the development until the site was reclaimed to the extent that it appeared natural looking see section 4.3.1.10 Impacts Common to All Subunits. Development of recreation facilities and travel management in Middlecountry and Frontcountry RMZs and on other BLM-managed lands would also impact wilderness characteristics.

4.4.1.6.4. Alternative D

Effects from Wilderness Characteristics

Of the 2,035,000 acres identified as having wilderness characteristic, 54,000 (three percent) would be directly managed to protect those values within the Middle Fork Fortymile RMZ. Other actions and management strategies may help protect wilderness values indirectly on the remaining 1,981,000 acres. Mineral exploration or development is possible on 1,920,000 acres, however the reasonably foreseeable development scenario does not suggest a high percentage of development during the life of the plan. Even if all development is realized it would affect less than one percent of all available acres. If these claims were developed naturalness would be impacted within the view shed of the development until the site was reclaimed to the extent that it appeared natural looking see section 4.3.1.10 Impacts Common to All Subunits. Development of recreation facilities and travel management in Middlecountry and Frontcountry RMZs and on other BLM-managed lands would also impact wilderness characteristics.

4.4.1.6.5. Alternative E (Proposed RMP)

Of the 1,838,000 acres identified as having wilderness characteristics, those characteristics would be maintained on 784,000 acres by limiting activities that impact size, naturalness

and opportunities for solitude or primitive and unconfined recreation. Mineral exploration or development is possible on 1,627,000 acres, however the reasonably foreseeable development scenario does not suggest a high percentage of development during the life of the plan. Even if all development is realized it would affect less than one percent of all available acres. If these claims were developed naturalness would be impacted within the view shed of the development until the site was reclaimed to the extent that it appeared natural looking see section 4.3.1.10 Impacts Common to All Subunits. Development of recreation facilities and travel management in Middlecountry and Frontcountry RMZs and on other BLM-managed lands would also impact wilderness characteristics.

4.4.1.7. Wildlife Fortymile Subunit

Summary of Effects

Overall, the relative potential among Aternatives for negative effects to wildlife is least in Alternative A and progressively greater through Alternative D, with Alternative E (Proposed RMP) being most similar to Alternative C. This potential is most related to lifting of mineral withdrawals (see Impacts Common to All Subunits Section 4.3.1.12. Slightly less area is opened to mineral location, entry, and leasing in Alternative E than Alternative C. Alternative E is similar to Alternative D in some aspects of travel management—cross-country use of summer OHVs is allowed in much of the subunit and motorboat use (including personal watercraft and hovercraft) is largely unrestricted, uses which can negatively affect wildlife and habitat.

All action alternatives open considerable areas to mineral location and entry and leasing: 43-91% of the subunit. Although mining operations are expected to increase only moderately during the life of the plan under any alternative, Alternatives C, D, and E will open 1.3, 1.7, and 1.1 million acres (respectively) to mineral location, entry, and leasing, which will create negative effects over the long-term for wildlife.

Alternative D opens essentially all BLM-managed calving/postcalving habitat in the subunit to mineral entry, location and leasing, including some of the most highly used calving habitats.

ACECs for caribou and Dall sheep are designated in all action alternatives; their primary effect will be to limit potential impacts from mining activities and motorized vehicle use. The ACEC in Alternative B includes all of the concentrated calving/postcalving habitats of the Fortymile herd (on BLM land) while Alternatives C and E close only 49% of the concentrated calving/postcalving habitats managed by BLM. Alternative D closes only areas around a few ungulate mineral licks and, as a result, substantial impacts to Fortymile calving habitat could occur.

In Alternative E, the Fortymile ACEC is reduced in size relative to Alternative C, but closes essentially the same area to mineral location, entry, and leasing. In Alternative E, management provisions very similar to those of the ACEC in other alternatives (but not including mineral closures) is applied to a larger area delineated as crucial caribou and Dall sheep habitat. This could result in slightly lower priority given to habitat values relative to other resources and uses than in the Alternative C ACEC.

A Mosquito Flats ACEC is proposed only in Alternative E which will protect wetland-associated species, such as trumpeter swan, short-eared owl, and calving moose, from potential impacts from summer OHV use and mineral development.

Alternative B would result in the fewest impacts to wildlife resources from recreation and travel management. Alternative B adds over 500,000 acres to the SRMA in a Semi-Primitive RMZ that occurs largely within the Fortymile ACEC. Alternatives C and D and E establish a smaller SRMA that essentially coincides with the current Fortymile WSR Corridor. Summer OHVs will be limited to less than 1,500 pounds in all action alternatives and to existing trails/routes in Alternatives B and C. Alternatives D and E restrict summer summer OHV (and motorized boat use) less than Alternatives B and C, with the greatest potential impacts occurring from cross-country OHV use and proliferation of user-created trails. Alternative E is more similar in travel management to Alternative D which doesn't restrict summer OHVs to existing trails/routes (ie. it allows cross-country travel). However Alternative E will eventually (through travel management planning) restrict summer OHV use to designated trails in crucial caribou and Dall sheep habitat and potentially elsewere.

Table 4.9. Indicators of Effects of Locatable Minerals on Wildlife in the Fortymile Subunit

Indicator	Alternative				
	A	B	C	D	E
WSR Corridor (acres closed)	248,000	248,000	248,000	145,000	248,000
ACEC (acres closed)	0	690,000	369,000	2,000	399,000
Within Riparian Conservation Areas (acres)	0	205,000	1,000	1,000	192,000
Total Closed to Locatable Minerals (acres)	2,068,000	1,076,000	623,000	163,000	745,000
Total Open to Locatable Minerals (acres)	0	800,000	1,253,000	1,713,000	1,132,000
Total Open to Locatable Minerals (percent)	0	43	67	91	60
Predicted Mining operations					
Suction dredge operations (number)	6	10	14	18	10
small-scale placer operations (number)	27	31	33	40	31
large-scale placer operations (number)	2	3	3	3	3
Proportion of Fortymile calving range closed to mineral location, entry and leasing[a]					
Concentrated calving range (percent)	62.5	62.5	49	33	49

[a]This indicator includes all lands in calving range, including state, private, and National Park Service lands. Other indicators refer only to BLM-managed lands. In Alternative D only the NPS lands in the calving range are closed to mineral entry.An unknown portion of BLM lands will be conveyed to the State of Alaska and Native Corporations; after conveyances, a lower proportion of calving range will be closed to mineral entry (except in Alternative D).

4.4.1.7.1. Alternative A (No Action)

Effects from Fish and Aquatic Species

No RCAs are identified in this alternative. However, new mineral location and associated placer mining operations also do not occur.

Effects from Leasable Minerals

None of the subunit is open to leasing.

Effects from Locatable Minerals

Currently all of the subunit is closed to mineral location and entry, however mining (mostly small-scale placer operations) occurs on existing claims (10,000 acres). This alternative would support the least amount of mining and would minimize the potential for the types of impacts of mining described in section 4.3.1.12 Effects from locatable minerals, common to all subunits. Current mining is mostly suction dredging and small-scale placer mines and is concentrated along and near the road- and river-accessible portions of the Fortymile WSR.

Effects from Recreation

The existing recreation management program has focused on campgrounds and waysides along the Taylor Highway and Fortymile WSR Corridor and Eagle/Fort Egbert. The existing MFP (BLM 1980) is not as specific as current RSC objectives as to how recreation is to be managed, but most the unit has been managed with allowance for dispersed recreation and no development of facilities. Under Alternative A, recreation affects wildlife primarily along the Taylor Highway and road-accessible river sections. Wildlife is displaced, at least temporarily, by recreational activities, and that effect is greater at higher recreational use sites. Disturbance of nesting raptors likely occurs at times along the Fortymile River and may lead to displacement to other areas, nest abandonment or reduced survival of nestlings. SOPs do not exist to protect nest sites of priority raptor species. Bears can be attracted to garbage which can lead to conflicts and potential removal. Recreational OHV users are increasing in number and are traveling further and expanding the zone of impact further, though use and impacts are still concentrated close to roads.

Effects from Travel Management

Currently, all of the Fortymile area is open to small OHV use during both summer and winter, including cross-country travel. Outside of the Fortymile WSR Corridor, there are no OHV restrictions, except that use of vehicles exceeding 6,000 pounds requires a permit. The cross-country use of summer OHVs has resulted in a proliferation of trails leading to local habitat impacts and disturbance impacts. The network of user-created, unsustainable trails can be expected to continue to grow under this alternative, with corresponding increase in impacts to wildlife. Motorized boats are not permitted on non-navigable "wild" segments of the Fortymile WSR Corridor, which will reduce disturbance impacts to wildlife relative to other alternatives.

Effects from Special Designations

No ACECs exist in this alternative, meaning special management is not implemented for Dall sheep and caribou. Management of the Fortymile River to "preserve the river and its immediate environment and its existing primitive setting" will generally serve to protect wildlife resource values in the corridor.

4.4.1.7.2. Alternative B

Effects from Fish and Aquatic Species

Eleven drainages are designated as Riparian Conservation Areas, improving the effectiveness of reclamation of mined habitats there. Potential impacts to riparian and aquatic-dependent wildlife, including BLM Alaska sensitive species and Bird Species of Conservation Concern, will be reduced in these stream sections (two percent of stream miles in subunit).

Effects from Leasable Minerals

Forty-seven percent of BLM lands in the subunit would be open for leasing. No leasable minerals are expected to be developed in the Fortymile Subunit due to low potential for occurrence of economically recoverable resources. The RMP will need to be amended before coal could be leased. Leasing of other minerals would require additional NEPA analysis. Exploration for leasable minerals could occur throughout the area open to leasing although none is predicted to occur. The entire subunit may be considered for coal inventory and exploration, although none is predicted in the subunit. However, the potential for exploration for leasable minerals does exist and is allowed except in the ACEC and Fortymile WSR Corridor. Considerable surface disturbance may occur with exploration for coal (e.g., 250 x 250 foot trenches, 50 x 40 foot drill pad sites). SOPs and Fluid Mineral Leasing Stipulations (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would apply to exploration and leasing, but would result in relatively minor reductions in impacts. Additional SOPs and leasing stipulations would be developed prior to coal or fluid mineral leasing.

Effects from Locatable Minerals

Effects of mining for locatable minerals would increase in this alternative relative to Alternative A because forty-seven percent of the area would be opened to mineral location and entry. Of BLM lands in the general calving range of the radiocollared Fortymile caribou herd during the last 16 years, almost all remains closed to mineral location and entry. Impacts on caribou calving and postcalving activity and habitat will be minor. Other seasonal caribou habitats, though considered less sensitive, would be open to mining, Also, all Dall sheep range on BLM lands remains closed to mineral location and entry. Suction dredge operations are predicted to increase over Alternative A levels, which may result in disturbance of more nest sites of peregrine falcons. Although the increase in mining activity is predicted to be small (e.g., only four more small-scale placer mines than Alternative. A), the location of mining may change, requiring access (roads and trails) which may have larger impacts on wildlife. Also, the increase in exploration and mining operations could be much larger than predicted, dependent on the results of exploration, prices of minerals, and access which may be provided by other activities. SOPs (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would apply, but would result in relatively minor reductions in impacts.

Effects from Recreation

The Fortymile SRMA (792,000 acres) has specific management objectives and prescription settings. The Fortymile WSR Corridor will be managed mostly for a Semi-Primitive or Backcountry setting. The North Fork Fortymile and Mosquito Fork RMZs will be managed as Semi-Primitive, and the Fortymile RMZ as Backcountry. This high proportion of Semi-Primitive and Backcountry management will limit impacts to wildlife. In this subunit, some motorized use is allowed in Backcountry RMZs, but this use would be managed to retain Backcountry objectives. The remainder of the unit is not a recreation management area and impacts would be similar to those discussed under Alternative A.

Effects from Travel Management

Under Alternative B, summer OHVs and UTVs would be restricted to less than 1,500 pounds curb weight and would be allowed only on existing trails (Map 44) in all areas, except Semi-Primitive RMZs where they would be prohibited. This restriction will minimize proliferation of new trails and reduce impacts to wildlife and wildlife habitats from off-trail use on 120,000 acres.

Effects from Special Designations

The current (1992–2008) general calving/postcalving range of the Fortymile herd is designated as the Fortymile ACEC (Map 60). This includes all Dall sheep range in the subunit. Several ungulate mineral licks occur within the main ACEC boundary, and one occurs outside of the main ACEC boundary. This ACEC includes most calving/postcalving habitat on BLM lands in the subunit. These lands will be closed to mineral entry, location, and leasing, and motorized vehicle use will be limited so as to protect the value of the area for caribou. Ungulate mineral licks will be protected from activities that may affect ungulate use of these licks. Potential impacts to caribou will be small, but larger than in Alternative A (which had no ACEC but was entirely closed to mineral location and entry).

4.4.1.7.3. Alternative C

Effects from Fish and Aquatic Species

No RCAs are identified, increasing potential impacts to riparian and aquatic species relative to Alternative B. Since seventy-one percent of area would be opened to mineral location, impacts would also be greater than in Alternative A.

Effects from Leasable Minerals

The effects will be similar to Alternative B, except that seventy-one percent of area is open to leasing and so greater potential for exploration and leasing exists. The area of less concentrated use by calving/postcalving caribou will be open to leasing, however minor restrictions will be in place which will slightly lessen potential impacts.

Effects from Locatable Minerals

Effects of mining for locatable minerals would increase in this alternative relative to Alternative B because seventy-one percent of the area would be opened to mineral location and entry. Of BLM lands in the area of concentrated calving/postcalving of the radiocollared Fortymile caribou herd during the last 16 years, almost all remains closed to mineral location and entry. Areas that have been less intensively used or used only in some years by calving/postcalving caribou will be opened to mineral entry. A portion of the area opened will be managed with SOPs (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) to minimize impacts of mining which occurs on calving caribou.

Under this alternative, the potential impacts to caribou calving and postcalving habitats will be greater, but the most important caribou habitats on BLM lands will remain free of mining. These BLM lands include some of the most concentrated areas of documented calving/postcalving. Also, all Dall sheep range on BLM lands remains closed to mineral location and entry as do identified ungulate mineral licks, including one outside of the main Fortymile ACEC boundary. Suction dredge operations are predicted to increase somewhat over Alternative B levels which may result in disturbance of more nest sites of peregrine falcons. The increase in mining activity is predicted to be small. However, the increase in mining operations could be much larger than predicted, dependent on the results of exploration, the prices of minerals, and access which may be provided by other activities. Also, new mines may be initiated in remote areas, requiring access (roads and trails) which may have larger impacts on wildlife.

Effects from Recreation

In this alternative, only the Fortymile WSR Corridor is included in the SRMA (Map 45), with areas outside managed as undesignated (which will not feature facilities development). The remoteness of the undesignated areas that were Semi-Primitive in Alternative B will probably result in little difference in management, use or effects, in the near future. However, more accessible portions will likely see greater recreation-related changes, and access could be developed to some currently remote areas for purposes such as mining (leading to additional motorized recreation access). The changes in management of greater portions of the Fortymile WSR Corridor with objectives for more intensive use will result in somewhat greater change to wildlife habitats than in Alternative B.

Effects from Travel Management

The area where summer OHVs and UTVs would be allowed would expand relative to Alternative B, due to less area in a Semi-Primitive classification. This would allow motorized use in essentially the entire subunit, with the exception of the Semi-Primitive portions of the Fortymile WSR Corridor (which includes most of the "wild" river segments). The increase in impact to wildlife of this change would be small, because existing trail routes are very limited in the portion of the Fortymile WSR Corridor which would be opened to OHV use (head of Hutchinson Creek). New managed trails that may be created in these areas, could be routed to minimize impacts to wildlife. Effects of this alternative relative to Alternative B is dependent on extent of new access created for other activities. OHVs and UTVs up to 1,500 pound curb weight would be allowed off-trail for game retrieval.

Effects from Special Designations

The ACEC in this alternative focuses on the most highly used portions of the most sensitive caribou habitats (current, 1992–2008, calving/postcalving). The areas of most dense use (core habitats) are closed to mineral entry, location, and leasing (and this includes all Dall sheep habitat), while the surrounding area of slightly less dense caribou use is open with SOPs or leasing stipulations designed to mitigate impacts to calving/postcalving caribou. Relative to Alternative B, this alternative would increase the area available for resource development and increase the potential for fragmentation of caribou calving/postcalving habitat. The ACEC includes and would be compatible with special designations in the State of Alaska Upper Yukon Area Plan for caribou core calving areas and Dall sheep habitat, as well as Leasehold Location Orders for ungulate mineral licks (ADNR 2003).

4.4.1.7.4. Alternative D

Effects from Fish and Aquatic Species

Same as Alternative C.

Effects from Leasable Minerals

Effects will be similar to Alternative C, except that ninety-two percent of the area is open to leasing and so greater potential for exploration and leasing exists. Portions of the Fortymile WSR Corridor remain closed as do known ungulate mineral lick sites. Standard SOPs (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) will apply to exploration operations, including seasonal restrictions in calving areas and during lambing periods, but more protective SOPs that apply in ACECs will be used only near ungulate lick sites.

Effects from Locatable Minerals

Effects of mining for locatable minerals would increase in this alternative relative to Alternative C because ninety-three percent of the area would be opened to mineral location and entry. Of BLM lands in the area of concentrated calving/postcalving of the radiocollared Fortymile caribou herd during the last 16 years, almost all is open to mineral location and entry. Only a few ungulate mineral lick sites and very small portions of the calving range which intersect the Fortymile WSR Corridor are closed to mineral entry. Under this alternative, the potential impacts to caribou calving and postcalving habitats will be greatest. Of the entire Fortymile caribou herd recent calving/postcalving range, the only large portion which is closed to mineral location and entry is that portion within Yukon-Charley Rivers National Preserve (Table 4.9, "Indicators of Effects of Locatable Minerals on Wildlife in the Fortymile Subunit"). Three quarters of the area of the most highly concentrated use by caribou for calving will be open for mineral entry. Also, all Dall sheep range on BLM lands is open to mineral location and entry except for one identified mineral lick.

Major portions of the Fortymile WSR Corridor are open to locatable and leasable minerals. Impacts to riparian habitats from placer mining, and increased disturbance from boat and mining activity can be expected. Although nearly two million acres are opened to mineral location and entry, mining operations on BLM lands are predicted to increase (relative to Alternative A; all closed) by 12 suction dredge, 13 small-scale placer, one large-scale placer and zero large lode operations (Table 4.9, "Indicators of Effects of Locatable Minerals on Wildlife in the Fortymile Subunit"). Although the level of mining activity predicted represents a very small portion of the subunit, new mines will likely be initiated in remote areas and require access (roads and trails), which may have larger impacts on wildlife. The amount and length of features is dependent on the location of the new mining claims and mines. At these predicted levels of mining, the impact of BLM actions on Fortymile caribou will likely be modest during the life of the plan. Portions of the calving/postcalving range may be developed which will represent a small loss or fragmentation of habitat and an incremental reduction in Fortymile caribou range quality.

However, it is also possible that the increase in mining operations could be much larger than predicted or located in key habitats. Dependent on the results of exploration, prices of minerals, and access routes which may be provided by other activities, mining activity can vary substantially and impacts could be considerably greater than anticipated.

Opening of nearly two million acres to mineral location and entry will likely result in substantial exploration activity. Seasonal SOPs (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) are in place to limit aircraft activity close to the ground in caribou calving/postcalving habitats and Dall sheep habitats during lambing. SOPs concerning activities near raptor nest sites are also part of this RMP, but little is known of raptor nest sites in the subunit except for peregrine falcons within portions of the Fortymile WSR Corridor. Disturbance of caribou and sheep will occur outside of the restricted time periods and disturbance of undocumented raptor nests will occur. Surface disturbance involving roads and many drill pads could potentially occur at larger deposits.

Effects from Recreation

As in Alternative C, only the Fortymile WSR Corridor is included in the SRMA. Some segments will be managed to allow greater recreation-related change to the landscape (e.g., more Frontcountry and Middlecountry), resulting in corresponding increases to impacts to wildlife, particularly in the more accessible portions of the subunit.

Effects from Travel Management

The area where summer OHVs would be allowed would expand relative to Alternative C, due to less area in Semi-Primitive RMZ classification (Map 46). OHVs would not be restricted to existing trails and would be allowed to travel cross-country. Impacts under this alternative would be similar to Alternative A. Although summer OHVs would be limited to 1,500 pounds curb weight, an expanding network of user-created trails can be expected.

Effects from Special Designations

A 546,000-acre ACEC is designated in this alternative (Map 62), but only the half-mile radius around ungulate mineral licks is closed to mineral entry and location. The rest of the ACEC, except small portions of the Fortymile WSR Corridor, is open to mineral entry and location (as well as cross-country OHV use), including some of the most highly used portions of the Fortymile herd calving and postcalving range and all Dall sheep habitat for the Glacier Mountain and Mount Harper subpopulations. ACEC-specific SOPs and Fluid Mineral Leasing Stipulations (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) would apply to BLM permitted activities in the concentrated calving/postcalving area: seasonal activity restrictions will apply, impacts of access will be minimized, and operators must submit a plan describing methods proposed to minimize impacts to caribou and Dall sheep and their habitat.

Although the near-term development of mineral resources on these lands is predicted to be low, new exploration results, changing market conditions, or creation of new access to these areas by other operations or activities may change that prediction. In addition, staking of mining claims in the calving area would potentially have impacts far in the future. Use of SOPs for operations in the ACEC may mitigate a small portion of impacts, but most will remain, especially in the case of locatable minerals, where the location of the operation is fixed and development of the mineral deposit is not a discretionary decision by the BLM. Under this alternative, only twenty-nine percent of the Fortymile caribou herd concentrated calving area would be closed to mineral location, entry, and leasing (such as that within Yukon-Charley Rivers National Preserve). Some fragmentation of habitats and reduction in habitat quality for caribou and Dall sheep are likely under this alternative. Some portions of the current caribou calving area could become unused or little used. The degree of impact will be related primarily to the amount and type of mining development that occurs.

4.4.1.7.5. Alternative E (Proposed RMP)

Effects from Fish and Aquatic Species

Ten RCAs and two High Priority Restoration Watersheds are designated and closed to locatable and leasable minerals. Therefore, Fish and Aquatic species management in Alternative E would be beneficial to wildlife, especially riparian and wetland-dependent wildlife, relative to alternative C.

Effects from Wildlife

In Alternative E, management provisions very similar to those of the ACEC in other alternatives (but not including mineral closures) are applied to a larger area delineated as crucial caribou and Dall sheep habitat. However, these provisions will likely be somewhat less effective in protecting habitat values than if applied to a designated ACEC.

Effects from Leasable Minerals

The effects will be similar to Alternative B, except that slightly more (fifty percent of subunit) is open to leasing and so greater potential for exploration and leasing exists than in Alternative B, but less than in Alternative C.

Effects from Locatable Minerals

Sixty percent of the subunit lands would be opened to mineral location and entry, so the effects of mining for locatable minerals on wildlife would be similar to Alternative C (67 percent open). Of BLM lands in the area of concentrated calving/postcalving of the radiocollared Fortymile caribou herd during the last 16 years, 49 percent will be open for mineral entry and location (the same as Alternative C).

Under this alternative, the potential impacts to caribou calving and postcalving habitats will be less than in Alternative D and similar to alternative C. These BLM lands include some of the most concentrated areas of documented calving/postcalving. Also, all Dall sheep range on BLM lands remains closed to mineral location and entry in Alternatives C and E, as do identified ungulate mineral licks. The number of placer mining and suction dredge operations is predicted to be the same as in Alternative B. However, the number of mining operations could be much larger than predicted, dependent on the results of exploration, the prices of minerals, and access which may be provided by other activities. Also, new mines may be initiated in remote areas, requiring access (roads and trails) which may have larger impacts on wildlife than mines near the road system. All of these potential impacts are similar in Alternative E and Alternative C.

Effects from Forest Products

Potential impacts from harvest of timber and other forest products will be similar to, but lower, in Alternative E than Alternative C. Contrary to Alternative C, Alternative E will not allow commercial timber sales in the two ACECs or in crucial caribou and Dall sheep habitat but will consider applications for personal use of timber and commercial use of forest products in the "Wild" segments of the Fortymile WSR.

Effects from Recreation

Similar to Alternative C.

Effects from Travel Management

Effects from OHVs would be similar to Alternative D because cross-country summer OHV travel will be allowed (OHV travel was limited to existing routes in Alternatives B and C). In addition, Alternative E would allow summer OHV use in essentially the entire subunit (except the Mosquito Flats ACEC), although in crucial caribou and Dall sheep habitat this use would be limited (following travel management plan completion) to designated routes where it is compatible with caribou and Dall sheep habitat. Alternative C prohibited OHV use in Semi-Primitive RMZs, Alternative E does not. In the Semi-Primitive and Backcountry RMZs (portions of the Fortymile WSR corridor) management to avoid extensive summer OHV use will likely be implemented in the subunit Travel Management Plan.

Alternatives C, D, and E allow motorboats on non-navigable "Wild" segments of the Fortymile WSR (Alternatives A and B do not) and Alternative E also allows airboats, hovercraft, and personal water craft on all waters including non-navigable "Wild" segments. Potential effects of motorized boat usage are discussed in the "Common to All Subunits" section. An increase in motorized boat usage will occur with the addition of boat types allowed. Rocky rapids and

difficult current at The Kink on the North Fork Fortymile would presumably limit the numbers of motorboats using the North Fork, Champion Creek, Middle Fork, and Joseph Creek. Jetboats and airboats would not likely use the area above The Kink in large numbers, because it would generally require portaging around the rapids; hovercraft would be more likely to traverse or be portaged around the rapids. Some motorized use of the Wild segments will likely occur (if allowed) and expose wildlife that are not habituated to these activities.

The Mosquito Fork above Ingle Creek is not generally suitable for prop boat use and jetboat use may at times be limited by rock and low water. Hovercraft and airboat use could occur under most conditions. Airboat and hovercraft use could occur in wetlands along the Mosquito Fork and continue upstream beyond the Wild River Corridor into Mosquito Flats wetlands. Peregrine falcon, osprey, and bald and golden Eagle (and some waterfowl) nest along Mosquito Fork and would be disturbed by such use. Airboat and hovercraft use in Mosquito Flats could affect waterfowl nesting and moose calving. Most motorboat use would likely occur during hunting seasons which are mostly during the late-nesting or post-nesting periods, reducing potential impacts. Technological changes in capabilities of motorized boats could result in greater use of remote areas or those difficult to access due to water and channel conditions.

Overall, the negative impacts of Travel Management on wildlife will be less than Alternative A and similar to (but less than) Alternative D. Travel Management plans, planned to be completed in 5 years, may reduce impacts of summer OHVs.

Effects from Special Designations

The Fortymile ACEC is smaller in size than in Alternative C (equivalent in area to the central portion of the ACEC in Alternative C that was closed to mineral location, entry, and leasing, see Maps 61, 63, and 103). This protects roughly 49% of the Fortymile caribou herd recent concentrated calving/postcalving habitat (which is also important to caribou in other seasons) from effects of locatable minerals and also protects habitats of other species as well. In Alternative E, management provisions similar to those of the ACEC in other alternatives (but not including mineral closures) are applied to a larger area delineated as crucial caribou and Dall sheep habitat. However, these provisions will likely be somewhat less effective in protecting habitat values than if applied to the same area designated as an ACEC.

The Mosquito Flats ACEC (not designated or receiving special management in any other alternative) will be established in this alternative. Management will preclude effects from locatable or leasable mineral development and summer OHV use. This will benefit wildlife that utilize wetland habitats for all or part of their life history, including moose calving (and year-round habitat) and bird nesting. The majority of trumpeter swan nesting on BLM lands in the planning area (documented in statewide surveys) occurs in Mosquito Flats; bald eagle and osprey nest along the Mosquito Fork, and an unusually dense population of short-eared owls occurs in Mosquito Flats.

Effects from Special Designations

The Fortymile ACEC covers more of the Fortymile Herd calving/postcalving distribution (nearly as large as in Alternative B) and is all closed to mineral leasing and location (as compared to a partial closure in Alternative C). This protects most of the Fortymile caribou herd recent calving/postcalving habitat (which is also important to caribou in other seasons) from effects of locatable minerals and also protects habitats of other species as well.

The Mosquito Flats ACEC (not designated or receiving special management in any other alternative) will be established in this alternative. Management will preclude effects from locatable or leasable mineral development and summer OHV use. This will benefit wildlife that utilize wetland habitats for all or part of their life history, including moose calving (and year-round habitat) and bird nesting. The majority of trumpeter swan nesting on BLM lands in the planning area (documented in statewide surveys) occurs in Mosquito Flats; bald eagle and osprey nest along the Mosquito Fork, and an unusually dense population of short-eared owls occurs in Mosquito Flats.

4.4.1.7.6. Cumulative Impacts

Cumulative impacts will be greatest to caribou and are discussed in section 4.3.1.12 Wildlife, Effects Common to All Subunits, because Fortymile caribou range across all subunits (and into Canada). Other wildlife species may also experience effects similar to those discussed in that section. The lands in the Fortymile subunit are more dispersed among other landowners than in other subunits, so cumulative impacts will be determined to a greater extent by actions on other lands. Mineral and resource development is a priority on Native Corporation. State lands were selected largely on the basis of mineral potential and resource development is a priority, but they are also managed for multiple use. Caribou and other wildlife will be affected by the regional extent and magnitude of mineral development in combination with other activities which create and utilize access to remote areas (such as recreational OHV use).

4.4.2. Resource Uses

4.4.2.1. Locatable Minerals Fortymile Subunit

Summary of Effects

Under Alternative A, the potential for future exploration and development would be limited to existing mining claims. Mining activity would decrease over time as land encumbrances would prohibit new mining claims. Alternatives B, C, D, and E would open large acreages to new mineral entry, ranging from 800,000 acres to 1,713,000 acres, including some high mineral potential lands, pending the removal of existing withdrawals. All alternatives would close portions of the Forytmile WSR Corridor, impacting locatable minerals. All closures or restrictions would prevent obtaining the minerals, and their benefits to society would remain unavailable for the foreseeable future. Additionally, the infrastructure that typically accompanies development would not occur.

4.4.2.1.1. Effects Common to All Alternatives

State- and Native-selected lands would remain segregated from mineral entry and location until final land title has been established. New mining operations, regardless of size, on withdrawn lands would require a validity exam prior to approval of a Plan of Operation. All active mining operations would be required to submit a Plan of Operation if the 1,000 ton bulk sample is exceeded (43 CFR 3809.11(b)). Mining operations using cyanide in the processing of amenable ores would require a Plan of Operations and a financial guarantee outside the statewide bond pool. Mining claim surface occupancy would be guaranteed, but it must remain reasonably incident to the current levels of mining activity. Bonding would be required of all mining operations other than those grandfathered under 43 CFR 3809.300 and 43 CFR 3809.400. Reclamation of surface

disturbance is required. Undue and unnecessary degradation would remain the standard for mining operations on BLM lands. The right of reasonable access across BLM lands to unpatented federal mining claims would be assured. Cultural resources encountered during surface-disturbing activities are subject to the Antiquities Act (43 CFR 420(b)(8). Economic impacts of mining decisions are analyzed in section 4.4.4.1 Economics Fortymile Subunit.

Riparian Conservation Areas (RCAs) would be established on river drainages that have been identified for the protection of fish resources. Additional baseline data would be required in RCAs prior to surface disturbance on valid existing claims. Active restoration practices would be developed and implemented in these areas. This additional cost for doing business would turn many prospective miners away and recovery of those minerals within the RCA would not be available for the benefit of society.

4.4.2.1.2. Alternative A (No Action)

Under Alternative A, no withdrawal review would occur and all ANCSA 17d(1) withdrawals would not be revoked. The BLM would continue to administer new and existing operations on federal unpatented mining claims though Notices or Plans of Operations. However, the potential for future exploration and development would be limited to 10,000 acres of existing mining claims. Overall mining activity will likely decrease as there would be no opportunities to stake new federal claims to offset claim attrition. This alternative would offer no process to address these mineral closures.

4.4.2.1.3. Alternative B

Under Alternative B, 1,076,000 acres would be closed to locatable mineral entry in the Fortymile Subunit. Most closures would be discretionary, with the exception of the “wild” segments of the Fortymile WSR. Closures include the Fortymile WSR Corridor, the Fortymile SRMA, the Fortymile ACEC, ungulate mineral licks, disposal lands, BLM Administrative Sites, Fort Egbert, and the Eagle recreation withdrawal. Additionally, the Sam Patch Creek – Fortymile River watershed would be identified as a High Priority Restoration Watershed and emphasized for restoration.

The mineral closures associated with the Fortymile River would be the most likely to impact locatable minerals. The Fortymile River has historically been known for mining and is considered to have high mineral potential for location. Operating mining claims in the drainage currently exist, but if they were lost by the claimants no additional staking could be made. All closures or restrictions prevent obtaining the minerals and their benefits to society would remain unavailable for the foreseeable future. Additionally, the infrastructure that typically accompanies development would not occur.

The remaining 800,000 acres in the subunit would be open to locatable minerals, including some high mineral potential lands. An estimated total of three large-scale placer, 31 small-scale placer, and 10 suction dredge operations could occur on lands that are available to entry (two large-scale placer, 27 small-scale placer, and seven suction dredge operations already exist). There would be potential beneficial impacts to mining compared to Alternative A due to recommended removal of existing withdrawals.

4.4.2.1.4. Alternative C

Under Alternative C, 623,000 acres in the Fortymile Subunit would be closed to locatable mineral entry. Closed areas include the same areas that are closed under Alternative B, except for a portion of the Fortymile ACEC. Some areas of medium potential would be closed. Additionally, the Sam Patch Creek-Fortymile River watershed would be identified as a High Priority Restoration Watershed. If this watershed were restored, those restored portions would not be available for mining and it would be considered closed for the life of the plan. The 623,000 acres closed to mineral entry would constrain extraction of the minerals and their benefits to society would remain unavailable for the foreseeable future. Additionally, the infrastructure that typically accompanies development would not occur.

The remaining 1,253,000 acres in the subunit would be open to locatable mineral entry, including some high potential lands. An estimated four large-scale placer, 33 small-scale placer, and 14 suction dredge operations could occur on lands that are available (two large-scale placer, 27 small-scale placer, and seven suction dredge operations already exist).

4.4.2.1.5. Alternative D

Under Alternative D, 163,000 acres in the Fortymile Subunit would be closed to locatable mineral entry. Closures include only the "wild" and "recreational" segments of the Fortymile WSR, ungulate mineral licks, disposal lands, BLM Administrative sites, Fort Egbert, and the Eagle recreation withdrawal. One difference from Alternative C would be that "scenic" segments of the Fortymile WSR would be open to mineral location. Effects from the Sam Patch Creek – Fortymile River High Priority Restoration Watershed would be the same as Alternative C. Although this alternative would close much fewer acres than Alternatives B or C, the areas that would be closed contain high mineral potential.

The remaining 1,713,000 acres in the subunit would be open to locatable minerals, including some high potential lands. An estimated four large-scale placer, 40 small-scale placer, and 18 suction dredge operations could occur on lands that are available (two large-scale placer, 27 small-scale placer, and seven suction dredge operations already exist).

4.4.2.1.6. Alternative E (Proposed RMP)

Under Alternative E, 745,000 acres in the Fortymile Subunit would be closed to locatable mineral entry. Closures include the entire Fortymile WSR corridor, the Fortymile and Mosquito Flats ACECs, RCAs, BLM administrative sites, Fort Egbert, and the Eagle recreation withdrawal. As in other alternatives, mineral closures associated with the Fortymile River would be the largest impact. In this area, impacts would be the same as Alternatives B and C. Recommended closures in the Fortymile ACEC would be the same as Alternative C. One change from Alternative C is the closure of the Mosquito Flats ACEC (37,000 acres). This area has medium mineral potential.

The remaining 1,132,000 acres in the subunit would be open to locatable minerals. Estimated mining activity and impacts would be similar to what is described in Alternative B. This would include three large-scale placer, 31 small-scale placer, and 10 suction dredge operations could occur on lands that are available to entry (two large-scale placer, 27 small-scale placer, and seven suction dredge operations already exist).

4.4.2.1.7. Cumulative Impacts

Impacts to locatable minerals that are individually minor may cumulatively reduce exploration and production of commodities from public lands. Factors that affect mineral extraction and prospecting include, but are not limited to, such things as permitting and permitting delays, regulatory policy, public perception and concerns, travel management, transportation, mitigation measures, proximity to sensitive areas (such as ACECs and WSRs), low commodity prices, taxes, and housing and other necessities for workers. Many of these are issues over which the BLM has no control. Most of these issues result in additional costs or permitting delays that can individually or cumulatively impact projects.

Public land that currently has no access could reduce the amount of mineral exploration and development that may occur. Mineral resources on non-BLM lands may not be developed if the adjacent public lands are withdrawn from mineral entry.

Overall, Alternative B would be the most restrictive to mineral developments and could result in the greatest cumulative impacts. It recommends the most acres be maintained as withdrawn from mineral entry, the most areas limited or closed to motorized travel, and the highest protection to other resources. Estimated mining activity and impacts would be similar to what is described in Alternative B. This would include three large-scale placer, 31 small-scale placer, and 10 suction dredge operations could occur on lands that are available to entry (two large-scale placer, 27 small-scale placer, and seven suction dredge operations already exist). Alternative D would have the fewest cumulative impacts.

4.4.2.2. Recreation Fortymile Subunit

Summary of Effects

Effects on recreation management from the proposed alternatives would result in a wide range of possible outcomes. Proper resource management, including site-specific measures to protect healthy, functioning watersheds, riparian areas, and associated fish and wildlife habitats, would result in short- and long-term, beneficial impacts to fish and game related recreation use.

Special designations and management applied to these areas, including ACECs and WSRs, would further protect the region, increasing wildlife numbers that benefit wildlife viewing, hunting, and fishing opportunities. Proposed management in ACECs and WSRs would encourage recreation activities of a more non-motorized, semi-primitive nature. As the size and scope of these special designations increase, opportunities for non-motorized forms of recreation would also increase. Negative effects from these designations would also arise, if additional restrictions were placed on OHV use and other recreational activities.

The delineation of special recreation management area (Fortymile SRMA) would protect and enhance recreational resources while encouraging specific targeted outcomes in these areas. Land, water, and snow based activities would continue to remain the focus in these designations, including the commonly conducted activities of boating and river based recreation, camping, fishing, gathering of edible plants and berries, hiking and backpacking, hobby mineral collecting, and OHV use.

Alternatives C and E best meets the goal of providing for multiple recreation use, while sustaining the recreation-resource base and other sensitive resource values of the region. Alternative B

emphasizes less motorized recreation use in a more primitive setting, while Alternative A offers more motorized recreation use and includes the most acreage for cross-country OHV travel, followed by Alternative D.

Table 4.10. Comparison of Recreation Indicators: Fortymile Subunit

Indicator	Alternative			
	B (acres)	C (acres)	D (acres)	E (acres)
Special Recreation Management Area	798,000	248,000	248,000	248,000
Other BLM Lands	1,077,000	1,628,000	1,628,000	1,628,000
Recreation Setting Character (acres)				
Primitive	0	0	0	0
Semi-Primitive	626,000	144,000	54,000	144,000
Backcountry	162,000	82,000	96,000	82,000
Middlecountry	6,800	11,500	77,000	11,000
Frontcountry	3,400	10,200	14,900	10,000
Rural	840	840	7,640	1,000

4.4.2.2.1. Effects Common to All Alternatives

Effects from Forest and Woodland Products

Under all alternatives, the effects of forest and woodland products harvest would result in minimal impacts to recreation management. Current levels of firewood collection, commercial harvests, and forest products gathering would continue to be sustained without significant resource damage. However, if significant sales of forest products took place, due to bark beetle infestations or from commercial timber harvests, recreational users would see increased trails, potential dislocation of wildlife, and alteration of scenic viewsheds.

Although the areas open to commercial uses vary between alternatives, the low demand and lack of timber resource would limit these uses and any effects on recreation in all alternatives.

Effects from Wildlife

Wildlife goals to protect and enhance wildlife populations and crucial habitat areas would continue to impact recreation. Through avoidance areas and other restrictions on recreational development including possible seasonal or timing closures, location changes, and limiting the extent of activities or development; wildlife concerns could make certain projects more costly, more difficult if not impossible to accomplish, or may not meet recreation objectives after restrictions are placed on them. Healthy wildlife populations would benefit hunting, wildlife viewing, and trapping which are all generally secondary activities in most RMZs; but placing access restrictions could offset that benefit to participate in those activities. The biggest impacts to recreation from wildlife would be in limiting potential motorized and non-motorized recreational opportunities.

The prohibition of the use of domestic goats, sheep and camelids in Dall sheep habitat could impact recreation use by users seeking to use these animals as pack animals as part of their recreation experience. It is anticipated that this is a small user group but interest has been growing in the lower 48 states.

Effects from Recreation

Under all alternatives, management actions would continue to provide for multiple recreation uses, including a wide-range of structured opportunities that produce specific targeted outcomes (such as activities, experiences, benefits, and settings). The Eastern Interior FO would continue to manage the 392 miles of river segments that comprise the Fortymile WSR, to preserve and enhance their resource values. Management would also continue for the three developed campgrounds, seven waysides, and one National Historic Landmark that presently exist within the Subunit. Together, these actions would directly affect recreation management by ensuring that land- and water-based recreational opportunities continue to exist in both designated and undesignated areas.

Special Recreation Permits would continue to be issued as appropriate for commercial, competitive, and special event use, allowing managers to provide for safe and enjoyable recreation opportunities at fair and allowable levels. This would minimize user conflicts while ensuring that recreation activity levels do not negatively impact the recreation-resource base and other sensitive resource values of the region.

Under the A alternative, winter use (October 15 through April 30) of snowmobiles of 1,500 pounds GVWR and less would be allowed and under Alternatives B, C, D and E winter use (October 15 through April 30) of snowmobiles of 1,000 pounds curb weight and less would be allowed, nearly the same as Alternative A, providing opportunities for recreational users during the winter months. During the summer months, all forms of non-motorized use would generally be allowed, except to protect specific resource values, preserve public safety, and maintain identified recreation opportunities.

Effects from Salable Minerals

Most salable mineral sites (such as gravel pits) are located within or adjacent to roads and highways. As a result, impacts from salable mineral management have little effect on recreational experiences. Where gravel pit development occurs, reduced viewsheds would inhibit the quality of visual resources. However, gravel pits would also provide users with de-facto parking areas and areas for motorized play.

Effects from Travel Management

Under all alternatives, travel management actions would provide for a range of motorized and non-motorized recreation experiences, while protecting resource values and minimizing user conflicts. This comprehensive approach to travel management would allow the BLM to sustain and enhance recreation opportunities and experiences, visitor access and safety, and resource conservation.

All forms of non-motorized use would be allowed, providing users with opportunities for float-boating (including rafting, kayaking, and canoeing), hiking, biking, and horseback riding. Winter use (October 15 through April 30) of snowmobiles of 1,500 pounds GVWR (Alternaive A), and 1,000 pounds Cub Weight (Alternatives B, C, D and E) or less would be allowed, providing opportunities for recreational users during the winter months. The use of aircraft would also be allowed, subject to reasonable provisions to protect the values of the Fortymile WSR.

4.4.2.2.2. Alternative A (No Action)

Effects from Visual Resources

Under this alternative, no VRM classes have been established, except in the "wild" segments of the Fortymile WSR, which is managed as VRM Class I by policy. The lack of VRM class designations would have a limited effect on recreation as the effects to scenic quality would be evaluated and mitigated for any proposed project.

Effects from Lands and Realty

Under Alternative A, no lands are specifically identified for disposal or acquisition and there would be no impact to recreation from land tenure actions.

Land use authorizations, such as leases and permits, could potentially result in additional development that may adversely affect those areas being managed for Primitive or Semi-Primitive recreation experiences. These effects may include impacts to visual resources, increased visitor encounters, and a diminished recreation experience. On the other hand, land use authorizations could also result in increased access opportunities, for those seeking a motorized experience.

Maintenance of the withdrawal of the Wade Creek "recreational" segment of the Fortymile WSR would allow the BLM to manage this area for recreational gold panning.

Under Alternative A, long-term camping permits for commercial purposes (i.e., camping in association with mining on state mining claims adjacent to BLM lands) is allowed in the "scenic" and "recreational" segments of the Fortymile WSR Corridor, but not the "wild" segment. The effect of this decision is that operators working state mining claims in the "wild" segments of the river must camp on state land, or below ordinary high water. As a result, the entire camp, as well as the suction dredging operation, is visible to recreational users of the "wild" segments of the Fortymile WSR, affecting the scenic quality of the experience. This may negatively effect those users anticipating a Primitive recreational experience on the "wild" segments of the river.

Effects from Locatable Minerals

Although no new lands would be opened to mineral entry in Alternative A, some mining would continue to occur on valid existing claims. Six suction dredge operations, 27 small-scale placer mine operations, and two large-scale placer mine operations are anticipated. Under all alternatives, mineral development through the use of suction dredging or placer mining activities, has the potential to affect recreation management, particularly if development occurs in areas that provide Semi-Primitive recreation experiences. The development of necessary infrastructure for mineral activities could compromise the experiences of those recreation users whose expectations include a high degree of solitude and tranquility, within a naturally-appearing landscape. Adverse impacts on recreation users could also arise from intrusive noise and altered viewsheds produced by mining equipment and OHVs that are used in mining operations. Small mineral development may enhance recreational access by providing for remote airstrips and localized OHV trails.

Effects from Recreation

In addition to those effects discussed under the Effects Common to All Alternatives section above, the BLM would continue to manage only one SRMA, the Fortymile River (249,000 acres), under this alternative. Facility enhancements (such as roads, toilets, boat ramps, and parking areas) may be added to these areas to accommodate increasing recreation demand. All public lands outside of the Fortymile River SRMA would be managed as other BLM lands (1,827,000 acres). Management outside the SRMA would generally be custodial action only, and would result in less facility enhancements (such as trails or interpretive panels).

Effects from Travel Management

This alternative provides the most motorized public access of any of the alternatives, as OHV use would continue to be managed in accordance with existing OHV limitations. Travel within the Fortymile WSR Corridor would be limited to vehicles 1,500 pounds GVWR and less, while travel outside of the corridor would remain generally unrestricted, as there are no OHV designations in place.

Allowing this level of continued OHV use would not address resource and user conflict issues and could result in emergency closures to protect the recreation-resource base and other sensitive resource values of the region. These actions could also result in long-term, detrimental impacts to scenic viewsheds that enhance the quality of recreational experiences for other recreation users. Thus, while this alternative would offer the most opportunities for recreational activities that involve the use of motorized travel, including hunting and OHV riding; fewer opportunities would exists for recreational users seeking a Semi-Primitive, non-motorized type of experience, characterized by a high degree of solitude and tranquility, within a naturally-appearing landscape.

In Alternative A motorized boat travel is allowed on all designated navigable sections of the Fortymile WSR. Motorized use is prohibited on the non-navigable sections except under the provisions of 43 CFR 3809. By not allowing motorized boat use on the non-navigable sections opportunities for a more primitive experience are greatly enhanced. Motorized use on the "scenic" segments of the river do detract from the naturalness enjoyed by most recreational users, but is not managed to the same degree of primitive as the non-navigable sections. The sounds and sights of motorboats and other watercraft passing float-boat users does incur an increased impact on the recreational experience, but is generally temporary in nature. The overall impacts are expected to be light.

Effects from Special Designations

There would be no impacts from ACECs, as no areas are currently being managed for ACECs under Alternative A.

Under all alternatives, the 392 miles of river that comprise the Fortymile WSR would continue to be managed to preserve and enhance their Outstandingly Remarkable Values. This designation would provide long-term, beneficial impacts to those recreation users seeking land- and water-based recreation activities in these areas.

4.4.2.2.3. Alternative B

Effects from Visual Resources

Under this alternative, the "wild" segments of the Fortymile River would be identified as VRM Class I, the "scenic" segments would be Class II, and the "recreational" segments would be Class III. RMZs with a RSC Class of Semi-Primitive or Backcountry would be Class II, while Middlecountry, Frontcountry, or Rural would be Class III. All remaining BLM-managed lands would be assigned Class IV. These visual resource management decisions would have long-term, beneficial impacts on recreational activities that include scenic qualities as part of the experience. Minor effects of visual resource management may result if restrictions are placed on facility development or OHV use, in areas that possess increasing recreation demands.

Effects from Wilderness Characteristics

For those individuals who seek a primitive and unconfined recreation experience, areas identified to be maintained for wilderness values would be protected and preserved to ensure that they continue to remain available for appropriate uses (such as hiking, sightseeing, photography) by present and future recreation users. Under this alternative, forty-seven percent of the subunit (994,000 acres), within the Fortymile ACEC and on Wild and Scenic River segments that do not contain mining claims, would be managed to maintain wilderness characteristics.

Effects from Land and Realty Actions

Alternative B identifies numerous parcels (Appendix G, *Land Tenure*) for disposal. All of the lands proposed for disposal are isolated from other BLM lands and not easily managed and disposal would not decrease the area of public lands available for recreation activities. The acquisition of private land inholdings from willing sellers within areas identified as Zone 1, including lands in the Fortymile WSR Corridor and Fortymile ACEC, could provide long-term, beneficial impacts to those recreation users seeking land- and water-based recreation experiences in these areas.

The authorization of long-term camping permits for commercial purposes would not be allowed in "wild," "scenic," or "recreational" segments of the Fortymile WSR Corridor. This restriction would impact the scenic viewshed and Primitive recreational experiences on any segment of the river where suction dredging was occurring on state mining claims. The effects would be somewhat higher than under Alternative A.

Effects from Locatable Minerals

Under Alternative B, impacts to recreation from locatable minerals would be similar to, but somewhat greater than those discussed under Alternative A as mining activity increases in response to opening additional lands to mineral entry. Approximately 977,000 acres would be opened to locatable mineral entry and 10 suction dredge operations, 31 small-scale placer mine operations, and three large-scale placer mine operations are expected to develop within the Fortymile Subunit. The areas that currently have the most concentrated recreational use, the Fortymile WSR Corridor, Fort Egbert, and the Eagle Recreational withdrawal, would remain closed to new mineral entry. Additional effects to recreation would be in areas of more dispersed recreation use.

Closure of 1,100,000 acres to locatable mineral entry, including the Fortymile SRMA would help to maintain the RSC setting prescriptions identified for the recreation management of all physical, social, and administrative settings of the region. Withdrawal of the "recreational" segment of the Fortymile (Wade Creek) would allow the BLM to manage this area for recreational gold panning.

Effects from Recreation

In addition to those effects discussed under the Effects Common to All Alternatives section above, the BLM would continue to manage one SRMA (792,000 acres) under Alternative B. When compared to Alternative A, the size of the SRMA would increase by 318 percent.

Management actions would provide for multiple recreation activities within a variety of RSC settings. The BLM would manage 626,000 acres as Semi-Primitive, 162,000 acres as Backcountry, 6,800 acres as Middlecountry, 3,400 acres as Frontcountry, and 840 acres as Rural. Semi-Primitive (seventy-eight percent) accounts for the largest setting, while Frontcountry (0.4 percent) and Rural (0.1 percent) represent the smallest settings. These percentages are indicative of the management emphasis for recreation activities on BLM-managed lands. A much greater

portion of the Subunit would be reserved for the Semi-Primitive experiences of non-motorized use, when compared to the more Frontcountry experiences of motorized use. Facility structures would be primarily limited to rustic and rudimentary buildings, generally constructed using natural materials, and designed to blend with surrounding landscape. These management decisions would affect recreation by providing high-quality recreation opportunities for those users who desire an experience characterized by solitude, tranquility, and self-reliance.

Effects from Travel Management

Under Alternative B, travel management prescriptions for the Semi-Primitive Zones (Map 44) would require a permit or approved plan of operation for all forms of OHV use, except the winter use of snowmobiles of 1,000 pounds curb weight and less. As a result, more area would be made available for recreational users seeking primitive, non-motorized forms of recreation, including hiking, horseback riding, and float-boating opportunities. In contrast, less area would be available for those users seeking motorized forms of recreation, including boating and OHV use.

Travel within BLM-managed lands outside the SRMA, Backcountry, Middlecountry, Frontcountry, and Rural Zones (Map 44) would be limited to the summer-use of OHVs (weighing 1,500 pounds curb weight and less) on existing routes only, and the winter use of snowmobiles of 1,000 pounds curb weight and less. All other forms of OHV use within these zones would require a permit or approved plan of operation. These management actions, while benefiting the effect on visual resources (through limiting the establishment of trails), would negatively impact those users who utilize OHVs for accessing remote areas, and by those retrieving game.

Under Alternative B, all forms of non-motorized use would be allowed. Motorboat use would generally be allowed without specific authorization consistent with ANILCA sections 1110(a) and 811. Airboats, hovercraft, and personal watercraft would not be permitted in the following non-navigable river segments: the North Fork above the Kink, the Middle Fork, Champion Creek, Joseph Creek, Mosquito Fork above Ingle Creek, and Gold Run suitable segments. The closure procedures under 43 CFR 36.11(h) would be followed. The airboat, hovercraft, and personal watercraft closures in the Semi-Primitive North Fork Fortymile and Mosquito Fork Fortymile RMZs would enhance the opportunities which they are designated for. Motorboat use in these areas would cause less impact than the louder airboat and hovercraft vessels, but could still create temporary impacts to recreational float-boaters seeking a Semi-Primitive experience. The long-term impacts are expected to be fairly minimal due to the natural barriers and limitations of vessels to access these sections of the river. On the remaining sections of the river in both Semi-Primitive and Backcountry RMZs, the allowance of motorboats, airboats, hovercrafts, and personal watercraft would continue to create temporary sound and sight impacts to recreational users; but the setting prescriptions would offer greater allowances for these impacts. Overall impacts from motorized use on the river is not anticipated to change much from the current situation.

Overall, Alternative B offers the least opportunity for recreational activities that involve the use of motorized travel, compared to all other alternatives.

Effects from Special Designations

Under this alternative, 690,000 acres would be designated as the Fortymile ACEC to protect caribou and Dall sheep habitat. This ACEC designation would maintain or protect wildlife habitat, potentially increasing wildlife numbers that have beneficial impacts on wildlife viewing

and hunting. Negative effects of ACEC designation may also result, if additional restrictions are placed on OHV use and other recreational activities.

Under Alternative B, two eligible river segments (Gold Run and Dome Creek) would be recommended as suitable for designation under the WSR Act. If they were designated by Congress, the effect of these inclusions into the WSR system would ensure the protection and enhancement of the outstandingly remarkable historic values for which the rivers were identified, providing long-term, beneficial experiences for those individuals seeking historical and cultural appreciation opportunities. Effects from the Fortymile WSR designation would be the same as Alternative A.

4.4.2.2.4. Alternative C

Effects from Visual Resources

Effects would be the same as discussed under Alternative B, except less area would be designated as VRM Class I and II, and more area in Class III and IV. In addition, "recreational" segments of the Fortymile River that were identified as Class II, under Alternative B, are now identified Class IV. These visual resource management decisions would result in fewer restrictions being placed on facility development or OHV use in areas of increasing recreation demand. However, fewer areas would be protected for recreational activities that include scenic qualities as part of the experience.

Effects from Wilderness Characteristics

Effects would be the same as discussed under Alternative B, except less area would be managed to maintain the wilderness characteristics of naturalness and solitude, or primitive and unconfined recreation. Under this alternative, twenty-three percent of the Subunit (487,000 acres), within non-navigable “wild” river segments, including the North Fork above the Kink and the Mosquito Fork, would be managed to maintain wilderness characteristics.

Effects from Land and Realty Actions

Effects from land tenure decisions (such as disposals and acquisitions) would be the same as discussed under Alternative B.

Under Alternative C, the authorization of long-term camping permits for commercial purposes would be allowed in the “scenic” and “recreational” segments of the Fortymile WSR Corridor, but not the “wild” segment. The effect of this decision would be the same as Alternative A.

Effects from Locatable Minerals

Impacts to recreation from locatable minerals would be similar to, but slightly greater than those discussed under Alternatives A and B. Under Alternative C, 1,496,000 acres would be opened to locatable mineral entry and approximately 14 suction dredge operations, 33 small-scale placer mine operations, and three large-scale placer mine operations are expected to occur.

As in Alternative B, the Fortymile WSR, Fort Egbert, and the Eagle Recreational withdrawal would remain closed to new mineral entry. Closure of 608,000 acres to locatable minerals would enhance recreation by protecting caribou and Dall sheep habitat, helping to preserve both the Outstandingly Remarkable Values of the Fortymile WSR and recreation opportunity settings, and allow the BLM to manage the “recreational” segment of the Fortymile WSR for recreational gold panning.

Effects from Recreation

In addition to those effects discussed under the Effects Common to All Alternatives section above, the BLM would continue to manage only one SRMA (249,000 acres) under this alternative. Thus, while similar in size to Alternative A, the SRMA designation for this alternative would decrease by 318 percent, when compared to Alternative B. As a result, more area would be managed outside the SRMA, resulting in fewer facility enhancements and fewer restrictions on OHV use. Accordingly, slightly more motorized opportunities would be available due to the increased area of lands outside the SRMA.

Similar to Alternative B, the BLM would manage for multiple recreation activities within a variety of RSC settings. This alternative would recognize 144,000 acres as Semi-Primitive, 82,000 acres as Backcountry, 11,500 acres as Middlecountry, 10,200 acres as Frontcountry, and 840 acres as Rural. Like Alternative B, Semi-Primitive (fifty-eight percent) accounts for the largest setting, while Frontcountry (four percent) and Rural (0.3 percent) represent the smallest setting; effects on recreation from these designations are similar to those described under Alternative B.

Effects from Travel Management

Effects would be similar to Alternative B, except more area would be made available for recreational activities that involve the summer-use of motorized travel. Travel on lands outside the SRMA, and within Backcountry, Middlecountry, Frontcountry, and Rural Zones (3, 4, 5, 6, 7, 8, 9 and 10) would be limited to summer-use of OHVs (weighing 1,500 pounds curb weight and less) on existing routes only, except for game retrieval. This would provide a direct benefit to recreational hunters who could retrieve legally harvested big-game animals off of pre-existing routes.

Effects from Special Designation

Under Alternative C, 554,600 acres would be designated as the Fortymile ACEC. Effects would be the similar as those discussed under Alternative B, except less area would be designated to protect caribou habitat.

Effects from the Fortymile WSR designation would be the same as Alternative A. No additional river segments would be recommended for designation, thus there would be no beneficial effects from designation of new rivers.

4.4.2.2.5. Alternative D

Effects from Visual Resources

Effects would be similar to Alternative C, except more area is classified as VRM Class III and IV, and less area in Class II. These decisions would result in less protection of important viewsheds for recreation activities that include scenic qualities as part of the experience. In contrast, fewer restrictions would be placed on facility development or OHV use in areas that possess increasing recreation demand.

Effects from Wilderness Characteristics

Effects are expected to be very minimal in Alternative D. 54,000 acres are identified to be maintained as lands with wilderness characteristics or 2.5 percent of the area. The majority of these areas would include the Semi-Primitive RMZs in which compatible objects could be attained

Effects from Land and Realty Actions

Effects from land tenure decisions (such as disposals and acquisitions) would be the same as discussed under Alternative B.

Under Alternative D, the authorization of long-term camping permits for commercial purposes would be allowed in the "wild," "scenic," and "recreational" segments of the Fortymile WSR Corridor, allowing for camps associated with suction dredging on state mining claims to be located on the uplands in all river segments. Recreational users of the river would still see the suction dredging operation, but the camps would be screened from view. Impacts to scenic quality would be reduced compared to Alternatives A, B, and C. The recreational experience on the "wild" segments of the river would likely be of a more primitive nature.

Effects from Locatable Minerals

Under Alternative D 1,922,000 acres would be open to locatable mineral entry and approximately 18 suction dredge operations, 34 small-scale placer mine operations, and three large-scale placer mine operations are expected to occur. The effects on recreation from locatable mineral entry would be similar to, but slightly greater than under Alternatives A, B, and C. The "scenic" segments of the Fortymile WSR would be opened to new mineral entry. Unlike the other alternatives, there would be effects within portions of the Fortymile WSR Corridor. If mining occurred, this could negatively affect recreation opportunity and settings. Closure of 156,000 acres to locatable minerals would enhance recreation in these areas.

Effects from Recreation

In addition to those effects discussed under the Effects Common to All Alternatives section 4.4.2.2 above, the BLM would continue to manage one SRMA (249,000 acres) under this alternative. While the SRMA designation for this alternative would be identical in size to Alternatives A and C, it would be 318 percent smaller than Alternative B.

Similar to Alternatives B and C, the BLM would continue to manage for multiple recreation activities within a variety of RSC settings. This alternative would recognize 54,000 acres as Semi-Primitive, 96,000 acres as Backcountry, 77,000 acres as Middlecountry, 14,900 acres as Frontcountry, and 7,640 acres as Rural. Consequently, a much greater portion of the Subunit is reserved for the Backcountry and Middlecountry activities of motorized use, when compared to the more Primitive activities of non-motorized use.

Effects from Travel Management

Effects would be similar to Alternative B, except more area would be made available for recreational activities that involve the summer-use of motorized travel. The Semi-Primitive Zone for this alternative, which limits summer motorized use except by permit, encompasses only three percent of the subunit (54,000 acres), compared to six percent in Alternative C, thirty percent in Alternative B and zero percent in Alternative A. These decisions could potentially diminish the recreational experience of users seeking a primitive, non-motorized type of experience, while increasing the area available for motorized use. Allowing this level of OHV use could potentially result in an increased occurrence of user conflict issues.

Effects from Special Designations

Under Alternative D, 554,000 acres would be designated as the Fortymile ACEC. Effects would be the similar as those discussed under Alternative B, except management in the ACEC would be less protective of caribou and Dall sheep habitat. Thus, less potential would exist for increasing wildlife numbers that have beneficial impacts on wildlife viewing and hunting.

Effects from WSR would be the same as Alternative C.

4.4.2.2.6. Alternative E (Proposed RMP)

Effects from Visual Resources

Effects same as discussed in Alternative C.

Effects from Wilderness Characteristics

Under Alternative E, no lands would be managed to protect wilderness characteristics as a priority over the other resource values and multiple use. Wilderness characteristics would be maintained on 556,000 acres by limiting activities that impact wilderness characters of size, naturalness and outstanding opportunities for solitude or primitive and unconfined recreation. OHV use would be allowed on all lands subject to weight limitations. The remaining 1,321,00 acres would be managed for other resources as priority over protecting wilderness characteristics.

Effects from Land and Realty Actions

Effects of land disposal would be the same as Alternative B. The effects of authorization of long-term camping permits for commercial purposes would be the same as Alternative D.

Effects from Locatable Minerals

Similar to Alternative B, impacts to recreation from locatable minerals would be similar to, but somewhat greater than those discussed under Alternative A as mining activity increases in response to opening additional lands to mineral entry. Approximately 1,132,000 acres would be opened to locatable mineral entry and 10 suction dredge operations, 31 small-scale placer mine operations, and three large-scale placer mine operations are expected to develop within the Fortymile Subunit. The areas that currently have the most concentrated recreational use, the Fortymile WSR Corridor, Fort Egbert, and the Eagle Recreational withdrawal, would remain closed to new mineral entry. Additional effects to recreation would be in areas of more dispersed recreation use.

Closure of 745,000 acres to locatable mineral entry, including the Fortymile SRMA would help to maintain the RSC setting prescriptions identified for the recreation management of all physical, social, and administrative settings of the region. Withdrawal of the “recreational” segment of the Fortymile (Wade Creek) would allow the BLM to manage this area for recreational gold panning.

Effects from Recreation

In additional to those effects discussed under the Effects Common to All Alternatives section, the BLM would continue to manage only one SRMA (248,000 acres) under this alternative with five Recreation Management Zones (RMZs) representing a full spectrum of user experiences. BLM-managed lands not designated as an SRMA encompasses 1,628,000 acres.

In this alternative, 144,000 acres will be managed as Semi-Primitive with an emphasis on non-motorized recreation, less infrastructure and small group sizes. Effects would include less facility improvements such as toilets or large. Management for Backcountry and Middlecountry with an emphasis on a mix of motorized and non-motorized uses encompasses 93,000 acres, while Frontcountry and Rural with an emphasis on build facilities and motorized trail access encompasses 11,000 acres. Effects will include more facility improvements such as toilet facilities, interpretive signage, larger trailheads, campgrounds and sites to accommodate larger group sizes. The balance of the planning area outside of the SRMA would not have a recreational emphasis and management would largely be custodial in nature and would result in less facility enhancements such as trails or interpretive panels.

The majority of recreational use in the SRMA include road travelers who seek facilities or other accommodations. The management of the Backcountry, Middlecountry, Frontcountry and Rural RMZs will provide a positive benefit to the users in these areas. The user need for toilet facilities, interpretive signs and improved trailheads will alleviate resource damage from high concentrations. Recreational users interested in a more primitive recreational experience are more likely to be further from the roadside facilities and will not want improved trailheads or permanent toilet facilities.

Effects from Travel Management

This alternative provides the second most public access of all the alternatives, as OHV use would continue to be managed in accordance with existing OHV limitations with the exceptions of the ACECs. Travel within the Fortymile WSR Corridor would be limited to 1,500 pounds curb weight or less on existing trails while travel outside the corridor will be limited to 1,500 pounds curb weight and cross country travel will be allowed. The entire subunit is open to snowmobile travel with a limitation of 1,000 pounds curb weight.

In this alternative, the majority of the subunit is open to some sort of motorized summer recreational travel with the exception of the Mosquito Flats ACEC. This alternative emphasizes opportunities for hunting, OHV riding while few opportunities would exist for recreational users seeking a non-motorized type of experience characterized by a high degree of solitude and tranquility, within the a naturally appearing landscape.

In Alternative E, all forms of motorized boat travel including hovercraft and airboats are allowed all portions of the Fortymile WSR. Motorized use on the “scenic” and “wild” segments of the river do detract from the naturalness enjoyed by most recreational users. Recreational floaters currently using the “scenic” segments do come into contact with active suction dredge operations on the river so impacts from mechanized noises should be minimal from current conditions in these segments from current conditions. Floaters on the “wild” segments will experience a one-hundred percent change in conditions from the current conditions with respect to motorized boat travel. The limitations in typography, access and water levels in most sections will minimized the occurrence of user conflicts. Sound disturbance will likely be the primary impact and will be temporary in time. The overall impacts are expected to be light.

Effects from Special Designations

Under this alternative, 362,000 acres would be designated as the Fortymile ACEC to protect caribou and Dall sheep habitat. This ACEC designation would maintain or protect wildlife habitat, potentially increasing wildlife numbers that have beneficial impacts on wildlife viewing and hunting. Negative effects of Fortymile ACEC designation may also result, if additional

restrictions are placed on OHV use and other recreational activities. The Mosquito Flats ACEC would encompass 37,000 acres to protect wetland habitat. Negative effects of this ACEC designation include restriction on summer motorized access. Positive effects of this designation include the protection of a sensitive wetland environment used for moose hunting. Recreational users can expect less user conflict.

4.4.2.2.7. Cumulative Effects

The effects of past, present and future actions, including the demand for recreational use, changes to the landscape as a result of surface-disturbing activities, and area closures or restrictions for resource protection, could affect recreation management in the Fortymile Subunit.

The demand for recreational use in the Fortymile Subunit is anticipated to increase by ten to fifteen percent over the life of the plan, due to general population increases and increases in recreation-related technology. This use would occur for both motorized (such as OHV use, including snowmobiles) and non-motorized (such as hiking, backpacking, hunting, float-boating, river-based recreation, camping, fishing, gathering of edible plants and berries) activities, resulting in an increase in resource damage and conflicts among recreationists involved in these activities.

Surface-disturbances resulting from forestry and mineral activities could cumulatively affect recreational users if activities were concentrated in heavily recreated areas and if activities overlapped in duration. Effects to recreation as a result of these cumulative effects may include the potential dislocation of wildlife for hunting and viewing purposes, and/or the alteration of scenic viewsheds.

Special designation, including ACECs and WSRs, would further protect the Fortymile Subunit, by increasing wildlife number that benefit wildlife viewing, hunting, and fishing opportunities. As the size and scope of these areas increase, opportunities for land- and water-based recreation uses that incorporate scenic viewsheds as part of the experience would also increase. However, as areas that require special management attention, to prevent irreparable damage to historic, cultural and scenic values, the need for additional restrictions could limit OHV use and other recreational activities.

Implementing any of the alternatives would not contribute to a significant change to recreational opportunities on public lands.

4.4.2.3. Travel Management Fortymile Subunit

Summary of Effects

Effects on travel management from the proposed alternatives would result in a wide range of possible outcomes. Site-specific measures to protect and preserve the recreation-resource base and other sensitive resource values, including fish and wildlife, soil, water, Special Status Species, and cultural and paleontological resources, could result in restrictions or emergency closures. Surface-disturbing activities, caused by forestry and mineral actions, could affect travel management through the expansion of the existing transportation network.

Alternative C would provide the greatest range of motorized and non-motorized recreation experiences, while protecting area resources and minimizing user conflicts. It would be followed

by Alternative B, E, then D, with Alternative A having the most potential for resource impacts and conflict among users.

Table 4.11. Fortymile: Comparison of OHV Designations

Area Designation *	Alternative									
	A		B		C		D		E	
	Acres	%	Acres	%*	Acres	%*	Acres	%*	Acres	%*
Year-round										
Undesignated	1,628,000	87	0	0	0	0	0	0	0	0
Open	0	0	0	0	0	0	0	0	0	0
Closed	0	0	0	0	0	0	0	0	0	0
Limited	248,000	13	1,876,000	100	1,876,000	100	1,876,000	100	1,876,000	100
Winter (October 15 through April 30)										
Limited: Cross–country use of vehicles 1,000 pounds curb weight and less allowed.	248,000 (1,500 lbs. GVWR and less)	13	1,876,000	100	1,876,000	100	1,876,000	100	1,876,000	100
Summer (May 1 through October 14)										
Limited: Cross–country use of vehicles 1,500 pounds curb weight and less allowed.	248,000 (1,500 lbs. GVWR and less)	13	0	0	0	0	1,822,000	97	248,000	13
Limited: Use of vehicles 1,500 pounds curb weight and less, limited to existing routes (except for game retrieval).	0	0	0	0	1,732,000	92	0	0	0	0
Limited: use of vehicles 1,500 pounds curb weight and less, limited to existing routes.	0	0	1,250,000	67	0	0	0	0	0	0
Limited: Closed to summer OHV use.	0	0	626,000	33	144,000	8	54,000	3	0	0

*Percent of BLM-managed lands (1,876,000 acres) within the Fortymile Subunit.

4.4.2.3.1. Effects Common to All Alternatives

Effects from Land and Realty Actions

Under all alternatives, land use authorizations, such as leases and permits, could potentially result in additional development that may adversely affect those areas being managed for Primitive or Semi-Primitive recreation experiences. These effects may include impacts to visual resources, increased visitor encounters, and a diminished travel experience. Alternatively, such development

could increase access to BLM lands. Effects would likely be minimal under all alternatives due to the lack of land use authorizations anticipated and the remote nature of many BLM lands.

Land tenure actions (disposal or acquisition of lands) would have little effect under any alternative. Although lands are identified for disposal under Alternatives B, C, D. and E, all of the lands proposed for disposal are small parcels that are isolated from other BLM lands. Land disposal would not substantially decrease the area of public lands available for travel activities.

Effects from Locatable Minerals

Under all alternatives, mineral development through the use of suction dredging or placer mining activities, has the potential to affect travel and transportation management through the expansion of the existing route network. The construction of winter roads and trails for mineral development would provide a direct benefit to OHV users through the enhancement of public access opportunities. These effects would be the highest under Alternatives C, D, and E, and the lowest under Alternatives A and B.

Effects from Travel Management

Under all alternatives, travel management actions would continue to provide for a range of motorized and non-motorized recreation experiences, while protecting resource values and minimizing user conflicts. This comprehensive approach to travel management would allow the BLM to sustain and enhance travel opportunities and experiences, visitor access and safety, and resource conservation throughout all alternatives.

Although it was not practical to define or delineate a comprehensive travel management network during the land use planning process (due to incomplete route data, size, and complexity of the area), approximately 350 miles of existing and recently used summer routes were identified for continued management in the Fortymile Subunit (Maps 44, 45, 46, and 47). Since all public lands are required to have off-highway vehicle area designations, Travel Management Zones (TMZs) were identified as *open*, *limited*, or *closed* under all alternatives. Areas identified as Open, permit vehicle use at all times, anywhere in the area subject to operating regulations and vehicle standards, however no areas in this subunit would be Open. Limited designations would restrict motorized vehicles to existing routes, weight, and/or season of use (Alternatives A, B, C, D, and E). No areas will be classified as Closed within the Subunit; prohibiting off-road vehicle use year round.

Under all alternatives, non-motorized travel (e.g., float-boating, pedestrian, equestrian, and mechanized uses such as mountain bikes) would continue to be allowed on all BLM lands in the Fortymile Subunit (1,876,000 acres). There would be no change from current management, and opportunities would continue for visitors who access public lands by float-boat (including rafts, kayaks, and canoes), foot, horse, or bicycle.

Over-snow motorized travel (snowmobiles) would be assigned a Limited designation for all BLM-managed lands in the subunit, maintaining travel opportunities for visitors during the winter months. Limitations to travel by snowmobiles include a weight restriction of 1,000 pounds curb weight and less, and cross-country travel is allowed under all alternatives. Winter use of snowmobiles is generally restricted to between October 15 through April 30, though these dates could be extended or reduced on either end due to changing weather conditions.

Fixed-wing and helicopter access will remain largely unregulated in the Fortymile Subunit, unless specifically addressed through the development of a Recreation Activity Management Plan, ACEC Management Plan, or through additional regulations.

Effects from Special Designations

Under all alternatives, the Fortymile WSR (392 miles), as designated through ANILCA, would continue to be managed pursuant to the WSRA. Management of the river, per BLM guidance, would impact travel in the "wild" segments where the construction of new roads, primitive roads, trails, or other provisions for overland motorized travel would not be permitted (BLM 6400 Manual).

4.4.2.3.2. Alternative A (No Action)

Effects from Forest and Woodland Products

Current levels of firewood collection, commercial harvests, and forest products gathering have minimal effects on travel and transportation management. Applications for forest and timber projects are considered throughout the subunit. On the rare occasion that permits are issued, monitoring is done to ensure that the authorized amounts, locations, and stipulations of the permit have been followed. Proliferation of routes could occur, but stipulations for winter cutting or walk-in only would limit this impact. This could affect travel management through the expansion of the existing transportation network or if restrictions or emergency closures became necessary, to mitigate impacts to damaged areas.

Effects from Recreation

This alternative provides the most motorized public access of any of the alternatives, as OHV use would continue to be managed in accordance with existing OHV limitations. Travel within the Fortymile WSR Corridor would be limited to vehicles 1,500 pounds GVWR and less, while travel outside of the corridor would remain unrestricted, as there are no OHV designations in place. Thus, while this alternative would offer the most opportunities for recreational activities that involve the use of motorized travel, including hunting and OHV riding; fewer opportunities would exists for recreational users seeking a primitive, non-motorized type of experience.

Effects from Travel Management

This alternative would provide the most motorized and mechanized public access of any of the alternatives, as travel and transportation would continue to recognize 1,628,000 acres (eighty-seven percent) as "unrestricted" and 248,000 acres (thirteen percent) as Limited. With no OHV designation in place outside of the Fortymile WSR Corridor, this alternative would provide the greatest opportunity for those users seeking cross-country motorized activities. Travel within the Fortymile WSR Corridor would continue to be limited to vehicles 1,500 pounds GVWR and less, as specified in the Fortymile River Management Plan (BLM 1983a). The Fortymile Management Framework Plan limited winter use to vehicles weighing 6,000 pounds or less and summer use to existing roads or trails.

For those travelers seeking non-motorized forms of transportation, the Fortymile Subunit would continue to be managed in support of its many waterways and non-motorized recreation trails, to provide opportunities of a more primitive nature. Motorized boat use would continue

to be restricted on all non-navigable "wild" segments of the Fortymile WSR except under the provisions of 43 CFR 3809.

4.4.2.3.3. Alternative B

Effects from Forest and Woodland Products

Effects would be similar to those identified under Alternative A, except this alternative would restrict uses in some areas. Personal use of timber, commercial/salvage timber sales, and commercial use of forest products would not be allowed within the Fortymile WSR Corridor, the Eagle Recreational Withdrawal, and the Fort Egbert Historic Site. The potential for additional access routes or emergency closures would be lower. As in Alternative A, impacts would be reduced through permitting stipulations and monitoring.

Effects from Recreation

The RSC setting provides a framework for identifying the types of recreation activities that the public might desire, which is directly related to the travel and transportation management opportunities available in those areas. The RSC setting for this alternative would maintain seventy-eight percent of the Fortymile SRMA as available to non-motorized recreation opportunities and the winter-use of snowmobiles (1,000 pounds curb weight and less) (626,000 acres Semi-Primitive). The remaining twenty-two percent (162,000 acres Backcountry, 6,800 acres Middlecountry, 3,400 acres Frontcountry, and 840 acres Rural) would remain limited (i.e., 1,500 pounds curb weight and less, existing routes) to summer motorized-opportunities and would encourage a wide-variety of recreation uses and activities. Since RMZs and TMZs are delineated with the same boundaries under each alternative, impacts from recreation on travel and transportation management are expected to be minimal, as zones were designed to interact with one another.

Effects from Travel Management

All BLM lands in the Fortymile Subunit would be designated as limited for OHV use. This would restrict OHV use to existing routes and vehicle weight (1,500 pounds curb weight and less) within 1,250,000 acres (sixty-seven percent) during the summer. Approximately 626,000 acres of Semi-Primitive RSC class would be closed to summer use. Weight restrictions would be maintained for the entire subunit (1,876,000 acres) during the winter months. Thus, unlike Alternative A, this alternative would eliminate the free and unrestricted use of OHVs.

Restrictions would impact users by limiting OHV use where no limits have been in place before. Through limitations imposed on the summer-use of OHVs, there may be areas that users will have difficulty reaching (such as for game-retrieval) due to lack of existing routes. Consequently, this alternative would impact OHV and travel use more than any other alternative, as it would have a greater affect on non-local users who visit the area during the non-winter months when OHV use is most restricted.

Under Alternative B motorized boats with the exception of airboats, hovercraft, and personal watercraft would be allowed on all sections of the Fortymile WSR consistent with ANILCA sections 1110(a) and 811. Airboats, hovercraft, and personal watercraft would continue to be restricted on the non-navigable "wild" segments of the river. These allowances would increase the motorized use potential for the subunit, but would ultimately have little effect based on the natural barriers and vessel limitations needed to access these areas.

Effects from Special Designations

Under Alternative B, Gold Run and Dome Creek would be recommended as suitable for designation as WSRs. Impacts to travel management would be expected to be minimal, in Dome Creek as it would be designated as "recreational." The BLM could modify existing routes and develop new trails within the river corridor as needed. Gold Run Creek could be added to the NWSR as a "wild" river where no construction of new roads, trails or other provisions for overland motorized travel would be permitted within the river corridor.

Approximately 690,000 acres would be designated as the Fortymile ACEC (Map 60) to protect caribou and Dall sheep habitat. Management of this area could effect travel and transportation management if additional restrictions (i.e., seasonal, weight) were placed on OHV use and the construction of additional trails. However, impacts to travel are expected to be negligible, as the areas within the ACEC are remote and difficult to access.

4.4.2.3.4. Alternative C

Effects from Forest and Woodland Products

Slightly more lands would be available for forest harvest activities compared to Alternative B, including allowing personal use of timber and commercial forest product harvest in the "scenic" and "recreational" segments of the Fortymile WSR. Opening these relatively accessible areas to harvest, could potentially result in a higher likelihood of activity and resulting impacts.

Effects from Recreation

Similar to Alternative B, the BLM would continue to manage public lands for a variety of recreational activities within all RSC settings. Effects on travel and transportation management would be similar to those identified under Alternative B. Under this alternative, the RSC setting establishes fifty-eight percent of the Fortymile SRMA as available to non-motorized recreation opportunities and the winter-use of snowmobiles (1,000 pounds curb weight and less) (144,000 acres Semi-Primitive). The remaining forty-two percent (82,000 acres Backcountry, 11,500 acres Middlecountry, 10,200 acres Frontcountry, and 840 acres Rural) would remain limited (i.e., 1,500 pounds curb weight and less, existing routes except for game retrieval) to summer-motorized experiences and developed recreation activities. Thus, when compared to Alternative B, fewer opportunities would exist for recreational users seeking primitive, non-motorized experiences, while more opportunities would be available for recreational activities that involve the use of motorized travel.

Effects from Travel Management

Effects would be similar to those identified under Alternative B, except more area would be made available for travel activities that involve the summer-use of OHVs. This alternative would Limit OHV use to existing routes and vehicle weight (1,500 pounds curb weight and less), except for game removal, on 1,732,000 acres (ninety-two percent) during non-winter months, and maintain the weight restriction within one-hundred percent of Subunit (1,876,000 acres) during the winter months. Approximately 144,000 acres of Semi-Primitive lands would be limited no summer motorized travel. This would provide a direct benefit to recreational hunters who could retrieve legally harvested big-game animals off of pre-existing routes. As a result, impacts on travel management would be slightly less for this alternative, when compared to Alternative B.

Effects from Special Designations

Approximately 554,000 acres would be designated as the Fortymile ACEC (Map 61) to protect caribou and Dall sheep habitat. Effects would be the similar as those discussed under Alternative B, except the ACEC would be smaller, and parts of the ACEC would be open to mineral exploration and development. If mining activity occurred, additional travel routes could be established and added to the trail network.

4.4.2.3.5. Alternative D

Effects from Forest and Woodland Products

Under Alternative D, personal use of timber and commercial use of forest products would be allowed throughout the subunit, except within the Eagle Recreational Withdrawal and the Fort Egbert Historic Site. Effects would be similar to Alternative C, even though slightly more lands would be open to personal use of timber, including the "wild" segments of the Fortymile River. The additional lands are not particularly accessible and use levels would likely not increase compared to Alternative C.

Effects from Recreation

Similar to Alternative C, the BLM would continue to manage public lands for a variety of recreational activities within all RSC settings. Effects on travel and transportation management would be similar to those identified under Alternative B. Under this alternative, the RSC setting establishes twenty-two percent of the Fortymile SRMA as available to non-motorized recreation opportunities and the winter-use of snowmobiles (1,000 pounds curb weight and less) (54,000 acres Semi-Primitive). The remaining seventy-eight percent (96,000 acres Backcountry, 77,000 acres Middlecountry, 14,900 acres Frontcountry, and 7,640 acres Rural) would remain limited (i.e., 1,500 pounds curb weight and less, cross-country travel) to summer-motorized experiences and developed recreation activities. Thus, while this alternative would offer the least opportunities for recreational users seeking primitive, non-motorized experiences, more opportunities would exist for recreational activities that involve the use of motorized travel, when compared to Alternatives B and C.

Effects from Travel Management

Under this alternative, all BLM-managed lands in the Fortymile Subunit would be designated as limited for OHV use. This would restrict OHV use to vehicle weights of 1,500 pounds curb weight and less on 1,820,000 acres (ninety-seven percent) during non-winter months, and maintain the weight restriction within one-hundred percent of Subunit (1,876,000 acres) during the winter months. This represents a departure from Alternatives B and C, as limited (i.e., 1,500 pounds curb weight) cross-country travel would be allowed on all BLM-managed lands outside the SRMA and within Backcountry, Middlecountry, Frontcountry, and Rural Zones within the SRMA under this alternative. Approximately 54,000 acres of Semi-Primitive designated lands would be limited to no summer motorized use. Thus, while a greater portion of the subunit becomes available to motorized users under this alternative, less area becomes available for users seeking a primitive, non-motorized type of experience.

Effects from Special Designations

Approximately 554,000 acres would be designated as the Fortymile ACEC (Map 62) to protect caribou and Dall sheep habitat. Effects would be the similar as those discussed under Alternatives C and D, except the entire ACEC would be open to mineral exportation and development. If exploration occurred, additional travel routes could be established and added to the travel network.

4.4.2.3.6. Alternative E (Proposed RMP)

In general, Alternative E represents a mix and variety of actions that best resolves issues and concerns in consideration of all values and programs of all alternatives. This alternative allows for a modification of current use limits from Alternative A including weight, width and seasonal restrictions but continues to allow for motorized transportation throughout the subunit.

Effects from Forest and Woodland Products

Similar to Alternative D, personal use of timber and commercial use of forest products would be allowed throughout the subunit, except within the Eagle Recreational Withdrawal and the Fort Egbert Historic Site. Effects would be similar to Alternative C, even though slightly more lands would be open to personal use of timber, including the "wild" segments of the Fortymile River. The additional lands are not particularly accessible and use levels would not increase compared to Alternative C.

Effects from Recreation

In Alternative E, 248,000 acres are designated as an SRMA with five Recreation Management Zones (RMZs) representing a full spectrum of user experiences. BLM-managed lands not designated as an SRMA encompasses 1,628,000 acres.

In this alternative, 144,000 acres will be managed as Semi-Primitive with an emphasis on non-motorized recreation. These Recreation Management Zones include the "wild" segments of the WSR. Management for Backcountry and Middlecountry with an emphasis on a mix of motorized and non-motorized uses include 93,000 acres, while Frontcountry and Rural with an emphasis on build facilities and motorized trail access encompasses 11,000 acres.

Effects from management emphasis in the RMZ will include specific management objectives to provide for a variety of recreational activities. Under this alternative, 58 percent of the SRMA would be managed with an emphasis on non-motorized recreational activities and the winter use of snowmobiles. The remaining 42 percent of the SRMA would be managed for more motorized recreational access. This management spectrum would allow for more non-motorized recreational activities and infrastructure to be developed in more remote areas but would not limit the access by summer motorized access. Limitations in trailhead size or staging areas may pose a limiting factor for motorized access. The creation of walking and or hiking trails in the Semi-Primitive RMZs will provide a benefit for users seeking a more primitive recreational experience. Conversely, the remaining portions of the SRMA will have a management emphasis that will allow for larger trailheads and multiple use type transportation corridors. User conflicts for this subunit are expected to be low due to the low concentration of users and high use of motorized recreation in these portions of the subunit.

Effects from Travel Management

Under Alternative E, 100 percent of the Fortymile Subunit would be designated as Limited by weight to 1,500 pounds curb weight or less for OHV use. Winter motorized use of snowmobiles

would be allowed on 100 percent of the subunit; cross-country use summer motorized use of OHVs would be allowed outside of the SRMA, Mosquito Flats ACEC and the Fortymile ACEC. The use of hovercraft, airboats and personal watercraft would be allowed on all portions of the Fortymile WSR.

Effects of this alternative are similar to Alternative A with the exception of a more restrictive weight and width restriction in the lands outside of the SRMA and an increase in weight limitations within the SRMA to accommodate UTVs. Adjacent lands are managed with a 1,500 pound curb weight which should have a positive effect on users and compliance with weight and width restrictions and reduce user conflict. The existing topography makes pioneering new trails difficult in most portions of the SRMA. The existing trails are hardened and widely used. The allowance of a slightly larger OHV will have little impact on the existing trail width or conditions.

Alternative E allows for all forms of motorboats including jetboats, hovercraft and airboats on the Fortymile WSR. This differs from Alternative A by allowing this use on wild segments of the WSR, these include the Upper North Fork, Champion Creek, Joseph Creek, Middle Fork, Lower Fork and the Mosquito Fork sections. It is not anticipated that more than two water craft a year utilized the sections above the "Kink", a natural rock barrier which limits access. Use above Ingle Creek on the Mosquito Fork by motorized use is more likely to occur then the Middle Fork. Use would still be expected to be relatively low, eight motorized boat user days during high water periods. The nature of the river is fairly shallow with larger diameter substrate in the river. This would severely limit motorized travel to high water events. Hovercraft could more efficiently travel this section of river and thought hovercraft use within the Fortymile WSR exists, it is primarily utilized by mining operators and not subsistence users. It is anticipated that fifteen motorized boat user days may be expected annually on this section.

There are no changes from Alternative A regarding snowmobile travel. The effects will be the same as Alternative A.

Effects from Special Designations

Under this alternative, 362,000 acres would be designated as the Fortymile ACEC to protect caribou and Dall sheep habitat. The Mosquito Flats ACEC would encompass 37,000 acres to protect wetland habitat.

The management prescriptions for the Mosquito Flats ACEC include no summer OHV travel. This restriction will limit motorized access to the area, but also serve to positively benefit the management of the wetlands. The area is difficult to traverse in an OHV due to wet conditions and while the limitation will defer immediate motorized access to the wetland area, the remaining user-created routes surrounding the ACEC will be available. There is likely to be up to ten miles of new routes pioneered around the ACEC to accommodate new access points for non-motorize hunting access.

The management prescriptions for the Fortymile ACEC include no cross-country OHV travel without a permit. This limitation may impact user access. The permitting process will help mitigate travel within the area to manage for the caribou herd. Existing travel routes along upland and ridge lines in the area would likely be used due the topography of the area and minimal residual effects of use on those trails is anticipated.

4.4.2.3.7. Cumulative Impacts

As is the case in much of Alaska, the majority of existing routes in the Fortymile Subunit are the result of user-created trails that follow historic non-recreational routes (such as, mining or administrative access) or were created by OHV users repeatedly driving cross-country. Accordingly, many of the existing routes are not sustainable from a resource management perspective, and can cause significant resource damage including, but not limited to, soil compaction, vegetation deterioration, or poor water quality. If not addressed, these impacts will continue to have an effect on travel and transportation management for years to come.

With increased pressures from growing populations and advances in recreational vehicle technology, the Fortymile Subunit is anticipated to experience similar growth in travel-related land use and activity participation. Since OHV use accounts for the majority of travel-related activities in the Fortymile Subunit, it is perceived that the demand for this activity will be of greatest concern during the life of the plan. Given its current rate of user increase (approximately ten percent per year), motorized-travel in the Fortymile Subunit could potentially double within the next 10 years. As this occurs, the need for additional trails and mechanisms for managing these trails will become necessary.

Lands adjacent to BLM lands in the Fortymile Subunit are managed by federal (NPS), state, Native, and private entities. As a result, the rules and regulations governing the use of OHVs may differ slightly, when compared to BLM lands in the region. For instance, while the State of Alaska generally restricts OHVs to 1,500 pounds curb weight and allows cross-country travel in most areas as long as use does not cause or contribute to resource degradation. BLM will change its weight definitions from GVWR to curb weight to more closely align with state definitions, but open cross-country travel will only be allowed in one alternative. This may lead to some confusion, if riders are unaware that they have crossed the boundary of a different management agency or entity. Consequently, a proliferation of user-created trails could occur along the boundaries of BLM lands. This effect could be higher in the Fortymile Subunit, as BLM lands are more interspersed with state and private lands than in the other subunits.

4.4.3. Special Designations

4.4.3.1. Wild and Scenic Rivers Fortymile Subunit

Summary of Effects

Under all alternatives, the Fortymile WSR will continue to be managed to protect the free-flowing characteristics of the river, water quality, and Outstandingly Remarkable Values (ORVs). ORVs for the Fortymile River System are scenic, recreation, geologic, wildlife populations and habitat, and historic.

Management actions that protect the naturalness of the landscape such as wilderness characteristics, protection of fish and wildlife habitats, protection of vegetation and recreation management that manages for more primitive experiences will help protect many of the ORVs of the river system.

Alternative B is the only alternative where river segments are recommended for inclusion to the NWSR. Dome Creek and Gold Run are recommended with outstandingly remarkable historic values.

4.4.3.1.1. Alternative A (No Action)

No additional river segments are identified as suitable for inclusion to the NWSR. Under this alternative, the BLM would not recommend that Congress designate any river segments. The Fortymile WSR would continue to be managed to protect water quality, free-flowing characteristics and important river values.

4.4.3.1.2. Alternative B

In general, this alternative anticipates a lower level of resource development and is the only alternative where river segments are determined to be suitable for inclusion to the NWSR. Under this alternative, the BLM would recommend that Congress designate each suitable river segment. This recommendation would influence the Congressional decision and increase the likelihood of permanent legislative protection. Decisions are evaluated for effect on identified Outstandingly Remarkable Values, free-flowing character and water quality.

Through the Wild and Scenic Rivers Inventory (Appendix E, *Wild and Scenic Rivers Inventory*) the BLM has determined which rivers and streams are suitable for inclusion in the NWSR. Two segments in the Fortymile Subunit were determined to be suitable: Dome Creek as "recreational" with outstandingly remarkable historic values; and Gold Run as "wild" with outstandingly remarkable historic values. All segments determined to be suitable must be managed for the protection of their Outstandingly Remarkable Values and free-flowing nature until such time as Congress acts upon the determination finding and either designates the river segment or removes it from consideration. If the segment is removed from consideration by Congress, the BLM would manage the segment according to the management provisions of the RMP. The determination of suitability is a policy determination.

Effects from Cultural and Paleontological Resources

The protection of cultural resources would have a direct impact to outstandingly remarkable historic values. Destructive cultural resource data recovery and scientific use has the potential to directly impact outstandingly remarkable historical values. The removal of paleontological resources has the potential to directly and indirectly impact outstandingly remarkable historic values if the paleontological values are in close proximity to these historic values. Surface disturbance activities have the potential to directly and indirectly impact water quality.

Effects from Fish and Aquatic Species

Active rehabilitation efforts, such as willow plantings, seeding and fertilizing, recontouring the floodplain and returning the stream channel to a more natural functioning condition to areas with surface disturbance would have positive direct and indirect impacts to water quality on Dome Creek.

Effects from Soil, Vegetation, and Water Resources

Returning lands to pre-disturbance conditions would enhance water quality. Management of soil resources, vegetative communities, and watersheds for a properly functioning condition within riparian zones, uplands, wetlands and aquatic areas would directly and indirectly enhance water quality.

Effects from Visual Resources

"Wild" river segments would be managed as VRM Class I with the objective to preserve the existing character of the landscape and provide for natural ecological changes. Very limited management activities may occur where the level of change to the characteristic landscape is very low and must not attract attention. "Recreational" river segments would be managed as VRM Class III with the objective to partially retain the existing character of the landscape with moderate changes that repeat the basic elements found in the predominant natural features of the characteristic landscape. Management activities may attract attention, but should not dominate the view of the casual observer.

Effects from Wilderness Characteristics

The maintenance of wilderness characteristic would indirectly protect the free-flowing characteristics and water quality of the Gold Run segment.

Effects from Wildland Fire

Wildland fires have the potential to destroy or harm the outstandingly remarkable historic values.

Effects from Wildlife

Management of a naturally functioning ecosystem would directly and indirectly protect water quality. Restoration of riparian and wetland areas would directly and indirectly enhance water quality.

Effects from Lands and Realty

Consolidation of land ownership could indirectly enhance water quality by acquisition of lands adjacent to the river segments. Land use authorizations, such as leases and rights-of-way could indirectly and directly impact outstandingly remarkable historic values, directly impact free-flowing characteristics, and indirectly impact water quality if authorized across or along the river segments. Closing approximately 1,012,000 acres to locatable minerals would directly and indirectly protect water quality, free-flowing characteristics, historic values and naturalness or the river segments.

Effects from Locatable Minerals

The impacts from valid existing rights for the extraction of locatable minerals could directly impact outstandingly remarkable historic values and directly and indirectly impact water quality on Dome Creek. Modern mining methods could destroy the historic values. Depending on the methods used and size of operation, mining activities could impact the free-flowing characteristics of the river. Suction dredge operations would impact the water flow and change, at least temporarily, the river bed characteristics. These changes could alter the natural flow of the river segments.

Effects from Recreation

Gold Run is located within the Semi-Primitive North Fork Fortymile RMZ. Minimal facilities development would occur within this zone. Recreation users may visit historic sites in small groups and may impact outstandingly remarkable historic values. Facilities may indirectly impact water quality.

Dome Creek is located within the Backcountry Fortymile RMZ. Some facilities may occur within this zone and visitors may come in groups that average up to seven people. These slightly larger

groups may visit historic sites and may impact outstandingly remarkable historic values. Facilities may indirectly impact water quality.

Effects from Travel Management

Unrestricted non-motorized travel could directly impact outstandingly remarkable historic values and water quality with the development of social travel routes. Unrestricted aircraft landings could indirectly impact water quality and Outstandingly Remarkable Values by allowing motorized access to historic sites.

Unrestricted winter motorized overland travel by OHVs weighing 1,500 pounds curb weight and less could indirectly impact water quality through the development of social routes and outstandingly remarkable historic values by allowing motorized access to historic sites. In Dome Creek, restricting summer motorized use by weight and to existing routes could indirectly impact water quality and Outstandingly Remarkable Values by allowing motorized access to historic sites. No summer motorized use is allowed in Gold Run.

Motorized travel could directly and indirectly impact water quality and Outstandingly Remarkable Values by allowing motorized access to remote areas.

Effects from Special Designations

Gold Run and Dome Creek would be recommended suitable for designation as WSRs. The designation of these rivers by Congress would provide for greater protection of overall river values and of outstanding remarkable river values specifically. The amount of protection is dependent on the classification of the river segment. Management of suitable rivers would be coordinated with the State of Alaska. Dome Creek is 4.7 miles long and has a 1,254-acre corridor. Gold Run is 4.1 miles long and has a 1,326-acre corridor.

Effects from Hazardous Materials

Environmental remediation activities, such as the removal of surface or buried wastes from abandoned sites and removal of contaminated soils, could directly and indirectly enhance water quality and outstandingly remarkable historic values depending on the location of these activities.

Effects from Subsistence

Harvest of subsistence resources such as timber and other forest products could directly and indirectly impact the outstandingly remarkable historic values if collection of these resources occurs at historic sites.

4.4.3.1.3. Alternative C

Same as Alternative A, except designation and management of the Fortymile ACEC would protect Gold Run Creek from impacts due to mining.

4.4.3.1.4. Alternative D

Same as Alternative A.

4.4.3.1.5. Alternative E (Proposed RMP)

Same as Alternative C.

4.4.3.1.6. Cumulative Impacts

Past, present and reasonably foreseeable actions that are relevant to Wild and Scenic Rivers management include mining, oil and gas development, increases in motorized use on both water and adjacent lands, utility and transportation rights-of-way, recreation use, travel management, and use restrictions to protect wildlife, fisheries and vegetative resources.

Cumulative effects will accrue from the BLM management decisions in addition to activities on surrounding lands during and beyond the life of the plan. Most of the surrounding land base is either Native corporation or state and could be subject to resource development activities which may have a direct impact on water quality and other river related values. Development of lands along waterways could have an indirect impact on other rivers by increasing the importance of river related values of free-flowing, water quality, scenic, recreation, geologic, fish and wildlife habitats and populations, cultural and historic on those other rivers.

Designation and management of ACECs, and maintenance of wilderness characteristics, as well as measures to protect other resource values on adjacent federal lands, would help protect suitable rivers. Proposed and current management in these areas would limit development and help maintain a more natural ecosystem with benefits to water quality and other river related values.

Protection of river related values along the Fortymile WSR and the Charley River WSR (managed by the National Park Service), would continue. Protection of river related values along eligible rivers in the region, the Yukon and Seventymile, both managed by the National Park Service, would continue until a decision is made by Congress to not add them to the NWSR. Protection of river related values along proposed additions, Dome Creek and Gold Run, would also continue if designated by Congress. The BLM and other agencies could implement other means to protect river values if these segments are not included in the system.

4.4.4. Social and Economic Conditions

4.4.4.1. Economics Fortymile Subunit

Summary of Effects

The largest economic effect in the Fortymile Subunit would be from mining. The proposed opening of new areas to mineral entry would result in the staking of new mining claims and additional suction dredging, small-scale placer, and large-scale placer mine operations in the Fortymile Subunit. Employment associated with mining activity on BLM-managed lands in the subunit is estimated at 1.4 percent of the current statewide mineral industry employment. Additional industry employment is less than two percent for any alternative. The effects would be the least under Alternative A and the greatest under Alternative D. New placer mining could increase the estimated employment in placer mining in the state by as much as twenty percent under Alternative D.

Table 4.12. Employment and Income Under Action Alternatives[a]

Subunit	Alternative B			Alternative C			Alternative D			Alternative E		
Direct Effect	**New Operations**	**New Jobs**	**New Income ($1,000)**	**New Operations**	**New Jobs**	**New Income ($1,000)**	**New Operations**	**New Jobs**	**New Income ($1,000)**	**New Operations**	**New Jobs**	**New Income ($1,000)**
Fortymile	9	33	$1,193	15	49	$1,766	26	85	$3,068	9	33	$1,193
Steese	1	4	$146	18	66	$2,386	30	108	$3,910	1	4	$146
White Mountain	0	0	0	0	0	0	0	84	3,034	0	0	0
Black River	0	0	0	0	0	0	0	0	0	0	0	0
Total Indirect Effect		**37**	**$1,205**		**115**	**$3,737**		**193**	**$9,011**		**37**	**$1,205**

[a]Sources: Szumigala 2011, BLM 2014a, Stebbins 2009, McDowell 2006

4.4.4.1.1. Effects Common to All Alternatives

In addition to the effects discussed as common to all subunits in section 4.3.3.1, the following effects would occur in the Fortymile Subunit.

No revenues to the State of Alaska or the federal government would result from coal or oil and gas exploration. Similarly, no revenues would result from locatable mineral exploration and mining. Seismic exploration for oil and gas is unlikely on these low potential lands during the life of the plan. No economic effect would be anticipated under any alternative.

Effects from Locatable Minerals

Mining activity is predicted to result in large and small-scale placer and suction dredge operations in the Fortymile Subunit. This forecast is based on a study for the planning area that the BLM contracted with a mine cost engineering corporation (Stebbins 2009). The BLM chose to examine effects of large and small-scale placer, and suction dredge mining because decisions in this RMP propose to open some lands to new mining claims.

No mining claims would be filed, nor would mining activity occur until the ANCSA 17(d)(1) withdrawals are modified. The BLM anticipates this would take at least five years after approval of this RMP. In all cases, mines are assumed to operate for 10 to 20 years. No revenue to the federal government is expected.

Economists regard three categories of employment and income in considering the multiplier effect of an activity such as mining. Direct employment and income includes only employees of mining companies. Indirect employment and income includes employees of businesses providing goods and services to mining companies. These may include air taxi services and equipment. Finally, induced employment and income is considered when jobs are created as a result spending of direct and indirect income attributable to mining activity. An example of this is an additional retail store employee or schoolteacher.

Employment and income multipliers vary between projects and locations. McDowell (2006) shows widely varying multipliers for existing Alaska mines, but averages them at 2.0 for jobs and 1.9 for indirect payroll. Project activity has a lower effect on small communities than on the state. This is due to procurement from central sources in larger communities. For example, pumps are not available at retail in Eagle. These would likely be procured from Anchorage. Similarly, the multiplier effect will decrease in Alaska and a locality, when nonresident employment is significant. The State of Alaska estimated that 32.7 percent of metal mining workers were non-residents in 2012 (Krieger, 2014). The analysis in this RMP uses McDowell employment and income multipliers for the Alaska mining industry.

All employment and income shown in this analysis are *estimated* using input and assumptions from the BLM (Stebbins 2009, BLM 2009c) and McDowell reports (2006, 2009, and 2014). For example, it is likely that employment estimates are slightly higher than may be verified from actual payrolls.

Economic base models stress exogenous (external) inputs. Income is generated by basic economic activity, whether it is mineral production for export to distant markets or tourism catering to outside visitors, and is seen as the driver of the local economy and, specifically, the local support and service industries that compose the non-basic sectors. Economic base models hypothesize a constant ratio between basic and non-basic activity. As a result, changes in basic sector activity

can be directly linked to changes in non-basic activity through a static impact multiplier. For every dollar of income earned in the basic sectors, economic base models assume additional dollars are earned in the non-basic sectors. The multiplier can then be used to predict changes in total community economic activity based on predicted changes in basic activity.

Economic base hypotheses are not valid in the towns of southeast Alaska, and, by extension, small, isolated communities elsewhere. First, an extremely high degree of income leakage in small communities means that impacts from changes in employment and income may appear outside the community in question. The effect of leakage, though theoretically consistent with the economic base hypothesis, may not be adequately accounted for in input/output modeling. Second, the economic base model inputs, notably labor, may be in error. This would help explain instances where changes in basic employment actually result in opposite changes in employment in other sectors of the local economy, as individuals move from job to job within a community (Robertson 2003). In summary, economic inputs multiplied best register effects on a regional and Statewide level.

4.4.4.1.2. Alternative A (No Action)

Effects would be limited to increase in currently allowed economic activities resulting from population growth.

Effects from Locatable Minerals

Alternative A would not allow new claims, as BLM lands are currently withdrawn from mineral entry by ANCSA 17(d)(1). There are, however, existing mining operations on 10,000 acres of valid, existing federal mining claims in the Fortymile Subunit. The following discussion for Alternative A is based on activities likely to occur on these existing claims. Mining activity is predicted to result in large and small-scale placer, and suction dredge operations in the subunit.

Suction dredge mining results in the least economic effect of any mining method. Portable and inexpensive equipment is used. The model developed for suction dredge mining in all locations involves a crew of two working 10 hours per day, seven days per week, 120 days per year. Based on six suction dredging operations, current employment is 12 workers.

Small-scale placer mining uses a bulldozer, and excavator and a mobile wash plant to excavate and process gold-bearing gravel. In this model, a two-man crew works 12 hours per day, seven days per week, for a 130-day season. The camp includes one support person and a cook for a total of four workers. Based on 27 small-scale placer mining operations, current employment is 108 workers.

Large-scale placer operations utilize larger excavation equipment than the small-scale placer mines. In this model, two 2-man crews each work a 10-hour shift, seven days per week, during a 130 day season. There are five additional employees, including a supervisor, skilled workers, and laborers for a total of nine workers. Based on two large-scale placer mining operations, the resulting employment is 18 workers.

Total current mining employment on BLM-managed lands in the Fortymile Subunit is estimated at 138 workers. However, these are part-year employees. Data prepared by the State of Alaska uses full-time equivalents. The full-time equivalent in the Fortymile Subunit is approximately 46 workers, based on the Stebbins (2009) models.

Total employment by the Alaska minerals industry in 2012 was 4,366 full time equivalent jobs (Athey 2013). This indicates about 1.4 percent of the industry employment on BLM-managed lands occurred at Fortymile operations. The DGGS reported the average monthly wage for mining in Alaska during 2012 at $8,422 (ADLWD 2013). Fortymile operations accounted for $387,412 in monthly wages, annualized.

4.4.4.1.3. Alternative B

Effects from Locatable Minerals

Under Alternative B, 800,000 acres would be opened to locatable mineral entry in the Fortymile Subunit and new mining claims could be staked.

There would be 10 total suction dredging operations, an increase of four from Alternative A, the resulting employment would be eight additional workers. Small-scale placer mining would increase by four to a total of 31 operations. New employment would be 16 workers. One additional large-scale placer operation would open, for a total of three in the subunit. The resulting new employment would be nine workers.

Total new mining employment associated with BLM-managed lands in the Fortymile Subunit under Alternative B would be estimated at 33 part-year workers. The full-time equivalent would be approximately 11 additional workers, based on the Stebbins (2009) models. The DGGS reported the monthly wage for mining in Alaska during 2012 at $8,422 (ADLWD 2013). New Fortymile operations would account for $92,642 in monthly wages, annualized.

Indirect and induced employment and income would also result from new mining. These would be higher than under Alternative A. Refer to Table 4.12, "Employment and Income Under Action Alternatives" for Fortymile data and a comparison of all subunits and alternatives.

State of Alaska revenue from Mining License Tax and Corporate Income Tax would also be proportionally higher under this alternative.

4.4.4.1.4. Alternative C

Effects from Locatable Minerals

Under Alternative C, 1,253,000 acres would be opened to locatable mineral entry and the staking of mining claims.

There would an estimated 14 suction dredging operations, an increase of eight from Alternative A. The resulting employment would be 16 additional workers. Small-scale placer mining would increase by six to a total of 33 operations. New employment would be 24 part-year workers. The number large-scale placer mines would three, the same as Alternative B. The resulting new employment would be nine workers.

Total new mining employment in the Fortymile Subunit under Alternative C would be estimated at 49 part-year workers. The full time equivalent would be approximately 16 additional workers, based on the Stebbins (2009) models. The DGGS reported the average monthly wage for mining in Alaska during 2012 at $8,422 (ADLWD 2013). New Fortymile operations would account for $134,752 in monthly wages, annualized.

Indirect and induced employment and income would also result from new mining. These outputs would be higher for Alternative C than Alternative B. SeeTable 4.12, "Employment and Income Under Action Alternatives" for Fortymile data and comparison of all subunits and alternatives.

State of Alaska revenue from Mining License Tax and Corporate Income Tax would also be proportionally higher under this alternative and higher than under Alternative B.

4.4.4.1.5. Alternative D

Effects from Locatable Minerals

Under Alternative D 1,713,000 acres in the Fortymile Subunit would be opened to locatable mineral entry and staking of new mining claims.

There would be 18 total suction dredging operations, an increase of 12 from Alternative A. Resulting employment would be 24 additional workers. Small-scale placer mining operations would increase by seven to a total of 34. New employment associated with small-scale placer mines would be 28 workers. The number of large-scale placer mining operations (three) would be the same as Alternative B. The resulting new employment associated with large-scale placer mines would be nine workers.

Total new mining employment in the Fortymile Subunit under Alternative D would be estimated at 61 part-year workers. The full-time equivalent would be approximately 20 workers, based on the Stebbins (2009) models. The DGGS monthly wage for mining in Alaska during 2012 at $8,422. New Fortymile operations would account for $168,440 in monthly wages, annualized.

Indirect and induced employment and income would also result from new mining. These outputs would be higher for Alternative D than Alternative B, C, or E. See Table 4.12, "Employment and Income Under Action Alternatives" for Fortymile data and comparison of all subunits and alternatives.

State of Alaska revenue from Mining License Tax and Corporate Income Tax would also be proportionally higher under this alternative and higher than under Alternatives B, C, or E.

4.4.4.1.6. Alternative E (Proposed RMP)

Under Alternative E 1,132,000 acres in the Fortymile Subunit would be opened to locatable mineral entry and staking of new mining claims.

There would be 18 total suction dredging operations, an increase of 12 from Alternative A. Resulting employment would be 24 additional workers. Small-scale placer mining operations would increase by seven to a total of 34. New employment associated with small-scale placer mines would be 28 workers. The number of large-scale placer mining operations (three) would be the same as Alternative B. The resulting new employment associated with large-scale placer mines would be nine workers.

Total new mining employment in the Fortymile Subunit under Alternative E would be estimated at 61 part-year workers. The full-time equivalent would be approximately 20 workers, based on the Stebbins (2009) models. The DGGS monthly wage for mining in Alaska during 2012 at $8,422. New Fortymile operations would account for $92,642 in monthly wages, annualized.

Indirect and induced employment and income would also result from new mining. These outputs would be higher for Alternative D than Alternative B or C. See Table 4.12, "Employment and Income Under Action Alternatives" for Fortymile data and comparison of all subunits and alternatives.

4.4.4.2. Environmental Justice Fortymile Subunit

Summary of Effects

Effects to the environmental justice population in the Fortymile Subunit are expected to be low. Increased employment opportunity caused by recreation use or mining activity could benefit environmental justice populations. This includes the communities of Chicken, Eagle, and Eagle Village.

4.4.4.2.1. Effects Common to All Alternatives

There will be little or no economic effect resulting from the following resources, resource uses, or programs: Forest and Woodland Products, Lands and Realty, Leasable Minerals, and Renewable Energy.

Effects from Locatable Minerals

Mining of locatable minerals could result in additional jobs and income to local residents in the environmental justice population. These effects would be very low and apply only to alternatives B, C, D, and E. See Table 4.12, "Employment and Income Under Action Alternatives" for total direct employment and income for all alternatives.

4.4.4.2.2. Alternative A (No Action)

There would be no effects.

4.4.4.2.3. Alternative B

There would be no effects other than those from locatable minerals discussed under Effects Common to All Alternatives.

4.4.4.2.4. Alternative C

Same as B

4.4.4.2.5. Alternative D

Same as B except the number of Special Recreation Permits would be slightly higher under Alternative D. Environmental justice effects to communities in the area may be positive if employment in guiding or associated activities accrues to local populations.

4.4.4.2.6. Alternative E (Proposed RMP)

There would be no effects other than those from locatable minerals discussed under Effects Common to All Alternatives.

4.4.4.3. Social Conditions Fortymile Subunit

Summary of Effects

Most impacts to individuals and groups are minor to moderate in part because other opportunities exist for the activities within the planning area and on nearby State of Alaska or Native corporation lands. While it is possible for impacts for multiple resources to adversely affect individuals and groups in a cascading fashion, most communities exhibit sufficient resiliency to adapt to change.

The following programs would have minor net positive or negative effect to social conditions and are not analyzed further: Air, Cave and Karst Resources, Cultural and Paleontological Resources, Fish and Aquatic Species, Soil Resources, Special Status Species, Vegetative Communities, Visual Resources, Water Resources, Wilderness, Wildland Fire Ecology and Management, Wildlife, Fluid and Solid Leasable Minerals, Salable Minerals, Recreation, Travel Management, and Special Designations. For further discussion, see Effects Common To All Alternatives in all Subunits.

4.4.4.3.1. Effects Common to All Alternatives

Effects from Forest and Woodland Products

Residents in the town of Eagle live close to BLM lands, which could be a convenient source of firewood. This land is part of the Fort Egbert Historic Site and BLM's campground, so is unavailable for firewood collection. This protects the natural and historic nature of the land.

Effects from Land and Realty; Locatable Minerals

The community of Chicken centers on mining, so limitations on mineral entry will result in increased pressure to mine State of Alaska lands or reduce community viability. At present, community character and values are determined by the link to mining and winter closure of the town. Extensive withdrawals have limited this activity within the planning area. To the extent that withdrawals exist, mining would cease to be an aspect public land use in the area. No remnant activities would occur on public land to give context to the various displays of the mining era. Reduced opportunities for participation at a lifestyle or recreational level would reduce individual well-being, and community well-being in Chicken.

Effects from Subsistence

Preventing or reducing placer mining may improve subsistence catches of some fish species. This will increase the sense of well-being among populations targeting such species, and will increase food security if other food sources are displaced by wildland fire, climate change, or other factors.

4.4.4.3.2. Alternative A (No Action)

Effects from Land and Realty; Locatable Minerals

The Eagle Recreation Site withdrawal is adjacent to Fort Egbert and nearby historic structures, so retention of the withdrawal helps maintain the character of the site and community. This contributes to the community both in support of efforts to develop tourism opportunities and maintaining the historic landscape that is part of the sense of place many local inhabitants experience.

Effects of maintaining ANCSA 17(d)(1) withdrawals may be decreased mining activity, eroding the community character and well-being of communities in the subunit, such as Chicken. The extent of activity will be determined by the mineral potential of the available lands.

4.4.4.3.3. Alternative B

Effects from Land and Realty; Locatable Minerals

As in Alternative A, maintaining the Eagle Recreation Site withdrawal contributes to community economic activities and sense of place.

Effects of lifting ANCSA 17(d)(1) withdrawals may be increased mining activity and increased diversity of operations, enhancing the community character and well-being of communities in the subunit, such as Chicken. Since nearly half of the acreage in the subunit will be available to mining, those that value resource protection, some recreationists, and perhaps other groups may experience some decline in quality of life either directly in their activities, or indirectly.

4.4.4.3.4. Alternative C

Effects from Land and Realty; Locatable Minerals

As in Alternative A, maintaining the Eagle Recreation Site withdrawal contributes to community economic activities and sense of place.

Effects of lifting ANCSA 17(d)(1) withdrawals may be increased mining activity and increased diversity of operations, enhancing the community character and well-being of communities in the subunit, such as Chicken. Since 70 percent of the acreage in the subunit will be available to mining, those that value resource protection, some recreationists, and perhaps other groups may experience a more significant decline in quality of life either directly in their activities, or indirectly.

4.4.4.3.5. Alternative D

Effects from Land and Realty; Locatable Minerals

Disposal of Eagle Recreation Site withdrawal may change the character of the lands adjacent to Fort Egbert and Eagle, which may result in a net decrease in quality of life for some residents by altering their sense of place, and for some visitors by detracting from the historic setting of the fort.

Effects of lifting ANCSA 17(d)(1) withdrawals may be increased mining activity and increased diversity of operations, enhancing the community character and well-being of communities in the subunit, such as Chicken. The extent of activity will be determined by the mineral potential of the available lands. Increased activity would result in new employment of 85 seasonal workers and over $3 million in personal income for the employees, providing a significant economic infusion to an area with few employment opportunities. That may result in an increased well-being and

sense of security for those employees and area merchants. The effects may include increased traffic, higher home prices, and other consequences that result in a decreased well-being and quality of life for other members of the community. Since 92 percent of the acreage in the subunit will be available to mining, those that value resource protection, some recreationists, and perhaps other groups may experience a significant decline in quality of life either directly in their activities, or indirectly.

4.4.4.3.6. Alternative E (Proposed RMP)

Effects from Land and Realty; Locatable Minerals

As in Alternative A, maintaining the Eagle Recreation Site withdrawal contributes to community economic activities and sense of place.

Effects of lifting ANCSA 17(d)(1) withdrawals may be increased mining activity and increased diversity of operations, enhancing the community character and well-being of communities in the subunit, such as Chicken. Since almost half of the acreage in the subunit will be available to mining, those that value resource protection, some recreationists, and perhaps other groups may experience a more significant decline in quality of life either directly in their activities, or indirectly.

4.4.4.4. Subsistence Fortymile Subunit

Summary of Effects

Current uses of BLM lands consist primarily of placer and suction dredge mining, non-motorized recreation, and subsistence activities. All residents of the subunit living outside of the Fairbanks North Star Borough boundaries qualify as rural residents under ANILCA and are eligible to harvest resources under the subsistence program on federal lands. Nine communities are within the subunit: Eagle, Eagle village, Chicken, Northway, Tetlin, Tok, Tanacross, Dot Lake, Healy Lake and Delta Junction and are the primary federally qualified subsistence users of the area. Customary and Traditional use determinations for specific big game species or Game Management Units have been applied in some cases (section 3.5.3).

Impacts from authorized land use activities include user conflicts, displacement of resources, and potential declines in resource availability due to disturbance of critical habitats or during critical times (e.g., calving periods). Alternative D, which allows the most latitude to development and OHV use, would have the greatest potential to negatively affect subsistence resources and uses. Alternative B, which limits land use activities the most, would confer the highest levels of protection to subsistence resources and uses.

Published data used in this section are from the following sources. Caulfield (1979) documented current and historic subsistence use by residents of Eagle and Eagle Village. Halpin (1987) documented subsistence use by residents of Tetlin for the time period 1974 –1984. Case (1986) documented use for Northway from 1974 - 1984. Martin (1983) documented use for Dot Lake from 1946–1982. Marcotte (1991) documented subsistence use by residents in the communities of Dot Lake, Tanacross, Tok, Tetlin and Northway for 1968–1988. Use areas documented in these studies are minimum use areas and reflect in some cases the current use over a 10 year period and in some cases the lifetime use of those interviewed.

Caribou, primarily Fortymile caribou, moose and salmon are the most important subsistence resources in the subunit. Trapping continues to be culturally and economically important to many federally qualified subsistence users in the area.

Most subsistence fishing by rural residents in the Fortymile Subunit occurs on the Tanana or Yukon rivers and in lakes and ponds off BLM-managed lands. Land use activities permitted in the subunit, such as development of transportation corridors and locatable minerals, may affect water quality and fish spawning or rearing areas at downstream locations. This may indirectly impact subsistence fisheries harvested off BLM-managed lands. Stipulations to mitigate impacts to water quality and fish spawning and rearing areas would be attached to land use permits as appropriate. No impacts to subsistence fishery resources or uses in or adjacent to BLM-managed lands would be expected from the alternatives.

Subsistence activities documented to occur by local rural residents on BLM-managed lands include hunting of moose and caribou (Tanacross, Tok, Northway), bear (Tanacross), and small game (Tanacross, Tok), trapping (Tanacross, Tok, Northway) and berry picking (Tanacross, Tok, Northway). These activities occur primarily along the Taylor Highway. In most cases, bear are harvested incidentally to other subsistence activities, such as moose hunting or fishing (Case 1983). Martin (1983) and Halpin (1987) document no subsistence use by Dot Lake or Tetlin on BLM-managed lands in the subunit. Data from joint State-Federal registration permits document contemporary use of BLM-managed lands for harvest of caribou and moose by residents of Chicken, Eagle, Eagle Village, and Delta in addition to Tanacross, Tok and Northway.

4.4.4.4.1. Effects Common to All Alternatives

Effects from Forest and Woodland Products

Management decisions for commercial timber sales would be similar for the four action alternatives. Demand for commercial timber in the subunit has been lacking and no impacts to subsistence resources or uses would be expected from commercial saw timber or salvage sales under any of the alternatives. Harvest of timber for local biomass projects could occur over the life of the plan particularly after fire or where BLM lands are within an accessible distance from a village. It would be expected that over the life of the RMP villages would move farther from their community to include BLM-managed lands to meet their biomass needs.

Lands open to personal use of timber and commercial products vary by alternative. Demand for personal use and salvage sales has been lacking and would be anticipated to be low over the life of the plan. No impacts to subsistence resources or uses would be anticipated from these resource uses.

Demand for commercial products, particularly mushrooms, can be fairly high after wildland fires. The fire return intervals are such that no significant impacts to subsistence resources or activities are expected from personal or commercial harvest of mushrooms. Salvage activities would be usually linked to wildland fire events. No impacts to subsistence resources or uses would be anticipated from these resource uses.

Effects from Land and Realty Actions

Exchange, disposal or acquisition of lands would have minimal and mostly beneficial impacts to subsistence resources and uses. BLM lands considered for these actions are intermingled with other lands or are small isolated parcels. Consolidation of these would simplify identification of

land status for subsistence and other users and land management would be consistent across a larger area.

The BLM has received few rights-of-way applications in the past and a limited number would be anticipated in the future. Proposed rights-of-way would be analyzed under NEPA and measures to mitigate impacts would be attached to authorizing permits.

The location and amount of withdrawn lands to be revoked would vary by alternative. Revocation of withdrawals, other than ANCSA 17(d)(1) mineral entry and location, will be minimal and impacts would be the same under all alternatives.

Effects from Leasable Minerals

No impacts to subsistence resources or uses are anticipated from oil and gas exploration, drilling, development or related activities under any alternative. Due to low potential for occurrence of economically recoverable oil and gas resources on BLM-managed lands within the subunit, no activity would be expected. Any exploration that would be proposed would require a permit and impacts would be mitigated through permit stipulations and SOPs.

No impacts to subsistence uses or resources would occur from exploration or development of coal or other solid leasable minerals in the Fortymile Subunit under any alternative. No coal development would occur in the subunit because a decision for coal leasing would be deferred under this RMP. An amendment to the RMP would be required before coal leasing could be authorized.

Effects from Salable Minerals

Although the amount of land open to salable minerals varies by alternative, the demand for salable mineral materials would not vary. Few material sales would be anticipated. For all alternatives, it is projected that less than 100 acres of BLM-managed land in the subunit would be authorized for salable minerals. Impacts would be mitigated through permit stipulations. Material sites would continue to be concentrated along the highway and adjacent to areas of end use. Most demand is and would be expected to continue to be met on state lands. There would be minimal impacts to subsistence activities or resources under any alternative.

Effects from Recreation

Recreation use would continue to be concentrated along segments of the Fortymile WSR where canoes, rafts and kayaks can be easily launched and taken off the river from road accessible sites. The demand for Special Recreation Permits (SRP) in the Fortymile Subunit would be expected to remain fairly low. Current only one SRP for guided river trips is active. Effects from these recreational uses would be consistent among the alternatives and would not impact subsistence resources or uses. Although recreation in general could increase in the area, much of it would be guided by travel management prescriptions, which are discussed below.

Hunting under state regulations occurs on BLM-managed lands, but occurs predominantly on state lands due to land status patterns and distribution of wildlife during hunting seasons. State hunting regulations manage hunting on and off federal public lands. Hunting pressure on adjacent lands would impact subsistence use and availability of resources on BLM-managed lands regardless of the BLM recreation management prescriptions.

Some sport fishing occurs within the Fortymile WSR, but would have no impacts on subsistence resources or uses in the area. Similar to hunting, regardless of BLM recreation management, the influence of sport fishing on subsistence uses and resources would be unchanged.

Effects from Travel Management

Interim alternatives for travel management include a range of limits on OHV use including weight limitations, permit requirements, designated routes, and seasonal limitations. Limitations on OHV would benefit subsistence uses, resources and environmental services (e.g., water) by protecting soils and vegetation from ground disturbance, rutting and erosion, and protecting water quality. Limitations on use would reduce direct impacts on resource abundance, distribution and location. Permitting land use actions that include the use of OHV would provide opportunities to develop stipulations to mitigate impacts.

In each alternative a part or all of BLM lands within the Fortymile Subunit would be managed as limited to summer vehicles 1,500 pounds curb weight and less and 64 inch width without a permit or approved Plan of Operations. The size of the affected area would vary based on boundaries of the Semi-Primitive Zones. No summer use of OHV would be allowed in the Semi-Primitive Zones in Alternatives B–D without a permit, such as a 2920 permit. Use of OHV over 1,500 pounds curb weight and greater than 64" would require a permit in all zones. New transportation and utility systems (including airstrips) and relocation of existing roads could be authorized under certain conditions in all alternatives. NEPA analysis and an ANILCA Section 810(a) Evaluation and Finding would be required for each proposed land use to analyze impacts and develop mitigation measures to protect subsistence uses and resources.

Decisions that limit OHV and other motorized uses, such as seasonal restrictions on summer use, would protect areas from use that cannot be sustained due to environmental conditions, such as fragile soils, vegetation, sensitive wildlife habitat, and wetlands. Any use in these areas would result in long-term damage.

Impact from travel management decisions are discussed further under each alternative.

4.4.4.4.2. Alternative A (No Action)

Under the No Action Alternative, present land management practices and levels of resource used would continue in accordance with existing laws, regulations, and policy. Land use activities would continue to be analyzed through the NEPA process and include ANILCA Title VIII Section 810 evaluations. Through these processes, appropriate stipulations would be developed to mitigate any impacts identified.

Effects from Forest and Woodland Products

Subsistence use of forest products are harvested under free-use permits (Nonsale Disposals Act 1878, amended for Alaska 1898 and 1938). Personal use of woodland products (e.g., berries, bark and mushrooms) does not currently require a permit. No impacts to subsistence use of timber, berries and other forest products would be expected from Alternative A.

Effects from Land and Realty

No designated utility corridors or right-of-way avoidance areas are identified in Alternative A. Without designations, a web of rights-of-way could result, impacting habitats upon which

subsistence resources depend. However, few to no applications for rights-of-way are expected over the life of the plan. Long-term camping would continue to be allowed within "scenic" and "recreational" segments of the Fortymile WSR. No significant impacts to subsistence resources or uses are expected from the decisions in this alternative.

Effects from Locatable Minerals

The entire Fortymile Subunit is withdrawn from mineral entry under ANCSA 17(d)(1). Mining is occurring only on valid existing claims that predate the withdrawals. Extraction practices for locatable minerals result in removal of vegetation and overburden impacting wildlife and fish habitat. Activities associated with mining would displace wildlife until suitable vegetative communities are restored, usually within 15 –20 years . Mining operations would be analyzed under NEPA and would include reclamation practices to restore riparian function and reduce potential for erosion and siltation (section 4.3.1.4 Fish and Aquatic Species). Impacts on subsistence resources or uses would be minimal based on this mitigation.

Effects from Travel Management

Within the Fortymile WSR Corridor, OHV use is limited to vehicles 1,500 pounds gross vehicle weight and less without a permit or approved Plan of Operations. Outside the corridor use is limited to vehicles 6,000 pounds gross vehicle weight and less without a permit or approved Plan of Operations. Motorized boats can be used on the WSR river, but only on "wild" segments under provisions of 43 CFR 3809. Travel outside the corridor is not restricted and no OHV designations are in place. Many federal lands in the subunit important to subsistence use are accessible by OHV. Some impacts to wildlife and habitat would occur from cross-country use of OHV during summer. Impacts to subsistence are difficult to mitigate since most cross-country use can occur without authorization.

4.4.4.4.3. Alternative B

Effects from Forest and Woodland Products

Commercial timber sales and salvage sales would be allowed on all lands except within the Fortymile WSR corridor, Eagle Recreational withdrawal, and Fort Egbert Historic Site (249,000). Demand for commercial timber in the subunit has been lacking and no impacts to subsistence resources or uses are expected from commercial timber sales.

Subsistence use of forest products are harvested under free-use permits. Free-use permits would not be issued for personal use of timber within the Fortymile WSR Corridor, the Eagle Recreational withdrawal, and the Fort Egbert Historic Site (249,000 acres). On all other BLM lands, free-use permits for personal use of timber would be considered. Demand for personal use of timber has been lacking in the subunit and would be anticipated to be low over the life of the plan. No impacts to subsistence resources or uses would be anticipated from uses of any forest and woodland products.

Effects from Lands and Realty

No long-term camping would be allowed in the Fortymile WSR Corridor (248,000 acres). Where camping is not allowed, camps associated with state mining claims are often established below mean high water, contributing to additional bank erosion and degradation. Direct impacts to subsistence fishery uses and resources would be expected to be low since little or no subsistence

fishing is documented to occur within the Fortymile or other federal public lands in the subunit. The Fortymile system is not a significant spawning or rearing area for fish populations important to subsistence and little or no impact within the area would be expected. Downstream effects from siltation could result in indirect impacts to spawning and rearing habitat outside BLM lands.

Designating the Fortymile WSR and Fortymile ACEC as right-of-way avoidance areas would protect important wildlife habitat and resources from fragmentation caused by rights-of-way and by reducing disturbance to wildlife. However, since few rights-of-way are anticipated in these remote areas, the effect of the avoidance area would be limited.

Effects from Locatable Minerals

Approximately half of BLM lands would be open to locatable minerals. The mineral potential is low for substantial portions of the open areas. However, some exploration and development would be likely to occur. Extraction practices for locatable minerals would result in removal of vegetation and overburden from large areas impacting wildlife and fish habitat. Activities associated with mining would displace wildlife until suitable habitat would be restored, usually greater than 15–20 years for species important for subsistence. Mining operations would be analyzed under NEPA and authorizations would include reclamation standards required in regulation and policy, SOPs developed in this plan, and mitigation measures and practices to restore riparian function and reduce potential for erosion and siltation, and rehabilitate fish and wildlife habitat. An ANILCA Section 810(a) Evaluation and Finding would be conducted for each permitted action. Impacts to subsistence resources and uses would be greater in Alternative B than for Alternative A as more lands are open to mining.

The Fortymile caribou herd is one of the most important subsistence resources in the area. The general calving range of the herd over the last 16 years would remain mostly closed to mineral location and entry under this alternative. The calving period is the most critical time of the year since pregnant cows are at the lowest ebb of physical condition and largest energy deficit, thus protecting the calving range would be critical. The closure of much of this area would be beneficial to this important subsistence resource.

Effects from Leasable and Salable Minerals

Impacts to leasable and salable minerals are discussed in Effects Common to All Alternatives (section 4.4.4.4.1).

Effects from Travel Management

This alternative would offer the best protection to subsistence resources by limiting summer use of OHV on 1,250,000 acres (undesignated recreation areas, Backcountry, Middlecountry, Frontcountry and Rural Recreation Management Zones, Map 45) to existing routes only and to vehicles 1,500 pounds and less curb weight and 64 inch width and less. All other forms of OHV use within these zones would require a permit or approved plan of operation. Additionally, in the Semi-Primitive Recreation Management Zones (626,000 acres) a permit would be required for all but non-motorized and winter OHV use.

Many trails begin on and lead to BLM lands that are important to subsistence and other users. Impacts to subsistence resources would still occur but would be less than under the other alternatives because limiting use to existing trails reduces disturbance from user-pioneered trails

and protects against disturbance to wildlife, fish and important habitats. Where permits would be required, stipulations would be attached to mitigate impacts to subsistence resources and uses.

Motorized boat use would generally be allowed throughout the subunit, although airboats, hovercraft and personal watercraft would not be permitted on some non-navigable river segments (Table Table 2.10, "Fortymile Subunit: Summary of Action Alternatives"). Restricting use of airboats, hovercraft and personal watercraft in some areas will benefit subsistence resources by reducing direct and indirect disturbance to resources and important habitats in these remote areas.

4.4.4.4.4. Alternative C

Effects from Forest and Woodland Products

Subsistence use of forest products would be harvested under free-use permits. Free-use permits would not be issued for personal use of timber within the "wild" segments of the Fortymile WSR, the Eagle Recreational withdrawal, and the Fort Egbert Historic Site (146,000 acres). Demand for free-use permits has been lacking and would be anticipated to be low over the life of the plan. No impacts to subsistence resources or uses would be anticipated from uses of any forest and woodland products.

Effects from commercial timber sales and salvage sales and personal use of timber is discussed in effects common to all.

Effects from Lands and Realty

Alternative C would be the same as Alternative A. Long-term camping associated with state authorized suction dredge mining would be allowed in all but the "wild" segments of the WSR corridor. Most camps associated with suction dredging would be located above ordinary high water. Indirect impacts to subsistence fishery and wildlife resources would be minimal.

No transportation corridors or right-of-way avoidance areas would be designated. Impacts to subsistence resources and uses are expected to be minimal but would be mitigated through stipulations to the authorization. Demand for rights-of-way has been and is expected to be low over the life of the plan.

Effects from Locatable Minerals

Seventy percent of BLM lands would be open to locatable minerals under Alternative C. The mineral potential is low for most of the area with a few interspersed areas of medium development potential (Map 88). Mining operations would be analyzed under NEPA and authorizations would include required reclamation standards, SOPs developed in this plan, and mitigation measures and practices to restore riparian function and reduce potential for erosion and siltation, and rehabilitate fish and wildlife habitat. An ANILCA Section 810(a) Evaluation and Finding would be conducted for each permitted action. Impacts to subsistence resources and uses would be greater in Alternative C than in Alternative B as more lands are open to mining.

Based on the birthing locations of radio-collared cows from 1992–2008, 49% of the Fortymile caribou calving area would be closed to locatable minerals (Table 4.9) in Alternative C. The calving period is the most critical time of the year since pregnant cows are at the lowest ebb of physical condition and largest energy deficit, thus protecting the calving range would be critical. The area of highest calving concentrations documented over the 16 year period would be closed

to locatable minerals. Alternative C would allow mining on some high use portions of the FCH calving area on BLM-managed lands. Impacts could be measurable over the life of the RMP if mining development would become common in the area. Changes in distribution to less favorable habitat, herd condition, and altered calf survival could result.

Effects from Salable Minerals

Impacts on subsistence resources and uses would be the same as Alternative B except that slightly more acreage will be available for material site sales. Mitigation of impacts would be the same as Alternative B (section 4.4.4.4.1 Effects Common to All Alternatives).

Effects from Travel Management

Alternative C differs from Alternative B in the location and size of the RMZs and that off-route travel for game retrieval would be allowed in all areas except the Semi-Primitive RMZ. The result would be that off-route travel for game retrieval would be allowed on all but 144,000 acres of the BLM public lands in the subunit.

Fortymile caribou are among the most important subsistence species in and adjacent to BLM-managed lands in the subunit. Hunting for Fortymile caribou within the subunit is important to all hunters. Demand and competition is high and concentrated along the highway and trails, often resulting in emergency and special actions to close the hunt far ahead of the normal season end. Most harvest occurs off lands managed by BLM and other federal agencies, therefore this decision would not be expected to impact opportunity for federally qualified subsistence hunters under ANILCA. Under Alternative C over the life of the plan, the opportunity for retrieve of game off trail could attract more users; however, impacts would be anticipated to be low.

Impacts from the use of motorized watercraft would be the same for Alternative C as for Alternative B except that the Gold Run suitable segment would be open to use for airboats, hovercraft and personal watercraft.

4.4.4.4.5. Alternative D

Effects from Forest and Woodland Products

Subsistence use forest products are harvested under free-use permits. Free-use permits would not be issued for personal use of timber within the Eagle Recreational withdrawal, and the Fort Egbert Historic Site (840 acres). No impacts to subsistence resources or uses would be anticipated from decisions on uses of any forest and woodland products under this alternative.

Effects from Lands and Realty

Long-term camping would be allowed in all segments of the Fortymile WSR. All camps associated with suction dredging could be located above ordinary high water. Impacts to subsistence resources would be the same as Alternatives A and C.

Effects from Locatable Minerals

Approximately ninety-three percent of BLM lands would be open to locatable minerals under Alternative D. The mineral potential rank is low for most of the open areas. Exploration of the open areas would be likely to occur and would require new access to the claims. If discoveries would be deemed valid, mining could follow. Extraction practices for locatable minerals would

result in removal of vegetation and overburden from large areas impacting wildlife and fish habitat. Activities associated with mining would displace wildlife until suitable habitat would be restored, usually greater than 15–20 years for species important for subsistence. Although subsistence use of fisheries resources in the open areas is thought to be low, impacts to fish habitat would be substantial for this alternative (section 4.4.1.2.4 Fish and Aquatic Species).

Most of the Fortymile caribou calving area on BLM-managed lands would be open to locatable minerals, including 75% of the area of highest calving concentrations. Potential impacts to caribou calving and post-calving habitats would be the greatest in this alternative and include alteration of abundance, distribution, movement and migration of caribou and fragmentation of habitat. Over the life of the plan impacts could be measurable if exploration were to lead to development. Season limits on mining activities would mitigate impacts to caribou on calving and post-calving grounds.

Mining operations would be analyzed under NEPA and authorizations would include required reclamation standards, SOPs developed in this plan, and mitigation measures and practices to restore riparian function and reduce potential for erosion and siltation, and rehabilitate fish and wildlife habitat. An ANILCA Section 810(a) Evaluation and Finding would be conducted for each permitted action. Impacts to subsistence resources and uses would be greater in Alternative D than for all other action alternative as more lands are open to mining, including portions of the Mosquito Fork, South Fork, and mainstem of the Fortymile WSR.

Effects from Salable Minerals

Impacts on subsistence resources and uses would be the same as Alternative B except that ninety-two percent of BLM-managed lands in the subunit would be available for material site sales. Mitigation of impacts would be the same as Alternative B.

Effects from Travel Management

Alternative D differs from Alternative C in the location and size of the RMZs and that cross-country summer use of OHV (≤ 1,500 pound curb weight) would be allowed in all areas except 54,000 acres in the Semi-Primitive RMZ (Map 46). Alternative D would have the highest potential of the action alternatives (B-D) for impacts. Cross-county summer OHV would be similar to Alternative A, the existing management, except that curb weight would be reduced. Predicted increases in use of federal public lands and advances in OHV capability over the life of the plan could result in alteration of availability and distribution of subsistence resources where cross-country summer use would be allowed. However, it would be anticipated that most of the hunting pressure would continue to occur off BLM lands, and the travel management decisions in this alternative would have little impact on subsistence uses.

Impacts from the use of motorized watercraft would be the same as Alternative C.

4.4.4.4.6. Alternative E (Proposed RMP)

Effects from Forest and Woodland Products

Personal use of timber would be allowed under a free-use permit on all BLM-managed lands in the subunit. Subsistence use would also require a free-use permit. Demand for free-use permits for forest products has been lacking and would be anticipated to be low over the life of the plan in the subunit. Therefore no impacts on subsistence resources and activities from these decisions

would be expected. Subsistence users would benefit because they would be able to participate in harvest of timber for personal use.

The Fortymile and Mosquito Flats ACECs would be closed to commercial timber sales in Alternative E in addition to those areas closed in Alternatives B–D. Impacts to subsistence uses are expected to be the same as discussed in Effects Common to All Alternatives (section 4.4.4.4.1.).

Commercial harvest of forests products would be considered on all BLM-managed lands within the subunit. Impacts would be the same as Alternative D since the change in area open would be approximately 1000 acres.

Effects from Land and Realty

Same as Alternative D.

Effects from Locatable Minerals

More acres of BLM-managed land would be closed to locatable minerals in Alternative E (745,000 acres) than in Alternative C (623,000 acres); however, the difference is very small. Areas closed would include the Fortymile and Mosquito Flats ACECs, the Fortymile Wild and Scenic River corridor, and the RCAs.

Although most of the area open to locatable minerals is of low potential for development, some small areas of medium potential occur. Exploration with associated access would likely occur in the open areas. Development would likely follow if valid discoveries would be made. Extraction practices for locatable minerals would result in removal of vegetation and overburden from large areas, which would impact wildlife and fish habitat. Activities associated with mining would displace aquatic and terrestrial wildlife until suitable habitat would be restored, usually greater than 15–20 years for terrestrial species important for subsistence. Mining operations would be analyzed under NEPA and authorizations would include required reclamation standards, SOPs developed in this plan, and mitigation measures and practices to restore riparian function and reduce potential for erosion and siltation, and rehabilitate fish and wildlife habitat. An ANILCA Section 810(a) Evaluation and Finding would be conducted for each permitted action. Impacts to subsistence resources and uses would be similar to those in Alternative C and greater than Alternatives A and B as more lands would be open to mining.

Effects from Leasable Minerals

The acres of leasable minerals (fluid and solid) closed would be the same as those closed to locatable minerals and would be similar to Alternative B. Impacts to subsistence use and resources are discussed in Effects Common to All Alternatives section 4.4.4.1. Assumptions for analysis of impacts from leasable mineral decisions are in section 4.2.1.3.3 Leasable Minerals.

Effects from Salable Minerals

Impacts to subsistence uses and resources would be the same as for Alternative B and C. Impacts and mitigation are discussed in Effects Common to All Alternatives section 4.4.4.1.

Effects from Travel Management

Interim travel management within the Fortymile Subunit would remain the same as current management (section 2.7.1.2.5 Travel Management), except that a 1,500 pounds curb weight and 64 inches or less width for summer OHV and 1,000 pounds curb weight and 50 inches or less

width for snowmobiles would be implemented in the interim. A permit would be required for any use of OHV larger than this limit. Within the Fortymile WSR summer travel would be limited to existing trails. Summer OHV use would not be allowed in the Mosquito Flats ACEC.

A comprehensive travel management plan for the Fortymile Subunit would be developed within five years of the Record of Decision. Wildlife and ACEC management decisions in the Proposed RMP/Final EIS would set the sideboards for the step-down travel management plan (section 2.7.2.4.2.6 Travel Management). The management prescriptions for Alternative E would include limitations on OHV use.

No new impacts to subsistence uses, resources, or access to resources would be expected from interim travel management, limits on OHV and snowmobile width and weight, or prescriptions for wildlife, crucial caribou and Dall sheep habitat, and ACEC.

Alternative E prescriptions for OHV use would allow for more access to subsistence resources than would Alternative C, especially access for harvest of caribou. However, damage to habitat and disturbance of subsistence resources would also occur and could be of greater consequence than increased access.

The restriction on the use of motorized boats on non-navigable "wild" segments of the Fortymile WSR would be lifted in Alternative E. These river segments are within the Fortymile caribou herd calving and post-calving grounds. Use of motorized boats in these areas during the spring would introduce a new and substantial disturbance into the area when caribou are at their most vulnerable (calving and post-calving seasons). Impacts to wildlife resources from this decision are discussed further in section 4.4.1.7 Wildlife.

Travel by these methods on the North Fork of the Fortymile WSR would be expected to be limited by the obstacle presented by the Kink, a man-made, rocky, swift water channel connecting the navigable portion of the North Fork with the non-navigable portion. Travel by these means would be more likely to occur on Ingle Creek by hovercraft due to the shallowness and large diameter of substrate. Hovercraft use is uncommon among subsistence users in the area and most commonly used in connection with state suction dredging operations. Hovercraft use by subsistence users would be expected to remain rare. Subsistence users would not be likely to benefit from this decision and impacts to subsistence users, resources and access would be expected to be low.

Impacts to subsistence uses and resources will be further considered during the travel management planning process. NEPA analysis and an ANILCA Section 810(a) Evaluation and Finding would be conducted on the travel management plan. Changes to travel management would be determined through that process and could modify limits and restrictions on OHV designations, motorized boats and other access.

4.4.4.4.7. Cumulative Effects

The effects of past, present and future actions, including the demand for subsistence resources, recreational uses and changes to the landscape as a result of surface-disturbing activities, could affect subsistence uses in the Fortymile Subunit. The demand for resources important for subsistence uses in the Fortymile Subunit is anticipated to increase over the life of the plan, due to general population increases and advances in OHV technology. Impacts include real or perceived conflicts among uses and potential loss of opportunity, either from changes in availability of or access to the resources or displacement of subsistence users by other uses and users.

Surface-disturbances resulting from realty and land use, forestry, and mineral extraction activities could cumulatively affect availability, abundance and distribution of subsistence resources if activities altered riparian function or were in areas and conducted during seasons important to these resources, such as in calving and post-calving areas and/or periods.

The combination of ongoing locatable mineral development occurring on state, federal and private lands in the subunit and future development projected for the subunit, would have cumulative impacts on Fortymile caribou (see wildlife discussion in this chapter). The privatization of State of Alaska or Native corporation lands could lead to additional development. Depending on the location of development, these impacts could include: short- or long-term disturbance to caribou calving habitat, insect relief habitat, and migratory routes; disruption of caribou movements; stress and disturbance impacts to caribou during all seasons of the year; and possible reductions in herd productivity. If extensive activity occurred within the calving/post calving grounds or crucial insect relief habitat, these impacts would be significant.

Development of access roads and trails within the planning area would have the potential to negatively affect wildlife, and thus affect subsistence. These impacts would include habitat fragmentation, increased access into wildlife habitats, increased disturbance impacts, increased potential for mortality and possible alteration of behavior or movement patterns of wildlife. This may also result in an increase in recreational use of the area, resulting in additional competition with federally qualified subsistence users for resources.

Special designation, including ACECs, RCAs, restoration watersheds, and WSRs, would further protect habitats and subsistence opportunities in the Fortymile Subunit.

A more detailed analysis of the cumulative case is discussed in the ANILCA Section 810 evaluation in Appendix J, Section J.2.1.5.

4.5. Impacts Specific to the Steese Subunit

4.5.1. Resources

4.5.1.1. Cultural and Paleontological Resources Steese Subunit

Summary of Effects

See section 4.3.1.3 Effects Common to All Alternatives, Impacts Common to All Subunits.

4.5.1.1.1. Alternative A (No Action)

Effects from Lands and Realty

Four transportation corridors were established in the Steese National Conservation Area to provide access to existing and potential mining areas. All rights-of-way will, as far as possible, be located in one of these corridors. Existing trails and roads will be followed as much as possible. Although the intent is to keep rights-of-way within these designated corridors, such authorizations could be approved outside of the corridors.

The approval of new roads or trails, either within or outside of these corridors, as with all such surface-disturbing activities, would have the potential to directly and adversely impact all manner of cultural and paleontological resources. In addition, there could be an indirect effect on surficial cultural resources; with the creation of new routes of access, more resource use permittees would have access to areas which were previously inaccessible. There would be an increased potential of more people finding surface cultural resources and potentially adversely impacting them, either intentionally or unintentionally.

Effects from Locatable Minerals

The entire Steese Subunit (including the Steese National Conservation Area) 1,267,000 acres, is currently closed to new locatable mineral entry and mineral leasing. There are 5,000 acres of valid existing federal claims inside the subunit, with mining presently occurring on some of these claims. Of these 5,000 acres, 3,200 are within the Steese National Conservation Area.

Most, if not all, locatable mineral mining that presently occurs is surface-disturbing, open-air mining, and not underground mining which is accessible through shafts and adits that would otherwise leave the upper ground surface undisturbed. As such, locatable mineral mining does directly and adversely impact all manner of cultural and paleontological resources.

Three types of placer mining operations occur in the subunit: (1) suction dredge operations, where the only surface disturbance relates to the supporting camp, (2) small-scale placer mines, where disturbance is limited to less than five acres per operation, with an assumed total area of 20 to 30 acres for the life of each mine, and (3) large-scale placer mines, where disturbance is estimated at five to twenty acres per operation, with an assumed total area of 60 to 80 acres for the life of each mine.

Further assumptions for locatable minerals for Alternative A in the Steese Subunit indicate one suction dredge operation in any given year, seven small-scale placer mines, and two large-scale mines. This equates to 286 to 374 acres of disturbed ground, in areas that very likely contain

evidence of prior, historic mining operations, which have occurred in some drainages in the Steese Subunit for about 130 years. Much of this disturbance would likely occur in the Steese National Conservation Area because the majority of the existing claims are within the National Conservation Area. Disturbance to prehistoric sites by any particular operation would have to be assessed on a basis. In sum, locatable mineral mining will likely directly and adversely impact all manner of cultural and paleontological resources both inside and outside of the Steese National Conservation Area.

In addition, new access roads often need to be constructed in order to reach mineral claims. The construction of new roads not only has a direct and adverse effect on cultural and paleontological resources, but would also have an indirect effect by providing new access by other users to previously isolated lands. With more resource users accessing BLM-managed lands, there would be an increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

Effects from Recreation

Four recreation management units are currently identified, Primitive, Semi-Primitive, Birch Creek WSR, and Research Natural Areas. Otherwise, special recreation management areas (SRMA), recreation settings, and recreation management zones are not currently addressed, and thus have no effects upon cultural resources. At present, a wide range of recreational opportunities are available and/or are authorized in the Steese Subunit including: an established National Recreation Trail, private and commercial floating opportunities on the Birch Creek WSR, and both motorized and non-motorized overland travel. The construction of infrastructure to support these activities can be ground disturbing, and thus could potentially directly affect cultural and paleontological resources. Also, visitors to the public lands have the potential to inadvertently find surficial cultural and paleontological resources, and thus would have the potential to adversely impact such resources, either intentionally or unintentionally.

Effects from Travel Management

Current management indicates that OHV use of vehicles greater than 1,500 pounds are prohibited without a permit inside the Steese Subunit, otherwise it is allowed. Exceptions to this statement are that OHV use inside the Research Natural Areas (RNAs) in the Steese Subunit are not allowed (3,000 acres), nor is summer OHV use allowed in the Birch Creek WSR corridor and the currently designated Primitive management units (142,000 acres).

The use of motorized watercraft in the Birch Creek WSR Corridor is currently not allowed, except for limited local exceptions. Use of watercraft has minimal direct impact on cultural and paleontological resources. Use of watercraft has the potential for indirect impacts on these resources by providing access to otherwise inaccessible lands. With river access, there is an increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

Based upon current trends, the BLM assumes ever increasing travel visitation and use, both motorized and non-motorized, in the Steese Subunit. Since OHV use accounts for a sizeable portion of travel-related activities in the Steese National Conservation Area, it is anticipated that the demand for this activity will continue to grow in the future, necessitating construction of additional trails and mechanisms for managing these trails. Construction of new trails, like any other surface-disturbing activities, would have the potential to directly and adversely affect cultural and paleontological resources.

In addition, the construction of new trails would also have an indirect effect by providing new access to previously isolated lands. With more resource users accessing BLM-managed lands, there would be an increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

4.5.1.1.2. Alternative B

Effects from Lands and Realty

Under Alternative B, only two of the transportation corridors would be retained in the Steese National Conservation Area. Since few rights-of-way are anticipated, and since rights-of-way can be approved outside of the corridors, the effects of Alternative B would be essentially the same as Alternative A.

Effects from Locatable Minerals

Alternative B has the same direct and indirect effects on cultural and paleontological resources as outlined in Alternative A, except the potential impacts to these resources would be increased as new areas would be opened to potential mining activities and more roads would potentially need to be built to access those areas. In Alternative B, about 1,231,000 acres would be closed and about 34,000 acres would be open to locatable mineral entry (Map 32). Closed areas include the BLM's Central Administrative Site, disposal lands, and the Steese SRMA, the latter of which includes the Steese National Conservation Area and the Birch Creek WSR.

See Alternative A for assumptions about the nature and type of placer mining operations that are likely to occur within the Steese Subunit. Further assumptions for locatable minerals for Alternative B in this subunit indicate one suction dredge operation in any given year, eight small-scale placer mines, and two large-scale mines. This equates to 306-404 acres of disturbed ground, in areas that very likely contain evidence of prior, historic mining operations, which have occurred in some drainages in the Steese Subunit for about 130 years. Disturbance to prehistoric sites by any particular operation would have to be assessed on a project-specific basis. In sum, locatable mineral mining will likely directly and adversely impact all manner of cultural and paleontological resources.

Effects from Recreation

A wide range of recreational opportunities would be available and/or are authorized under Alternative B, in which the Steese Subunit is divided into the Steese SRMA and those lands outside of the SRMA. The Steese SRMA (about 1,246,000 acres) includes the Steese National Conservation Area and the Birch Creek WSR. In Alternative B, the SRMA would be divided into seven RMZs (Map 49), each with a well defined "setting character," ranging from Primitive, to Semi-Primitive, to Backcountry. The recreation management objectives associated with each of these are well defined, with differing emphases on building and maintaining facilities, the establishment and maintenance of winter and summer trails, and the range of summer and winter OHV uses. Construction of facilities by the BLM to meet recreational demand can directly and adversely impact surface and subsurface cultural and paleontological resources. The BLM assumes a ten to fifteen percent increase over the life of the plan in demand for recreational users and visitation (both motorized and non-motorized), resource damage, and user-resource conflicts. Any increased visitation to the public lands has a concurrent potential increase for inadvertently finding surficial cultural and paleontological resources and adversely impacting such resources, either intentionally or unintentionally.

Effects from Travel Management

Under Alternative B, use inside the RNAs (3,000 acres) continues to be closed to all motorized vehicles. For the remainder of the Steese Subunit (1,264,000 acres), OHV use is limited only to the winter months with adequate snowfall and is limited to snowmachines weighing 1,000 pounds or less.

There would be little to no direct impacts to cultural or paleontological resources by the proposed OHV uses in this alternative, as they are limited to winter months when ground cover of snow would protect most types of cultural resources and all paleontological resources.

The use of most forms of motorized watercraft in the Birch Creek WSR Corridor would not be allowed on non-navigable sections of the river, except for limited local exceptions. Use of watercraft has minimal direct impact on cultural and paleontological resources. Use of watercraft has the potential for indirect impacts on these resources by providing access to otherwise inaccessible lands. With river access, there is an increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

The current visitation rate of increase for the Steese Subunit is approximately ten percent per year, which is expected to be maintained for the foreseeable future. Although a large portion of this is assumed to be by OHV users, there would still be increased use by non-motorized users in the subunit, both on and off established trails. With more resource users accessing BLM-managed lands, there would be an increased potential of more people finding surface cultural resources and potentially adversely impacting them, either intentionally or unintentionally.

4.5.1.1.3. Alternative C

Effects from Lands and Realty

Same as Alternative B.

Effects from Locatable Minerals

Alternative C has the same direct and indirect effects on cultural and paleontological resources as outlined in Alternatives A and B, except the potential impacts to these resources would be increased as new areas would be opened to potential mining activities and more roads would potentially need to be built to access those areas. In Alternative C, 993,000 acres would be closed and about 274,000 acres of previously withdrawn lands would be open to locatable mineral entry. The closed areas would include the Steese ACEC, the RNAs, disposal lands, the Birch Creek WSR Corridor, and portions of the Steese National Conservation Area (Map 34). Alternative C has more acres opened to potential mineral activity than Alternative B, and thus would have a greater potential adverse impact to cultural and paleontological resources. Most of the new mining claims would be located within the Steese National Conservation Area, as these are the areas with higher mineral potential.

See Alternative A for assumptions about the nature and type of placer mining operations that are likely to occur within the Steese Subunit. Further assumptions for locatable minerals for Alternative C in this subunit indicates nine suction dredge operations in any given year, 15 small-scale placer mines, and four large-scale placer mines. This equates to roughly 600-900 acres of disturbed ground, in areas that very likely contain evidence of prior, historic mining operations, which have occurred in some drainages in the Steese Subunit for about 130 years.

Disturbance to prehistoric sites by any particular operation would have to be assessed on a project-specific basis. In sum, locatable mineral mining will likely directly and adversely impact all manner of cultural and paleontological resources.

Effects from Recreation

As in Alternative B, a wide range of recreational opportunities would be available and/or are authorized under Alternative C. The Steese SRMA and lands outside the SRMA would be identified for the same areas. In Alternative C the SRMA would be divided into 10 RMZs (Map 50), each with a well defined "setting character," ranging from Primitive, Semi-Primitive, Backcountry, Middlecountry, and Frontcountry. Relative to Alternative B, Alternative C has added Frontcountry and Middlecountry settings. The recreation management objectives associated with each of these settings are well defined, with differing emphases on building and maintaining facilities, establishing and maintaining trails, and the range of summer and winter OHV uses.

Alternative C has the same assumptions for increased recreational use over the life of the plan as Alternative B, and has the same potential types of direct and indirect impacts to cultural and paleontological resources. The potential for effects would be slightly higher under Alternative C than Alternative B because there would be a greater emphasis on developing facilities to encourage and enhance recreational opportunities. This could potentially result in more visitors and increased access to areas that are currently difficult to access.

Effects from Travel Management

Under Alternative C, use inside the RNAs (3,000 acres) continues to be closed to all motorized vehicles. For most of the remainder of the Steese Subunit (680,000 acres), OHV use is limited only to the winter months with adequate snowfall and is limited to snowmachines weighing 1,000 pounds or less. As a result, Alternative C allows summer OHV use to 566,000 acres of the subunit, but is limited to existing trails.

There would be little to no direct impacts to cultural or paleontological resources by the proposed OHV uses in this alternative. Most of the subunit remains limited to winter months when ground cover of snow would protect most types of cultural resources and all paleontological resources, and the remainder of the area is opened in the summer to existing trails only. The creation of unauthorized trails by summer OHV users, however, is likely to continue to increase. Cultural resources with surface traces, or those close to the surface, are likely to be directly and adversely impacted by this ever-expanding creation of unauthorized OHV trails.

The use of most forms of motorized watercraft in the Birch Creek WSR Corridor would be the same as Alternative B.

The current visitation rate of increase for the Steese Subunit is approximately ten percent per year, which is expected to be maintained for the foreseeable future. Although a large portion of this is assumed to be by OHV users, there would still be increased use by non-motorized users in the subunit, both on and off established trails. With more resource users accessing BLM-managed lands, there would be an increased potential of more people finding surface cultural resources and potentially adversely impacting them, either intentionally or unintentionally.

4.5.1.1.4. Alternative D

Effects from Lands and Realty

Alternative D would be the same as Alternative B, except that there would be no designated transportation corridors. The lack of corridors would have a minimal effect on cultural and paleontological resources because few rights-of-way would be authorized. Any ROWs would be assessed on a case-by-case basis in the future, with full environmental analysis performed at that time.

Effects from Locatable Minerals

Alternative D would have the same direct and indirect effects on cultural and paleontological resources as outlined in Alternative A, except the potential impacts to these resources would be increased as new areas would be opened to potential mining activities and more roads would potentially need to be built to access those areas. Approximately 585,000 acres would be closed and about 682,000 acres of previously withdrawn lands would be open to locatable mineral entry, most of this in the Steese National Conservation Area. The closed areas would include the Steese ACEC, the RNAs, disposal lands, the Birch Creek WSR Corridor, and portions of the Steese National Conservation Area (Map 36). Alternative D has more acres opened to potential mineral activity than Alternatives B, C, and E, and thus would have a greater potential adverse impact to cultural and paleontological resources. As in Alternative C, most of the new mining claims would be located in the Steese National Conservation Area.

See Alternative A for assumptions about the nature and type of placer mining operations that are likely to occur within the Steese subunit. Further assumptions for locatable minerals for Alternative D indicates 12 suction dredge operations in any given year, 24 small-scale placer mines, and four large-scale placer mines. This equates to 768–1088 acres of disturbed ground, in areas that very likely contain evidence of prior, historic mining operations, which have occurred in some drainages in the Steese Subunit for about 130 years. Disturbance to prehistoric sites by any particular operation would have to be assessed on a project-specific basis. In sum, locatable mineral mining will likely directly and adversely impact all manner of cultural and paleontological resources.

Effects from Recreation

A wide range of recreational opportunities would be available and/or are authorized under Alternative D. Same as Alternatives B and C, the Steese Subunit is divided into the SRMA and those lands outside of the SRMA. In Alternative D the SRMA would be divided into nine RMZ (Map 51). Alternative D, however, has more acres in Frontcountry and Middlecountry than does Alternative C. The recreation management objectives associated with each of these settings would be the same as those defined in Alternatives B and C.

Alternative D has the same assumptions for increased use over the life of the plan as Alternative B, and has the same potential types of direct and indirect impacts to cultural and paleontological resources. The potential for effects would be slightly higher under Alternative D than Alternatives B or C because there would be a greater emphasis on developing facilities to encourage and enhance recreational opportunities. This could potentially result in more visitors and increased access to areas that are currently difficult to access.

Effects from Travel Management

Under Alternative D, use inside the RNAs (3,000 acres) continues to be closed to all motorized vehicles. For most of the remainder of the Steese Subunit (733,000 acres), summer OHV use is allowed, but is limited to 1,500 pounds or less. OHV use is limited to only the winter months with

adequate snowfall in the remaining 513,000 acres of the subunit, and is limited to snowmachines weighing 1,000 pounds or less.

The potential for direct impacts to cultural resources increases dramatically for this Alternative, relative to all others, because of the open use of summer OHV use (1,500 pound limitation) on 733,000 acres. The creation of unauthorized trails by summer OHV users would likely increase dramatically. Cultural resources with surface traces, or those close to the surface, are likely to be directly and adversely impacted by this ever-expanding creation of trails.

The use of most forms of motorized watercraft in the Birch Creek WSR Corridor would be the same as Alternative B.

The current visitation rate of increase for the Steese Subunit is approximately ten percent per year, which is expected to be maintained for the foreseeable future. Although a large portion of this is assumed to be by OHV users, there would still be increased use by non-motorized users in the subunit, both on and off established trails. With more resource users accessing BLM-managed lands, there would be an increased potential of more people finding surface cultural resources and potentially adversely impacting them, either intentionally or unintentionally.

4.5.1.1.5. Alternative E (Proposed RMP)

Effects from Lands and Realty

Same as Alternative D.

Effects from Locatable Minerals

Alternative E has the same direct and indirect effects on cultural and paleontological resources as outlined in Alternative A, except the potential impacts to these resources would be increased as new areas would be opened to potential mining activities and more roads would potentially need to be built to access those areas. In Alternative E, about 1,237,000 acres would be closed and about 30,000 acres would be open to locatable mineral entry (Map 87). Closed areas include the BLM's Central Administrative Site, disposal lands, and the Steese SRMA, the latter of which includes the Steese National Conservation Area and the Birch Creek WSR. Other than Alternative A, the No Action alternative, Alternative E would have the least impact on cultural and paleontological resources as this alternative would open the least amount of lands to mineral development.

See Alternative A for assumptions about the nature and type of placer mining operations that are likely to occur within the Steese Subunit. Further assumptions for locatable minerals for Alternative E in this subunit are the same as Alternative B.

Effects from Recreation

As in Alternative B, a wide range of recreational opportunities would be available and/or are authorized under Alternative E. The Steese SRMA and lands outside the SRMA are identified the same in Alternatives B, C, D, and E. In Alternative E, the SRMA would be divided into 9 RMZs (Map 47), each with a well-defined "setting character," ranging from Primitive, Semi-Primitive, Backcountry, Middlecountry, and Frontcountry. Relative to the amount of land placed within each of these five categories, Alternative E would be placed between Alternatives B and C, with B having more acres of Primitive land and less acres in Semi-Primitive and Backcountry. The recreation management objectives associated with each of these settings are well defined, with

differing emphases on building and maintaining facilities, establishing and maintaining trails, and the range of summer and winter OHV uses.

Alternative E has the same assumptions for increased recreational use over the life of the plan as Alternative B, and has the same potential types of direct and indirect impacts to cultural and paleontological resources. As implied above, the potential for effects to cultural and paleontological resources would be higher under Alternative E than Alternative B because there is be a greater emphasis on developing facilities to encourage and enhance recreational opportunities, but less so than in Alternative C.

Effects from Travel Management

A Travel Management Plan would be developed for the Steese Subunit after approval of the RMP. Until that time, interim management would be the largely that same as Alternative A, with a few exceptions, including an opening up of the 3,000 acres in the RNAs to winter snowmachine use, and the allowance of airboats and hovercraft on both navigable and non-navigable sections of the rivers, including the Birch Creek WSR. These new exceptions to current management practices would not directly affect cultural and paleontological resources, except to potentially increase the indirect effects on cultural resources by the removal of the motorized watercraft prohibition by providing access to otherwise previously inaccessible lands. With access, there is an increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

4.5.1.2. Fish and Aquatic Species Steese Subunit

Summary of Effects

Fish and aquatic resources would be primarily affected by surface-disturbing activities (such as placer mining or trail construction) which alter stream channels, remove or damage riparian vegetation, or result in soil erosion and sedimentation to fish and aquatic habitat. The level of impact would depends on the success and adequacy of protective measures. Alternative A would provide the greatest protection to fish and aquatic resources within the planning area because the entire subunit is currently closed to new locatable mineral entry. Alternatives B, C, and D open increasingly more acres and stream miles for locatable mineral entry, respectively. Alternative D would have the greatest potential to impact fish and aquatic resources.

Table 4.13. Stream Miles and Acres Open to Locatable Mineral Entry by Alternative, Steese Subunit

STEESE SUBUNIT	ALTERNATIVES				
(BLM-managed lands)	A	B	C	D	E
Stream miles	1,785	1,785	1,785	1,785	1,785
Stream miles open to locatables (proposed)	0	40	370	870	60
Stream miles open to locatables (proposed) plus miles within current valid federal claims	100	140	430	920	140
Stream miles within RCAs in areas open to locatables (proposed)	N/A	10 (6%)	10 (2%)	60 (6%)	0
Stream miles outside RCAs in areas open to locatables (proposed)	N/A	40 (25%)	360 (85%)	810 (89%)	60 (45%)
Acres open to locatables (proposed)	0	34,000	274,000	695,000	30,000

STEESE SUBUNIT	ALTERNATIVES				
(BLM-managed lands)	A	B	C	D	E
Acres open to locatables (proposed) plus acres within current valid federal claims	7,000	41,000	279,000	699,000	34,000
Anticipated stream gravel disturbance by suction dredging during life of plan measured in cubic yards	40,000	40,000	360,000	480,000	40,000
Potential impacts to fish and aquatic habitat (1-5, 5= greatest)	**1**	**3**	**4**	**5**	**2**

4.5.1.2.1. Alternative A (No Action)

Effects from Leasable Minerals

No lands within the Steese Subunit are open to leasing of either fluid minerals (oil and gas) or solid leasables (coal). There are no existing mineral leases. Under this alternative, no impacts to fisheries and aquatic resources resulting from leasable minerals would occur.

Effects from Locatable Minerals

Of the following effects, seventy-one percent would occur within the Steese National Conservation Area. No additional lands within the Steese subunit would be open to new locatable mineral entry. Locatable mineral development would be limited to valid existing claims. Currently, there are 7,200 acres and 106 miles of stream on active federal mining claims in the Steese Subunit that have been mined or have the potential to be mined. Of these 7,200 acres and 100 miles of stream, seventy-one percent occur within the Steese National Conservation Area. The Birch Creek WSR (within one-half mile of the banks) is withdrawn from locatable minerals in all alternatives (ANILCA 606(a)). The anticipated number of acres directly disturbed by small- and large-scale placer mines under Alternative A is estimated at up to 370 acres, or approximately six miles of stream over the life of the plan.

The indirect impacts would likely extend upstream and downstream of the mine operation. The extent of these impacts are difficult to quantify, but could more than double the miles of stream directly affected by the placer operation. Under Alternative A, roughly 10 suction dredge operations are anticipated over the life of the plan. Each operation is anticipated to last two years. The amount of stream gravel disturbed from one suction dredging operation is estimated to be 1,800 cubic yards per year. Over the life of the plan 36,000 cubic yards of stream gravel could be disturbed. The context and intensity of impacts would depend on the timing, location, and proximity of the operation to other operations. Given the dispersed nature of suction dredging operations coupled with the limited number of existing federal claims, impacts are expected to be localized and may be short- or long-term.

Under Alternative A, protection of fisheries and aquatic resources would rely on the existing regulations and mitigation measures developed during project-specific NEPA analysis. Mining operations within the Steese National Conservation Area require a Plan of Operation, which would allow for the integration of reclamation measures specifically designed to rehabilitate fisheries habitats. Fish species impacted from locatable mineral activity in this subunit include both resident and anadromous species. Impacts to fish and aquatic resources in this alternative would be considered low to moderate, but could have long-term effects resulting in an overall decrease in levels of fish populations at the local level. Compared to the other alternatives,

Alternative A would likely provide the greatest protection to fisheries and aquatic resources, because it would result in the least amount of potential new disturbance. However, under this alternative, fish and aquatic resources may not benefit from the more rigorous reclamation standards and SOPs proposed in the action alternatives which are designed to minimize impacts and reduce recovery time. As such, Alternative A may result in longer duration impacts as compared to the action alternatives.

Effects from Recreation

Impacts would be similar to those discussed as common to all subunits section 4.3.1.4.1. There are no SRMAs that would set recreation objectives or develop visitor use limits. Unmanaged trail proliferation would continue with no guidance for proper construction and placement for new trails. Alternative A would provide the least protection to fish and aquatic habitats from recreation activities. However, impacts to fish and aquatic habitat are expected to be minimal.

Effects from Travel Management

Current OHV designations in the Steese Subunit are Limited, allowing summer cross-country travel of OHVs weighing 1,500 GVWR and less except in RNAs, the Birch Creek WSR Corridor, and the Primitive Management Unit. Unmanaged trail proliferation would continue with no guidance for proper construction and placement of new trails. Given the assumption of increased OHV use during the life of the plan, the unauthorized and unmanaged proliferation of trails is also likely to increase with a resulting increase in erosion and sediment impacts. Since the majority of the subunit is open to off-road travel by OHVs weighing 1,500 GVWR or less, and assuming increased OHV use during the life of this plan, this alternative may have minimal and localized impacts on fish and aquatic habitats. Alternative A has the most potential to adversely effect fish and aquatic habitat compared to Alternatives B, C, D, and E.

Effects from Special Designations

The following special designations and effects would occur within the Steese National Conservation Area. The Birch Creek WSR contains high-value fishery resources, supporting three species of salmon and numerous resident fish species. The river corridor is closed to mineral leasing and location and would remain closed in all alternatives. Given the adverse short- and long-term impacts to fisheries and aquatic resources associated within mining, areas closed to mineral entry would generally maintain aquatic habitats and fish and aquatic populations.

Fish and aquatic resources are not of particularly high value within the Mount Prindle (2,800 acres) and Big Windy Hot Springs RNAs (160 acres), however increased resource protection in these areas could be beneficial to fish and aquatic resources. These RNAs would be retained in all alternatives.

4.5.1.2.2. Alternative B

Effects from Leasable Minerals

Effects from mineral leasing would occur mostly outside of the Steese National Conservation Area. Approximately 34,000 acres would be open to oil and gas leasing, but leasing would not occur without further NEPA analysis. Interest from industry is expected to be limited due to the lack of high potential oil and gas areas on BLM lands. Seismic exploration would be allowed during winter months after the tundra is frozen. If seismic exploration does occur, it would likely

occur in high potential areas, but is unlikely during the life of the plan. Given those assumptions, impacts to fisheries and aquatic habitat would be minimal to non-existent.

Potential threats to overwintering fish from seismic surveys would primarily stem from: 1) stress associated with acoustic energy pulses transmitted into the ground directly over overwintering pools, and 2) physical damage to overwintering habitat caused by seismic vehicles. Large overwintering pools might allow fish to flee the immediate area of intense stress where fish occupying small pools might not have that option. Depending on proximity, adult fish could suffer no more than temporary discomfort, where intense acoustical pulses could be lethal to juveniles. Given that overwintering habitat represents a small percentage of the subunit, it is unlikely that seismic transmissions would occur directly over overwintering sites with any degree of regularity. Furthermore, seismic crews could avoid known overwintering areas. Overall, any affects to overwintering fish caused by winter seismic surveys would be localized and would likely to have little effect on fish populations within the planning area.

Effects from Locatable Minerals

The level of effects within the Steese National Conservation Area would be similar to Alternative A. The Steese Subunit contains 1,275,000 acres of BLM lands and 41,000 of those acres (outside of the National Conservation Area) would be open to locatable mineral entry in Alternative B (Map 32). Including valid existing federal mining claims, approximately 140 miles of stream would be open to locatables, with 10 (six percent) of those miles occurring in RCAs which require more rigorous standards for reclamation. Under Alternative B, protection of fish and aquatic habitat in ninety-four percent of the streams open to locatables would rely on the current regulations, reclamation requirements and SOPs outlined in this plan, and mitigation measures developed during project-specific NEPA analysis. Of the stream miles open to locatables, one mile occurs within a high mineral potential area. The anticipated number of acres directly disturbed by small- and large-scale placer mines under Alternative B is estimated at up to 500 acres, or approximately seven miles of stream over the life of the plan.

The indirect impacts of mining would likely extend upstream and downstream of the mine operation. Indirect impacts to upstream habitats would include channel gradient adjustments (downcutting), while downstream impacts would include sedimentation and pool filling. The extent of these impacts are difficult to quantify, but could more than double the miles of stream directly affected by the placer operation. The anticipated number of suction dredging operations is 10 (same as Alternative A) and the impacts from suction dredging would the same as described in Alternative A.

Impacts to fish and aquatic resources under this alternative would likely be low because only eight percent of the stream miles within the subunit are open to locatables and only one mile falls within a high mineral potential area. Based on the amount of land opened to mineral enrty, this alternative would potentially provide more protection to fish and aquatic habitat than Alternatives C and D, but less than A and E.

Effects from Recreation

Impacts would be similar to those discussed as common to all subunits in section 4.3.1.4.1. Under Alternatives B, C, and D, the Steese SRMA would contain RMZs, each of which would be managed by for specific activities, experiences, and benefits in a corresponding prescribed recreation setting (Primitive, Semi-Primitive, Backcountry, Middlecountry, or Frontcountry).

Primitive Zones would have the lowest potential impacts to fish and aquatic habitat, where Frontcountry zones would have the highest.

In Alternative B, the Steese SRMA (1,246,000 acres) would include the Steese National Conservation Area and the Birch Creek WSR Corridor and be divided into seven RMZs, which would be managed for Primitive, Semi-Primitive, or Backcountry setting. This alternative has by far the largest area managed for a Primitive setting and would provide more protection to fish and aquatic habitat than Alternatives A, D, C, and E (in that order). Impacts to fish and aquatic habitat are expected to be minimal under this alternative.

Effects from Travel Management

This Alternative proposes interim management similar to Alternative A until travel management plans can be completed. Under Alternative B, the entire subunit is closed to OHVs during summer months (May 1 through October 15) without a permit or approved plan of operations. There is one exception which is federally qualified subsistence hunters would be able to apply for a permit allowing them to use OHVs within the Birch Creek WSR corridor. The use of wheeled and/or tracked vehicles by federally qualified subsistence hunters within the Birch Creek Creek WSR corridor may result in some localized adverse impacts to fish and aquatic resources. These impacts may be in the form of erosion and sedimentation to the stream from newly pioneered trails and streambank instability if new stream crossings were created. Birch Creek and some of it's tributaries are listed as anadromous streams in ADF&G Anadromous Waters Catalog. Both wheeled and tracked vehicles are only allowed to cross anadromous streams at authorized stream crossings listed on ADF&G website or after obtaining an Individual Fish Habitat Permit with stipulations from ADF&G. Currently, there are no authorized stream crossings for anadromous streams in the Steese subunit. Impacts to fish and aquatic habitat would be minimized with the protection of the OHV monitoring plan, which closes or restricts areas open to OHV use if resource damage such as erosion, sedimentation, and water pollution occurs. This Alternative would potentially provide more protection to fish and aquatic habitat than Alternative A, but less than C, D, or E. Fish and aquatic resources generally benefit when areas are closed to OHVs, because closure reduces potential impacts associated with route development, erosion, and stream crossings. Impacts to fish and aquatic habitat under Alternative B would be minimal or non-existent.

Effects from Special Designations

The following special designations and effects would occur within the Steese National Conservation Area. In addition to the impacts from RNAs and the Birch Creek WSR described under this subsection for Alternative A, 924,000 acres would be designated as the Steese ACEC (Map 64) to protect habitat for the Fortymile caribou herd and Dall sheep. The ACEC would remain closed to locatable and leasable mineral entry, subject to valid existing rights. Fish and aquatic habitats benefit in areas closed to mineral entry, because the habitat generally remains intact. A mining Plan of Operations would be required on any mining activity within the ACEC (43 CFR 3809.11(c)(3)). Birch Creek contains high-value fishery resources, supporting three species of salmon and numerous resident fish species. This ACEC includes a large portion of the Birch Creek watershed and would provide additional protection to fish and aquatic habitat outside of the Birch Creek WSR Corridor. Impacts to fish and aquatic habitat would be the most beneficial under this alternative.

Big Windy Creek would be recommended as suitable for designation in the National Wild and Scenic Rivers System. Fish and aquatic habitat resources are not of particularly high value in

Big Windy Creek, however the river corridor would be closed to mineral leasing and location. Given the adverse short- and long-term impacts to fisheries and aquatic resources associated within mining, mineral entry closure on Big Windy Creek would promote maintenance of aquatic habitats and fish and aquatic populations.

4.5.1.2.3. Alternative C

Effects from Leasable Minerals

Effects from mineral leasing under this alternative occur mostly outside of the Steese National Conservation Area. The effects are the same as Alternative B, except 274,000 acres would be open to oil and gas leasing. Potential impacts under Alternative C would be greater than Alternative B, because more acres would be open to disturbance.

Effects from Locatable Minerals

The following effects would occur primarily within the Steese National Conservation Area. Approximately 279,000 acres would be open to locatable minerals in Alternative C. Including valid existing federal mining claims, approximately 430 miles of stream would be open to locatable minerals with 10 (two percent) of those miles occurring in RCAs. Those 10 stream miles would be subjected to more rigorous reclamation standards. Protection of fish and aquatic habitat in 360(ninety-five percent) miles of stream open to locatables would rely on the current regulations, reclamation requirements and SOPs outlined in this plan, and mitigation measures developed during project-specific NEPA analysis.

The likelihood of impacts would be greatest in areas of medium to high mineral potential, which equates to roughly 250 of the 430 river miles that are open to locatable minerals under Alternative C (BLM 2009c). The anticipated number of acres directly disturbed by small- and large-scale placer mines under Alternative C is estimated at up to 770 acres, or 11 miles of stream over the life of the plan. The anticipated number of suction dredging operations during the life of this plan is 90, a substantial increase compared to Alternatives A and B. These operations could potentially result in disturbance of 360,000 cubic yards of stream gravel over the life of the plan. Impacts from suction dredging are discussed in section 4.3.1.4 Impacts Common to All Subunits.

Based on the number of stream miles (250) that would be open to locatable minerals in moderate to high mineral potential areas and the absence of higher reclamation standards on the majority of these streams (ninety-five percent), adverse impacts to fish and aquatic resources under this alternative may be readily detectable and long-term (10–20 years) within these areas. This could result in a downward trend of fish populations at the watershed scale over the life of this plan. Alternative C would provide less protection to fish and aquatic habitat than Alternatives A and B, but more protection than Alternative D.

Effects from Recreation

Impacts would be similar to those discussed as common to all subunits in section 4.3.1.4.1. The Steese SRMA would include the same lands as in Alternative B but would be divided into 10 RMZs. Recreation settings would range from Primitive (3,000 acres) to Frontcountry. This alternative allows for increased development of visitor facilities, landscape modifications, and group size as compared to Alternative B, and has greater potential to adversely effect fish and aquatic resources due to increased disturbance. Alternative C would provide more protection to fish and aquatic habitat than Alternatives A and D, but less than Alternative B and E based

on the amount of potential disturbance. Impacts to fish and aquatic habitat are expected to be minor under this alternative.

Effects from Travel Management

Under Alternative C, forty-seven percent of the subunit would be open to summer use (May 1 through October 15) of OHVs weighing 1,000 pounds curb weight and less on existing routes and for the retrieval of game. Impacts to fish and aquatic resources would be highly localized and associated with route erosion and stream crossings. Impacts are expected to be minor and generally short-term under this alternative. Alternative C would provide less protection to fish and aquatic habitat than Alternative B and E, but more than Alternatives D and A.

Effects from Special Designations

In addition to the impacts from RNAs and the Birch Creek WSR described under this subsection for Alternative A, 457,000 acres would be designated as crucial caribou and Dall sheep habitat displayed on Map 67. Alternative C provides less protection to fish and aquatic resources than does Alternative B and E, because the amount of crucial caribou and Dall sheep habitat is smaller and Big Windy Creek would not be recommended for designation as a WSR under Alternative C allowing for an increase of potential disturbance.

4.5.1.2.4. Alternative D

Effects from Leasable Minerals

The effects from mineral leasing under this alternative occur mostly outside of the Steese National Conservation Area. The effects are the same as Alternative B, except 682,000 acres would be open to oil and gas leasing. Potential impacts under Alternative D would be the greatest because it allows for the greatest amount of disturbance.

Effects from Locatable Minerals

The following effects would occur primarily within the Steese National Conservation Area. Alternative D results in the largest area being opened to locatable mineral entry compared to the other alternatives, with 699,000 acres being available. Including valid existing federal mining claims, this corresponds to approximately 920 miles of stream that would be open to locatables, with only six percent of those miles occurring in RCAs which require higher standards for reclamation. Compared to Alternative E, this alternative allows locatable mineral entry on 750 additional miles of stream which have less stringent requirements than those in RCAs. If mined, desired future conditions for aquatic habitats and stream function may not be achieved for 10 to 20 years on up to 750 additional miles of stream when compared to the other Alternatives.

Under Alternative D, protection of fish and aquatic habitat on 810 miles (ninety-nine percent) of the streams open to locatables would rely on the current regulations, reclamation requirements and SOPs outlined in this plan, and mitigation measures developed during project-specific NEPA analysis. Of the stream miles open to locatables, 400 stream miles fall within areas having medium to high mineral potential. The anticipated number of acres directly disturbed by small- and large-scale placer mines under Alternative D is estimated at 1,040 acres, or approximately 15 miles of stream over the life of the plan.

Alternative D would allow 45 miles of anadromous stream in the Preacher Creek basin to be directly impacted by locatable mineral entry, where in Alternatives B, C, and E Preacher Creek is designated as an RCA and is closed to locatables. The Preacher Creek basin contains medium mineral potential and has reasonable access, as such, it is probable that widespread development would occur within this basin beginning in the headwater areas and progressing downstream. The localized loss of riparian and streambank vegetation and creation of areas with channel instability could be widespread creating a matrix of degraded habitats interspersed with "islands" of intact riparian areas. These islands would likely exhibit degraded pool and spawning habitat quality resulting from catchment erosion and downstream sedimentation. In an unpublished report from 1985, a BLM fish biologist stated that the degradation of other portions of the Birch Creek drainage from placer mining activity may increase the importance of Preacher Creek for the production of Arctic grayling within the Birch Creek system. More recently in 2005, BLM resource specialists observed adult Chinook salmon in Preacher Creek within the area open to locatables under this alternative (verbal communication). The resulting impacts to the fish and aquatic community could be significant and long-term (10 to 20 years), adversely affecting Chinook and grayling populations.

Approximately 120 suction dredging operations are anticipated during the life of this plan, potentially resulting in disturbance of up to 480,000 cubic yards of stream gravel over the life of this plan. Impacts from suction dredging are discussed in the section 4.3.1.4 Impacts Common to All Subunits, Fish and Aquatic Species.

This alternative has the potential to significantly impact both Chinook salmon spawning habitat and high quality resident fish habitat in the Preacher Creek drainage. This alternative has the greatest potential impact to fish and aquatic habitat.

Effects from Recreation

Impacts would be similar in type to those discussed as common to all subunits in section 4.3.1.4.1. The Steese SRMA would include the same lands as in Alternatives B, C, and E, but would be divided into nine RMZs. Recreation settings would range from Primitive (3,000 acres) to Frontcountry. Much less area would be managed for a Semi-Primitive setting. This alternative allows for the greatest development of visitor facilities, landscape modifications, and group size. However, impacts to fish and aquatic habitat should be minor and easily mitigated. Alternative D would provide more protection to fish and aquatic habitat than Alternative A, but less than Alternatives B, C, and E.

Effects from Travel Management

Under Alternative C, sixty percent of the subunit would be open to summer cross-country use of OHVs weighing 1,000 pounds curb weight or less. Unmanaged trail proliferation may occur with no guidance for proper construction and placement of new trails. Given the assumption of increased OHV use during the life of the plan, the unauthorized and unmanaged proliferation of trails is also likely to increase with a resulting increase in erosion and sediment impacts. Impacts to fish and aquatic resources would be highly localized and associated with route erosion and disturbance to riparian vegetation. Impacts are expected to be minor and generally short-term under this alternative. Alternative D would provide more protection to fish and aquatic habitats than Alternative A, but less than Alternatives B, C, and E.

Effects from Special Designations

In addition to the impacts from RNAs and the Birch Creek WSR described under this subsection for Alternative A, 193,000 acres would be designated as the Steese ACEC (Map 66). Alternative D provides less protection to fish and aquatic habitats than Alternatives B, C, and E, because the ACEC is smaller and includes less fish habitat.

4.5.1.2.5. Alternative E (Proposed RMP)

Effects from Leasable Minerals

This alternative recommends closing the entire Steese National Conservation Area to mineral leasing, while Alternative C recommended closing 80 percent. The effects are the same as described in Alternative B, but 30,000 acres would be open to leasable minerals. The potential impacts to fish and aquatic resources would be greatest in Alternatives D, C, and B.

Effects from Locatable Minerals

The level of effects within the Steese National Conservation Area would be similar to Alternative A and B, but fewer acres would be open for Alternative E. The Steese Subunit contains 1,267,000 acres of BLM lands and 30,000 of those acres (outside of the National Conservation Area) would be open to locatable mineral entry in Alternative E (Map 38). RCAs in this Alternative would be closed to locatables. Including valid existing federal mining claims, approximately 60 miles of stream would be open to locatables, none of which would occur in RCAs which require more rigorous standards for reclamation. Under Alternative E, protection of fish and aquatic habitat in one hundred percent of the streams open to locatables would rely on the current regulations, reclamation requirements and SOPs outlined in this plan, and mitigation measures developed during project-specific NEPA analysis. Of the stream miles open to locatables, one mile occurs within a high mineral potential area. The anticipated number of acres directly disturbed by small- and large-scale placer mines under Alternative E is estimated at up to 500 acres, or approximately seven miles of stream over the life of the plan.

The indirect impacts of mining would likely extend upstream and downstream of the mine operation. Indirect impacts to upstream habitats would include channel gradient adjustments (downcutting), while downstream impacts would include sedimentation and pool filling. The extent of these impacts are difficult to quantify, but could more than double the miles of stream directly affected by the placer operation. The anticipated number of suction dredging operations is 10 (same as Alternative A) and the impacts from suction dredging would the same as described in Alternative A.

Impacts to fish and aquatic resources under this alternative would likely be low and localized because all of the high value fish and aquatic resources (RCAs) identified would be closed to locatable minerals, only 8 percent of the stream miles within the subunit would be open to locatable minerals, and only one mile falls within a high mineral potential area. Based on the amount of land opened to mineral entry, this alternative would potentially provide more protection to fish and aquatic habitat than Alternatives B, C, and D, but less than A.

Effects from Recreation

Impacts would be similar to those discussed as common to all subunits in section 4.3.1.4.1. The Steese SRMA would include the same lands as in Alternative B, C, and D, but would be divided into 9 RMZs. Recreation settings would range from Primitive (3,000 acres) to Frontcountry. This alternative allows for increased development of visitor facilities, landscape modifications, and

group size as compared to Alternative B, but less than A, C, and D. Alternative E would provide more protection to fish and aquatic habitat than Alternatives A, C, and D, but less than A, based on the amount of potential disturbance. Impacts to fish and aquatic habitat are expected to be minor.

Effects from Travel Management

This Alternative proposes interim management similar to Alternative A until travel management plans can be completed. Alternative E is the only Alternative that would allow airboats and hovercraft within the Steese National Conservation Area. Those types of transportation would likely occur on Birch Creek, but are not likely to adversely impact fish and aquatic resources. This alternative also removes winter OHV restrictions in the RNAs which is prohibited in all other alternatives. Winter OHV use in the RNAs would not effect fish and aquatic resources. Impacts to fish and aquatic habitat would be minimized with the protection of the OHV monitoring plan, which closes or restricts areas open to OHV use if resource damage such as erosion, sedimentation, and water pollution occurs. This Alternative would potentially provide more protection to fish and aquatic habitat than Alternative A, but less than B, C, or D.

Effects from Special Designations

Impacts would be the same as described in Alternative C. Alternative E and C provide less protection to fish and aquatic resources than Alternative B and more protection than Alternative A and D.

4.5.1.3. Invasive Species Steese Subunit

Summary of Effects

Primary uses in the Steese Subunit that will impact non-native invasive species (invasive species) management are mineral development, recreation, and travel management. Outreach and education would be used to prevent the introduction and spread of invasive plants. Early Detection and Rapid Response (EDRR) and inventory and monitoring would further halt the introduction and spread of invasive species.

Non-native invasive plants (invasive plants) are the focus of invasive species management in this analysis. Invasive plants can thrive in marginal habitats, such as compacted and dry soils and those contaminated by road treatments, such as seeding for bank stabilization. Invasive plants can outcompete native vegetation and become established at disturbed sites and some, such as white sweetclover (*Melilotus officinalis* formerly *M. alba*) and orange hawkweed (*Hieracium aurantiacum*), can move into adjacent undisturbed sites (AKNHP , Gronquist 2008, Villano 2007).

4.5.1.3.1. Effects Common to All Alternatives

In addition to those effects listed as common to all subunits in section 4.3.1.5, the following effects would occur in the Steese Subunit.

Effects from Forest and Woodland Products

Management decisions for forest and woodland products vary widely over the four alternatives. Alternative A best protects against introduction and spread of invasive species from impacts of forest and woodland management, as no commercial use is permitted. Alternative D, which allows commercial harvest everywhere except the Birch Creek WSR Corridor and the RNAs,

would have the greatest potential impact. Timber within the subunit is not considered marketable for saw timber due to the remote location of stands of suitable trees and few if any, proposals for commercial timber harvest would be expected over the life of the plan. Future demands for biomass could include some limited harvesting or salvage for materials as communities venture farther from villages for biomass resources. Impacts from commercial uses on invasive plant, animal and pathogen management would be expected to be negligible because mitigation measures would be stipulations of permitted activities.

Timber salvage would be allowed throughout the subunit in Alternatives C-E. Demand for salvage sales has been lacking and would be expected to be low, having negligible impacts on invasive plant management. Proposals for commercial or salvage sales would be analyzed at the project level and include stipulations to prevent introduction and spread of invasive plants.

Demand for personal use is normally from adjacent communities and has been low in the past. Demand is not expected to increase greatly over the life of the plan. Impacts on invasive species management from personal use would be negligible.

Demand for commercial forest products can be fairly high, primarily for mushrooms after wildland fires. Otherwise, there has been little to no interest in commercial products in the past, and demand is not expected to increase significantly in the future. Impacts from commercial forest products would be evaluated at the proposal level and be mitigated through stipulations to the permits and through educating applicants on prevention practices.

Effects from Lands and Realty

Most lands and realty actions result in ground disturbance, which increases the potential for invasive species to become established. Vehicles and equipment used for construction and maintenance in rights-of-way or site development can import invasive species to the disturbed area. The potential for introduction and spread of invasive species from these actions would be expected to be significant. Impacts would be mitigated to the extent possible through permit stipulations and education and outreach efforts directed at applicants.

Rights-of way are continuous and provide pathways for spread of invasive plants along the linear disturbances and along trails, rivers or streams that they cross. Many invasive plant seeds are readily dispersed by water. Infestations of species such as white sweetclover *(Melilotus officinalis*, formerly *M. alba*) have been documented as monocultures out competing native willows on sand bars along Interior Alaska rivers spreading from source populations originating far upstream along roads (Spellman 2008, Conn et al. 2008).

Effects from Solid Leasable Minerals

Although a portion of the subunit is open to solid leasable minerals in each alternative, no impacts are expected to occur to invasive plant management from exploration or development of coal fields or other solid leasable minerals in the Steese Subunit. A decision on coal leasing is deferred and there is no potential for any other solid leasable minerals in the subunit.

Effects from Recreation

Management of recreation areas through recreation setting character (RSC) classes largely set the stage for the level of protection or development afforded an area. The size and location of RMZs, and therefore RSC settings, change with each alternative and are reflected in the decisions

for travel management and related activities. Impacts to invasive species are discussed in this section under these other resource uses.

Travel Management

Travel would be managed in the Steese Subunit under interim prescriptions until a Comprehensive Travel Management Plan is completed. Interim alternatives for travel management in the subunit include a range of limits on OHV gross vehicle weight restrictions, permit requirements, designated trails and cross-country summer use. Limitations on OHV use, particularly limiting use to designated trails, would help reduce the area of potential introduction of invasive plants and aid EDRR efforts by concentrating use and reducing disturbance to native vegetation. Permitting use would provide opportunities to educated users on the threats to habitats from invasive plants and prevention measures they can take (use and site-specific mitigation).

In all alternatives, non-motorized forms of transportation would be allowed and aircraft use would be allowed in all but Primitive RMZs. Motorized boat use would be allowed on portions of the Birch Creek WSR in some alternatives. These forms of transportation could contribute significantly to the introduction and spread of invasive plants, animal and pathogen pests. Boats and other watercraft are transported to public lands from locations around the continent. They harbor invasive species that may become dislodged and establish on susceptible public lands. Small aircraft can spread invasive species from urban airstrips to remote strips, gravel bars and benches. Outreach and education to these user groups will be the most effective method to reduce impacts caused by these uses.

In Primitive RMZs, all other OHV require a permit or approved Plan of Operations and no aircraft would be allowed. Travel management prescriptions for the undesignated recreation areas and all other RMZs besides Primitive would allow cross-country winter use of snowmobiles 1,500 curb weight and less. Summer use varies by alternative and RMZ. The size of the affected area varies based on boundaries of the RMZs. Impacts to invasive species from travel management prescriptions are discussed further under the alternatives below.

4.5.1.3.2. Alternative A (No Action)

Effects from Lands and Realty

Under Alternative A, acquisition of state lands within the Steese National Conservation Area would simplify land status and benefit management of invasive species. No adverse impacts to invasive species would be expected from land exchanges.

Four transportation corridors are identified in the Steese National Conservation Area in Alternative A (Map 19). All rights-of-way would be located within these corridors as much as possible. The potential for introduction and spread of invasive plants could be reduced as a result. To date, only one development has been made in designated transportation corridors. No potential applications for rights-of-way have been identified in the reasonably foreseeable future. Should rights-of-way be requested, mitigation to prevent the introduction and spread of invasive plants from development and maintenance would be incorporated in permit stipulations.

Effects from Fluid Leasable Minerals

All BLM lands are withdrawn from fluid leasable minerals and there are no existing leases. No impacts would occur under Alternative A.

Effects from Locatable Minerals

Under Alternative A, mining activity is limited to valid existing claims (10,000 acres). Impacts to invasive plants would continue to occur at the current levels. Mining results in removal or vegetation and overburden and the potential for introduction and spread of invasive plants from these actions would be expected to be significant. Mining operations would analyzed at the project level and stipulations include reclamation and other practices to reduce introduction and spread of invasive plants.

Suction dredge operations could occur in the Steese Subunit under Alternative A. The reasonably foreseeable development scenario for the subunit assumes that one operation might occur under this alternative. Assuming it would be a Notice level operation, there would be an opportunity to develop mitigation to protect degradation of stream banks and prevent introduction of invasive species to the area of the operation.

Effects from Salable Minerals

Disposal of salable minerals would be allowed on all BLM lands in the Steese Subunit and authorized at the project level. Material sites, including gravel pits, are often infested with invasive plants and substantial seed banks are harbored in the materials. Invasive plants are spread to new areas with the contaminated materials. Vehicles and equipment brought into the sites may also be contaminated with invasive plant seed. Gravel and other materials are generally mined from areas near the project and materials from these sites are likely to be used for road and highway maintenance along the Steese Highway and other gravel roads in the area. Material sites within the area would be inspected for invasive plants and seed and treated as possible before being transported to project sites. Impacts to invasive plants from material sales would be mitigated as practicable through permit stipulations, and outreach and education. Demand for mineral materials from BLM lands is not expected to vary by alternative because materials are available and more accessible on state land.

Effects from Travel Management

Under this alternative, most BLM-managed lands would be open to winter OHV use 1,500 GVWR and under. Where no summer use would be allowed, use would be by designated trail, or for OHV greater than 1,500 GVWR a permit would be required. For vehicles greater than 1,500 GVWR off valid rights-of-way, a permit would be allowed but only for access to inholdings or with an authorized Plan of Operations. The Primitive RMZs, except the two RNAs, would be generally open to winter cross-country use by snowmobile, but closed to summer motorized access off valid rights-of way without a permit.

Where permits would be required, stipulations would be applied to reduce introduction and spread of invasive species. EDRR, outreach and education, and larger scale control efforts would be used to try to mitigate impacts from permitted and unpermitted activities.

4.5.1.3.3. Alternative B

Effects from Lands and Realty

Acquisition of state inholdings within the Steese National Conservation Area, consolidation of scattered parcels around Circle, and disposal or exchange of lands identified for disposal

will simplify land status and benefit management of invasive species. No adverse impacts are expected from these actions.

Two transportation corridors are identified in Alternative B. The Steese ACEC, Mount Prindle RNA, and Birch Creek WSR Corridor would be right-of-way avoidance areas, except within transportation corridors. Consolidating rights-of-way within fewer designated corridors would further help prevent introduction and spread of nonnative invasive plants by reducing the overall disturbance. Monitoring for invasive plants and EDRR efforts would also be aided by concentration of rights-of-way into the fewer corridors.

Effects from Fluid Leasable Minerals

Under Alternative B, eight percent of BLM lands in the Steese Subunit would be open to fluid leasable minerals. No lease sales are anticipated. If an area were nominated for a lease sale, the effects would be analyzed as a new NEPA document. Seismic exploration could occur on high potential oil and gas lands near Circle (Map 87). The level of exploration would not vary by alternative. Geophysical exploration would require removal of trees in 14-foot wide straight line transects over an area of 10 to 20 miles. The removal of canopy cover from the area could create favorable conditions for invasive plants to become established. Exploration would be conducted during winter when designated snow cover and frost depth would protect vegetation and soils from disturbance. Impacts to invasive species under these conditions would be minimal and to the extent possible, further mitigated through the authorization process.

Effects from Locatable Minerals

Under Alternative B, eight percent of BLM lands would be open to new locatable mineral entry. Although some low mineral potential lands would be opened to mineral entry, impacts from both new claims and valid existing claims would be expected to be the same as Alternative A. Mining operations would be analyzed and stipulations would include reclamation and other best management practices to reduce introduction and spread of invasive plants. Monitoring and EDRR efforts by the BLM would further reduce the potential for invasive plants to become established.

Suction dredging operations are expected to be at the same level and impacts as described for Alternative A.

Effects from Salable Minerals

Under Alternative B, nine percent of BLM lands would be available for material site sales and exposed to potential infestations. Operations would be analyzed on a project basis and stipulations would include reclamation and other best management practices to reduce the potential for introduction and spread of invasive plants. Little additional demand for salable minerals is expected because materials are more accessible on state land. Potential for impacts to invasive species would be the lowest under this alternative.

Effects from Travel Management

Under Alternative B the size of the Primitive RMZ (1,033,000 acres) would be substantially larger than areas with similar management in Alternative A (3,000 acres). Primitive RMZs would be closed to the use of all motorized OHV and to aircraft. Travel management prescriptions in the undesignated recreation areas and Semi-Primitive and Backcountry RMZs would be limited to cross-country winter use of snowmobiles, 1,500 pounds curb weight and less. Use of any other OHV would require a permit or approved Plan of Operations. Using designated

trails reduces disturbance from pioneering of trails, which protects against pathways for new infestations. EDRR would be enhanced by concentration of OHV on trails. Where permits would be required, stipulations to reduce the threat of introductions would mitigate potential. Other active management, including outreach and education at potential entry points could be used to mitigate impacts.

4.5.1.3.4. Alternative C

Effects from Lands and Realty

Effects from land tenure changes and transportation corridors would be the same as Alternative B.

Alternative C differs from Alternative B in that no right-of-way avoidance areas would be designated. Impacts to invasive species, particularly plants, would increase and could be significant if multiple rights-of-way were developed, increasing the area of disturbance and the potential for invasive plants to establish and spread along the routes. Realty actions, such as rights-of-way, would be considered at the project level and include stipulations to manage impacts to invasive plants.

Effects from Fluid Leasable Minerals

Under Alternative C, twenty percent of BLM lands within the Steese National Conservation Area would be open to fluid leasable minerals, as described in Table 2.17. About 42,000 acres of BLM-managed lands outside the National Conservation Area would also be open. Although a larger area would be open in Alternative C than in Alternative B, impacts from seismic exploration would be the same.

Effects from Locatable Minerals

Twenty percent of BLM-managed lands within the Steese National Conservation Area and about 42,000 acres outside the National Conservation Area would be open to locatable minerals under Alternative C. The mineral potential is high for most of the open areas. Demand for locatable minerals is expected to be high. Invasive plants are well suited to pioneering on disturbances created by mining, which result in removal of all vegetation and overburden. Also, equipment brought to sites from outside the area could transport invasive plant seed. Impacts from mining on invasive plant management would be significant. Mining operations would be analyzed on project-specific basis and stipulations would include reclamation and other best management practices to reduce introduction and spread of invasive species. Monitoring and EDRR efforts would further reduce the potential for invasive plants to become established.

The RFD scenario predicts that nine suction dredge operations could occur in the subunit over the life of the plan. Disturbance to the stream banks, particularly those from long-term camps associated with a suction dredge operation, would impact about 1.8 acres and result in disturbed areas, which provides an opportunity for invasive plants to become established. Operations would be analyzed at the Notice level and should allow for developing stipulations to prevent introduction of invasive plants.

Effects from Salable Minerals

Under Alternative C, ninety-five percent of BLM lands would be available for material site sales and exposed for potential infestations. Stipulations on mining operations would include

reclamation and other best management practices to reduce the potential for introduction and spread of invasive species. Little additional demand for salable minerals is expected because materials are more accessible on state land. Effects would be similar to Alternative A.

Effects from Travel Management

Alternative C differs from Alternative B in the location and size of the RMZs and that off-route travel for game retrieval is allowed in the undesignated recreation area and all but Semi-Primitive and Backcountry RMZs. Cross-country winter use of snowmobiles to 1,500 curb weight and less would be allowed on ninety-nine percent of the area. Primitive RMZs (3,000 acres) are closed to motorized use. Summer use of OHV 1,500 curb weight and less would limited to existing trails in the undesignated recreation area and Middlecountry and Frontcountry RMZs, except for retrieval of game, which is allowed off trail. OHV 10,000 pounds and less curb weight would be allowed on existing roads only. A permit or approved Plan of Operations would be required for all other use.

The potential for introduction and spread of invasive plants would increase substantially in this alternative compared to Alternative B. Off-route travel for game retrieval would be concentrated during seasons when many of the weeds of concern will be in seed. Many of the OHV will come from outside the area, increasing the likelihood of introducing species that do not occur in the area. EDRR, outreach and education, and larger scale control efforts would be used to try to mitigate impacts.

4.5.1.3.5. Alternative D

Effects from Lands and Realty

Effects from changes to land tenure are the same as Alternative B.

Alternative D differs from other alternatives in that there are no designated transportation corridors or right-of-way avoidance areas. Impacts would be greatest under this alternative. Management and ecological costs of invasive plants would be high, as more area would be available for potential right-of-way development. Development would result in areas striped of native vegetation, creating favorable sites for invasive plants to become established. Rights-of-way would also create linear pathways from developed areas, potentially infested with invasive plants, through relatively intact portions of the Steese National Conservation Area. Impacts of construction and maintenance could be minimized through permit stipulations. Monitoring and EDRR efforts would require more resources and time than the other alternatives.

Effects from Fluid Leasable Minerals

Under Alternative D, fifty-four percent of BLM lands would be open to all leasable minerals. Although a larger area would be open, impacts from seismic exploration would be the same as Alternative B.

Effects from Locatable Minerals

Approximately fifty-four percent of BLM lands in the subunit would be open to locatable minerals under Alternative D. The mineral potential is medium to high for most of the open areas (Maps 36 and 88). Demand for locatable minerals is expected to be high. Impacts to invasive plants under Alternative D would be the same as Alternative C, but the effects would be greatest under this alternative.

The RFD scenario predicts that 12 suction dredge operations could occur in the subunit over the life of the plan. Disturbance to the stream banks, particularly those from long-term camps associated with a suction dredge operation, would impact about 2.4 acres and result in disturbed areas, which can provide a seedbed for invasive plants to become established. Operations would be analyzed at the Notice level and should allow for developing stipulations to prevent introduction of invasive plants.

Effects from Salable Minerals

Impacts on invasive species would be the same as Alternative A.

Effects from Travel Management

This alternative differs from Alternatives B and C in the location and size of the RMZs and that cross-country summer use of OHV 1,500 curb weight and under would be allowed in the undesignated recreation areas and Middlecountry and Frontcountry RMZs (485,000 acres). Alternative D would have high potential for the introduction and spread of invasive plants from travel management prescriptions. Cross-country summer travel would occur across the seed maturation period of all weeds of concern. Many of the OHV will come from outside the area, increasing the likelihood of introduction of species that do not already occur in the subunit. EDRR, outreach and education, and larger scale control efforts would be used to try to mitigate impacts

4.5.1.3.6. Alternative E (Proposed RMP)

Major differences between Alternative C (Draft RMP Preferred Alternative) and Alternative E (Proposed RMP) include adopting decisions from Alternative B for Riparian Conservation Areas that would increase protection for streams, closing the Steese National Conservation Area and RCAs to locatable and leasable minerals, and adopting interim management while travel management plans are developed within five years of signing the Record of Decision. Effects on invasive species of other decisions for Alternative E would be the same as discussed under common to all.

Land tenure and land use authorizations would be the same as Alternative C.

All of the Steese National Conservation Area and the ten RCAs would be closed to leasable and locatable minerals. Impacts would be the same as Alternative A.

Effects from Travel Management

Interim Travel Management for Alternative E would be the same as for Alternative A (No Action) except a 1,000 pound curb weight limitation on snowmobiles and summer OHV would be implemented, airboats and hovercraft would be allowed within the Steese National Conservation Area, and snowmobiles will be allowed in the RNAs. Within five years of signing the Record of Decision a travel management plan would be completed. The plan could vary substantially from the interim management and at that time analysis of impacts from snowmobiles in the RNAs and airboats and hovercraft could result in limits on these uses.

A 1,000 pound curb weight and 50 inches width limitation on snowmobiles would replace the 1,500 pound GVWR limitation, and a 1,000 pound curb weight and 50 inches width limitation on ATVs would replace the 1,500 pound GVWR limitation. In Alternative A and E 142,000 acres, including Birch Creek WSR, would be limited to no summer use. Interim management in

Alternative E differs from Alternative C in that RMZs open to summer OHV would not be limited to designated trails and the area open to cross-country use would be almost twice the area open in Alternative C to designated trails. Impacts from cross-country use by all users would be expected to increase as described in the assumptions for analysis as population trends are projected to increase and ATV technology continues to advance. User pioneered trails would be more likely to occur where cross-country OHV use would be allowed. User pioneered trails cause degradation of soils and vegetation, resulting in rutting, erosion and reduced water quality and disturbed areas for invasive plants to become established. The potential for the introduction of invasive plants would be significantly greater with cross-country use of OHV. The costs to monitor the area and control invasive plant infestations would be prohibitive for effective management of invasive species.

The prohibition on airboats and hovercraft in the non-navigable segments of Birch Creek WSR would be removed. The Steese National Conservation Area and Birch Creek WSR have been closed to hovercraft and airboats since the signing of the Steese RMP in 1986. No use of hovercraft and airboats in these designated areas prior to that has been documented; however, it is estimated that this type of use would increase over the life of the RMP. An assumption for analysis of this method of access is that ≤ 20 percent of users would engage in use of airboats and hovercraft. Recreation use would increase over the life of the plan and closures on use of airboats for harvest or transport of moose in other areas, such as Minto Flats, could result in displacement of hunters into the Steese National Conservation Area under Alternative E, which would substantially increase the risk of introduction of invasive species into Birch Creek WSR. Impacts would be expected to be significant over the life of the plan if this use would continue through the Travel Management Plan. Invasive species management would be costly and likely ineffective because the area of impact is large.

4.5.1.3.7. Cumulative Effects

Cumulative impacts would be similar among the alternatives, but vary in extent of effect. In general, Alternative B would contribute least to cumulative effects, because management prescriptions would be more conservative. Alternative D would contribute the most to cumulative effects because the most ground disturbing activities would be allowed. Alternative C would provide a balance of management of invasive species while providing for multiple uses of BLM-managed lands. Alternative A would be similar to Alternative E, except that transportation corridors would be maintained and the area would be closed to locatable and leasable minerals. Locatable and leasable minerals would be open on about 2 percent of BLM-managed lands in Alternative E.

Demand for recreational use would be anticipated to increase over the life of the plan as populations in the state increase and as technological advancements in recreation equipment continue to occur. Placer mining would occurring on both valid federal mining claims and state mining claims in the Steese Subunit. Levels of placer mining would increase on BLM-managed lands as additional lands would be opened to mineral entry through Alternatives B, C, and D of this plan. Mining on state and private lands would be anticipated to increase, largely dependent on prices of gold.

4.5.1.4. Soil and Water Resources Steese Subunit

Summary of Effects

A variety of resources, resource uses, or programs outlined in the action alternatives protect soil and water resources; including proposed RCAs to protect soil and water resources, ACECs, WSRs, RMZs, the SRMA, and restrictions on OHV travel. Varying adverse impacts to soil and water resources would likely result from surface disturbance associated with locatable minerals development, recreation development, and increased OHV travel.

Generally, the potential for direct adverse impacts from mineral development increases sequentially from Alternative A to Alternatives B and E, Alternative C, and Alternative D. Appropriate stipulations and SOPs for soil and water resources would be implemented to ensure that long-term adverse impacts would be minimized or avoided.

Additional impacts beyond those discussed under section 4.3.1.6 Soil and Water Resources, are discussed in the following sections.

4.5.1.4.1. Alternative A (No Action)

Effects of Land and Realty Actions

Four transportation corridors are established in the Steese National Conservation Area, two of which cross the Birch Creek WSR. These four corridors provide access to existing and potential mining areas. The construction of new trails or roads within these corridors would adversely impact soil and water resources through increased erosion and siltation of streams. Impacts to soil and water resources would be reduced through site-specific analysis of subsequent authorizations.

Effects of Locatable Minerals

Under Alternative A, the Steese Subunit (1,267,000 acres) is withdrawn from new locatable mineral entry. However, valid federal claims exist on 5,000 acres, with mining occurring on some of these claims. Anticipated locatable minerals activity includes one suction dredge operation, seven small-scale placer mines, and two large-scale placer mines. An estimated 300 to 400 acres of ground would be disturbed, with much of the disturbed areas having been previously worked by recent or historic mining operations (since placer mining has occurred throughout much of the Steese since the late 1800s).

Disturbance to soil resources and potential impacts to water quality from a particular mining operation would be reduced through site-specific analysis of subsequent authorizations.

Effects of Recreation

Under Alternative A, the Steese National Conservation Area would be managed as a SRMA. Facility enhancements, such as roads, toilets, boat ramps, and parking areas, may be added to accommodate increasing recreation demand. These enhancements would likely have limited impacts on soil or water resources.

All lands outside of the SRMA would be managed as other BLM lands; management would be custodial and result in fewer facility enhancements (such as trails or interpretive panels). Recreation user activities outside the SRMA may result in greater disturbance of soils or impacts to water quality because of limited oversight.

Effects of Travel Management

The Mount Prindle and Big Windy RNAs, and the Pinnell Mountain Trail would be closed to both winter and summer OHV use. The Primitive Management Unit and the Birch Creek WSR Corridor (142,000 acres) would be open to cross-country winter use of snowmobiles, but closed to summer OHV use. All remaining lands would be open (Map 48) to cross-country motorized travel (year-round) by vehicles with a GVWR of 1,500 pounds and less.

Alternative A would provide the most opportunity for motorized public access of any of the alternatives. Eighty-eight percent of the subunit is subject only to weight restrictions, and the remaining twelve percent is either closed or limited by season of use. This alternative provides the greatest opportunity for those seeking cross-country motorized activities, but would likely result in increased detrimental impacts to soil and water resources from proliferation of user-created trails and subsequent erosion.

4.5.1.4.2. Alternative B

Effects of Land and Realty Actions

Two transportation corridors would be retained under Alternative B. In these corridors, concentrated use would likely impact soil resources and potentially water resources, but would limit disturbance to a discrete area. Impacts to soil and water resources would be reduced through SOPs and site-specific analysis of subsequent authorizations. The Steese ACEC, the RNAs, and the Birch Creek WSR Corridor (except in the identified transportation corridor) would be identified as right-of-way avoidance areas, and as such would provide protection for soil and water resources.

Areas closed to locatable mineral entry would provide added protection for soil and water resources in the Steese SRMA by restricting surface disturbance activities associated with mineral development.

Effects of Locatable Minerals

Under Alternative B, 1,233,000 acres would be closed and 34,000 acres would be open to locatable mineral entry (Map 32). The potential impacts to soil and water resources would increase compared to Alternative A, because new areas would be opened to mining activities and additional access routes would likely be constructed.

The number and type of placer mining operations that are estimated to occur under this alternative include one suction dredge, eight small-scale placer mines, and two large-scale mines. Actual impacts to soil and water resources from the extraction of locatable minerals would vary depending on the methods used, the size of operation and the number of mines. Placer mine operations have the potential to adversely impact soil resources and water quality through erosion of soils and fine-grain sediments and subsequent increased downstream turbidity in nearby streams. Mining operations could impact the natural flow characteristics of selected river segments. Disturbance to soil and water resources from a particular mining operation would be reduced through SOPs and site-specific analysis of subsequent authorizations.

Effects of Recreation

Under Alternative B, the Steese SRMA (1,246,000 acres), would be managed for the Primitive experiences of non-motorized use, minimal facilities development for resource protection, and small user groups. These settings would provide additional protection for soil and water resources.

Effects on BLM-managed lands outside the SRMA would be similar to Alternative A in that recreation user activities may result in greater disturbance of soils or impacts to water quality because of limited oversight. General impacts to soil and water resources from recreation management activities are described under Effects Common to All Subunits.

Effects of Travel Management

Alternative B would place significantly more limits on use of OHVs than Alternative A. Under Alternative B, 3,000 acres of research natural areas, would be closed to all OHV use including snowmobiles. An estimated 1,032,000 acres would be designated as Primitive RMZ with a Limited OHV designation, which allows for winter snowmobile use. OHV use would be limited to OHVs with a curb weight of 1,000 pounds or less. Snowmobile use both on and off trails in the winter would have little effect on soil and water resources.

Alternative B would allow federally qualified subsistence hunters to use OHVs within the Birch Creek WSR corridor. The use of wheeled and/or tracked vehicles within the corridor may result in adverse impacts to soil and water resources in the form of erosion and sedimentation from user-created trails and stream bank instability where new stream crossings were created. It is anticipated that an additional 300 miles of user-created travel routes would be developed in the Steese Subunit over the life of the plan impacting up to 900 acres.

A travel management plan for the Steese Subunit would be completed after approval of the RMP. Measures to reduce impacts to soil and water resources include limitations on OHV use (weight and seasonal closures). Where permits may be authorized for OHV use, stipulations may be included to protect soil and water resources.

4.5.1.4.3. Alternative C

Effects of Land and Realty Actions

Effects to soil and water resources would be similar to Alternative B; two transportation corridors would be retained. However, there would be no right-of-way avoidance areas under Alternative C.

Effects of Locatable Minerals

Under Alternative C, 274,000 acres would be open to locatable minerals. Potential for placer gold is high for portions of the lands that would be opened and new development would likely occur in some areas. Projected locatable mineral development under Alternative C includes nine suction dredge operations, 15 small-scale placer mines, and four large-scale mines. Impacts would be similar to Alternative B, except they would potentially affect more acres and require additional access.

Actual impacts to soil and water resources from the extraction of locatable minerals would vary depending on the methods used, the size of operation, and the number of mines. Since more acres would be open to mineral development under Alternative C than Alternative B, there would be greater potential for adverse impacts to soil and water resources under Alternative C. Impacts would be reduced through application of SOPs and site-specific analysis of subsequent authorizations.

Effects of Recreation

Alternative C would allocate much fewer acres to Primitive RMZs and more acres to Semi-Primitive, Backcountry, Middlecountry, and Frontcountry RMZs compared to Alternative B. Middlecountry and Frontcountry Zones provide less protection to soil and water resources than do Primitive, Semi-Primitive, and Backcountry Zones. Alternative C allows for increased development of visitor facilities, landscape modifications, and larger group size. Hence, Alterative C provides less protection of soil and water resources compared to Alternative B, but more protection than Alternatives A and D.

Effects on other BLM-managed lands would be similar to Alternative A.

Effects of Travel Management

Under Alternative C, effects to soil and water resources would be similar to Alternative B, but somewhat greater. Three thousand acres would be designated as Primitive RMZs, closed to all OHV use. Precluding summer use of OHVs in much of the of the subunit (50) and limiting OHVs to existing trails on would reduce effects compared to Alternative A.

4.5.1.4.4. Alternative D

Effects of Land and Realty Actions

Land and realty actions under Alternative D would provide the least amount of protection for soil and water resources because more lands would be open to potential ground disturbing activities such as mining and road construction. There would be no transportation corridors or right-of-way avoidance areas.

Effects of Locatable Minerals

Of all the alternatives, Alternative D would open the most acres to locatable minerals, 682,000 acres. Approximately 585,000 acres would be closed. Placer gold potential is high for portions of the lands that would be opened and new development would likely occur in some areas. Projected locatable mineral development under Alternative D includes 12 suction dredge operations, 24 small-scale placer mines, and four large-scale mines.

Actual impacts from the extraction of locatable minerals would vary depending on the methods used, the size of operation and the number of mines. Since more acres would be open to mineral development under Alternative D than Alternative C, there would be greater potential for adverse impacts to soil and water resources. Impacts would be reduced through application of SOPs and site-specific analysis of subsequent authorizations.

Effects of Recreation

Alternative D would allocate slightly fewer acres to Backcountry RMZs, and more to Middlecountry compared to Alternative C. Middlecountry Zones provide less protection to soil and water resources than Backcountry Zones. However, there would be an increased potential for adverse effects to soil resources under Alternative D relative to Alternatives B, C and E because there would be more emphasis on recreational infrastructure development, to encourage and enhance recreational opportunities.

Effects of Travel Management

Effects would be similar to Alternative C. Three thousand acres in research natural areas would be designated as Primitive RMZs, closed to all OHV use including snowmobiles. Cross-country use of OHVs with a curb weight of 1,000 pounds or less would be allowed year round in portions of the subunit (Map 51). Similar to Alternatives B and C, a travel management plan would be completed after approval of the RMP.

With more cross-country summer OHV use and increased visitation, Alternative D would have more potential for adverse impacts to soil and water resources. Mitigation could include trail maintenance, seasonal travel restrictions and OHV weight restrictions to reduce the amount of disturbance to soils and water. Impacts would be reduced through application of SOPs and site-specific analysis of subsequent authorizations.

4.5.1.4.5. Alternative E (Proposed RMP)

Alternative E is intended to provide a mix of land management actions that best satisfies issues and concerns in consideration of all values and programs and adopts a blend of actions that would balance moderate development with protection of the environment.

Effects of Land and Realty Actions

Same as Alternative C.

Effects of Locatable Minerals

Under Alternative E about 1.24 million acres would be closed to locatable minerals, thereby protecting soil and water resources. Closed areas include the Steese National Conservation Area, Birch Creek WSR corridor, and riparian conservation areas. These closed areas would protect soil and water resources by not allowing surface-disturbing activities associated with mineral development.

About 30,000 acres would be open to locatable minerals with the projected level of mining activity similar to Alternative B. Two large-scale placer mine operations are anticipated. Each operation would have a disturbed annual footprint of 16 acres over the life of the mine for a total of 60 to 80 acres of disturbance. Impacts from both operations would impact 120 to 160 acres over the life of this plan. Up to eight small-scale placer mine operations are anticipated over the life of the plan. Each operation would have a disturbed annual footprint of about 4.4 acres over the life of the mine for a total of 20 to 30 acres of disturbance. Impacts from all eight operations would impact 160 to 240 acres over the life of this plan.

Mineral exploration activities with resulting camps and field sampling programs would impact between 6 to 156 acres annually. Reclamation would generally occur annually. Up to three exploration operations may occur over the life of this plan.

Impacts from suction dredging would be similar to Alternatives A and B with a camp footprint of less than one acre. For suction dredge operations the disturbance of materials occurs underwater and bed materials are generally redistributed each spring during break-up or high water events. Impacts from camps associated with suction dredging are anticipated to be less than 1 acre annually over the life of the plan. Impacts from the various types of mining operations are described under section 4.3.1.6.

Based on the amount of potential surface disturbance, Alternative E would have more potential adverse impacts to soil and water resources than Alternative A, similar impacts to Alternative B, and fewer impacts than Alternatives C and D. Impacts would be reduced through application of SOPs and site-specific analysis of subsequent authorizations.

Effects from Recreation

A wide range of recreational opportunities would be available under Alternative E. The Steese SRMA and lands outside the SRMA are the same as in Alternatives B, C, D, and E. In Alternative E, the SRMA would be divided into nine RMZs, each with a well-defined "setting character," ranging from Primitive, Semi-Primitive, Backcountry, Middlecountry, and Frontcountry. Relative to the amount of land placed within each of these five categories, Alternative E would be between Alternatives B and C, with B having more acres of Primitive land and less acres in Semi-Primitive and Backcountry. The recreation management objectives associated with each of these settings include differing emphases on building and maintaining facilities, establishing and maintaining trails, and in the range of summer and winter OHV uses.

Compared to Alternative B, Alternative E allows for increased development of visitor facilities, landscape modifications, and group size. Alternative E would provide more protection to soil and water resources than Alternatives A, C, and D, but less than B, based on the amount of potential disturbance.

Effects of Travel Management

A travel management plan would be developed for the Steese Subunit after approval of the RMP. Until that time, interim management would be the largely that same as Alternative A, with a few exceptions, including opening 3,000 acres in the RNAs to winter snowmachine use, and the allowance of airboats and hovercraft on both navigable and non-navigable sections of the rivers, including the Birch Creek WSR. These new exceptions to current management practices would not directly affect soil and water resources. Under Alternative E, open cross-country travel on BLM lands would be restricted year round to motorized vehicles with a 1,000 pounds curb weight or less and 50 inches or less in width which would help reduce the amount of OHV surface disturbance to vegetation and soils and subsequent erosion and sedimentation impacts. Alternative E would potentially provide more protection to soil and water resources than Alternative A, but less than B, C, or D.

4.5.1.5. Visual Resources Steese Subunit

Summary of Effects

VRM Classes outline the level of change that could occur within that class. Identifying an area as a specific management class does not guarantee that change will take place. The discussion below identifies the number of acres that may retain or lose visual quality due to management in a specific VRM Class; however, the potential for every acre to lose visual quality due to management in a specific VRM Class is extremely low. The analysis logically assumes that areas designated as VRM Class III and IV objectives would permit more surface-disturbing impacts and potentially have greater adverse impacts on visual resources and scenic quality than those areas designated as VRM Class I and II objectives.

In addition to impacts discussed as common to all subunits in section 4.3.1.9, the following impacts may occur in the Steese Subunit. For the visual resource inventory see Appendix D, *Visual Resource Inventory*.

Alternatives — VRM Management Class Designations		VISUAL RESOURCES INVENTORY CLASS DESIGNATION							
		VRI Class I		VRI Class II		VRI Class III		VRI Class IV	
		69,000	%	1,153,000	%	25,000	%	34,000	%
Alternative A*	**Acres**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
VRM I	69,000	69,000	6	425	<1	118	<1	68	<1
VRM II	76,000			76,000	6				
VRM III	1,066,000	477	<1	1,056,000	83	8,000	<1	1,000	<1
VRM IV	0								
Total	**1,211,000**	**69,000**	**6**	**1,132,000**	**94**	**8,000**	**<1**	**1,000**	**<1**
*Only the Steese National Conservation Area and Birch Creek WSR have assigned VRM Classes in Alternative A.									
Alternative B	**Acres**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
VRM I	107,000	73,000	6	21,000	2	12,000	1		
VRM II	1,139,000			1,130,000	87	8,000	1	1,000	<1
VRM III									
VRM IV	46,000			2,000	<1			44,000	3
Total	**1,292,000**	**73,000**	**6**	**1,153,000**	**89**	**20,000**	**1**	**45,000**	**3**
Alternative C	**Acres**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
VRM I	103,000	73,000	6	17,000	1	13,000	1		
VRM II	578,000			569,000	44	8,000	1	1,000	<1
VRM III									
VRM IV	612,000			568,000	44			44,000	3
Total	**1,292,000**	**73,000**	**6**	**1,153,000**	**90**	**20,000**	**2**	**45,000**	**4**
Alternative D	**Acres**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
VRM I	90,000	73,000	6	5,000	<1	12,000	1		
VRM II	423,000			423,000	33				
VRM III									
VRM IV	779,000			725,000	56	8,000	1	45,000	4
Total	**1,292,000**	**73,000**	**6**	**1,153,000**	**89**	**20,000**	**2**	**45,000**	**4**
Alternative E	**Acres**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
VRM I	103,000	69,000	5	17,000	1	17,000	1		
VRM II	910,000	14	<1	900,000	70	8,000	1	1,000	<1
VRM III									
VRM IV	270,000	7	<1	236,000	18			34,000	3
Total	**1,282,000**	**69,000**	**5**	**1,154,000**	**90**	**25,000**	**2**	**35,000**	**3**

4.5.1.5.1. Common to All Alternatives

Cave and Karst

Management of significant caves according to federal laws and to prevent resource degradation would help maintain visual resources under all alternatives. The known cave and karst resource is located in Wolf Creek RMZ which would be managed for a Semi-Primitive to Backcountry recreation setting to preserve naturalness. These actions will help protect visual resources by maintaining the area in near natural landscape.

Effects from Wildlife

If OHV travel impacts wintering caribou by reducing use of an area, then use restrictions or closures may occur. These actions would improve visual resources by restricting or eliminating

damaged to vegetation and clearing of winter trails. Changes in vegetation and clearing winter trails and travel routes from OHV use would impact visual resources by primarily changing the line, color and texture of the natural landscape. Additional discussion of impacts may be found in section 4.3.1.9 Impacts Common to All Subunits.

In all Action Alternatives, management efforts to limit density of development in the caribou migration corridor would help protect visual resources.

Effects from Travel Management

Impacts on visual resources from existing airstrips and unrestricted landings include minor changes, primarily in color and texture, on the landscape. Repeated use results in soil exposure and creates a contrast between the adjacent greens of natural vegetation and the browns and grays of exposed soil and organic materials. The removal of rocks and debris that interfere with landing aircraft may create a contrast in texture characteristics from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a cleared soil area.

4.5.1.5.2. Alternative A (No Action)

Under continuation of current management, visual resources outside the Steese National Conservation Area and Birch Creek WSR Corridor would be managed based on the visual inventory class and the visual contrast rating process on a project-specific basis. Visual resource management classes have been established for lands within the Steese National Conservation Area and Birch Creek WSR Corridor.

Effects from Fish and Aquatic Species

Management activities to protect fish habitat along tributaries of Birch Creek including South Fork and its tributaries, Clums Fork, Sheep Creek and Harrington Fork, will generally help protect visual resources by restricting surface-disturbing activities on these waterways.

Effects from Visual Resources

Under Alternative A, of VRI Class I acres (six percent), one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character. These lands, the Birch Creek WSR Corridor, have an A rating for scenic quality, both high and medium sensitivity, and occur in the foreground-middle ground zone.

Of VRI Class II lands (ninety–three percent), less than one percent would be managed as VRM Class I resulting in preservation of the existing visual character of these lands associated with the Birch Creek WSR Corridor. Approximately six percent of VRI Class II land would be managed as VRM Class II allowing a low level of change, while eighty–seven percent would be managed as VRM Class III, potentially resulting in only partially retention of landscape characteristics. These lands have an A rating for scenic quality, a high sensitivity, and occur in all three zones.

Of VRI Class III lands (less than one percent), less than one percent would be managed as VRM Class I resulting in preservation of the existing visual character of these lands, which are associated with the Birch Creek WSR Corridor. The remaining less than one percent would be managed as VRM Class III potentially resulting in only partial retention of the characteristic landscape. These lands have a C rating for scenic quality, a high sensitivity, and occur in the occur in foreground-middle ground zones.

Less than one percent of VRI Class IV lands (less than one percent) will be managed as VRM Class I resulting in the preservation of the existing visual character of these lands associated with the Birch Creek WSR Corridor. Less than one percent of VRI Class IV lands will be managed as VRM Class III allowing for partial retention of the landscape characteristics. These lands have a C rating for scenic quality, both high and medium sensitivity, and occur in the occur in the Foreground-Middleground and Background zones. All of these lands are associated with both the Steese National Conservation Area and Birch Creek WSR Corridor.

Effects from Wildlife Management

Management activities for wildlife and wildlife habitat generally include restrictions on other resource use such as closing areas to mining, seasonal closures or the use of prescribed fire. Closing areas to certain surface-disturbing activities would improve visual resources by not allowing those activities. Seasonal closures may protect visual resources for the duration of the closures. Impacts from prescribed fire are addressed under Effects from Wildland Fire Ecology and Management in section 4.3.1.9. Impacts Common to All Subunits. Impacts from prescribed fire would last the longest. The size and scope would depend on the size of the closures and prescribed fire area.

Effects from Forest and Woodland Products

Under Alternative A, no commercial timber harvest is permitted within the subunit. This would protect visual resources by not allowing commercial harvest of timber to occur on 1,275,000 acres. Personal use of timber is allowed throughout the subunit. Management restrictions may include winter cutting and movement, maintaining a set distance from waterways, and lopping and scattering slash. These management restrictions would help reduce impacts to visual resources. The size and scope of impacts would depend on the size of the area and the harvest techniques used.

Effects from Lands and Realty

The four transportation corridors in the Steese National Conservation Area, encompassing 45,000 acres, allow for the concentration of access roads and possibly provide a location for other rights-of-way such as pipelines, transmission lines and associated facilities. This consolidation of rights-of-way would help protect visual resources by limiting the locations of surface disturbance and facilities development associated with these activities. If alternative rights-of-ways are necessary, the use of existing trails or travel routes would be used whenever possible. Using existing trails would reduce impacts to visual resources by using already disturbed areas.

Effects from Leasable Minerals

The entire subunit, 1,275,000 acres is closed to fluid and solid leasable minerals. Visual resources will not be impacted by the exploration or development of leasable minerals on these lands.

Effects from Locatable Minerals

The entire subunit is closed to locatable minerals through a variety of withdrawals, subject to valid existing rights. These withdrawals protect visual resources from new mining operations on 1,275,000 acres. Visual resources would only be impacted by mining on existing claims (7,000 acres). These impacts would be present in varying degree depending on the number and size of active mining operations and the degree of reclamation on existing disturbed areas. See section

4.3.1.9 Impacts Common to All Subunits for impacts to visual resources from locatable mineral activities on valid existing claims.

Under Alternative A, two large-scale placer mine operations are anticipated. The operations would have an annual footprint of 16 acres of disturbance over the 10 to 20 year life of the mine for a total of 60 to 80 acres of disturbance. Both operations would impact between 120 to 160 acres over the life of the plan. Up to seven small-scale placer mine operations are anticipated. Each with a disturbed annual footprint of 4.4 acres over the 10 to 20 year life of the mine for a total of 20 to 30 acres of disturbance. All three operations would impact 140 to 210 acres over the life of this plan. One suction dredge operation is anticipated to occur in this subunit annually. The operation would have a camp with a footprint of less than one acre annually. In suction dredging, the movement of materials occurs underwater and thus does not have a noticeable impact to visual resources and is generally redistributed each spring during break-up or high water events.

The preference for winter cross-country moves associated with mining activities helps protect visual resources by reducing the amount of disturbance to soils and vegetation because the ground is frozen and vegetation is at least partly covered by snow. Some changes to line, form, color and texture still occurs through clearing the route of large woody vegetation in a relatively straight line on an otherwise irregular, multi-hued landscape.

Effects from Salable Minerals

The entire subunit (1,275,000 acres) would be open to salable minerals. Impacts from the mining of salable minerals are described under section 4.3.1.9. Impacts to visual resources would depend on the scale of the action and the number of mineral sites mined. While the entire subunit is open to salable minerals, it is anticipated that demand for material will be met from production on state lands and no new federal material sites are anticipated. Mining activities for salable minerals would generally occur along roads due to transportation requirements.

Effects from Recreation

Development within the Birch Creek WSR Corridor and adjacent viewshed has been minimal with the only development being at Upper and Lower Birch Creek Waysides as access points to the river. One winter trail traverses alongside upper Birch Creek within the corridor running down the river from approximately river mile 97. The corridor is maintained to retain the existing primitive character of the landscape and to meet VRM Class I objectives. Some human-made features, such as trapping cabins and inholdings, are located within the corridor. Many of these facilities were built using natural appearing materials and blend with the surrounding landscape in color. These management activities help protect the visual resources on 69,000 acres in Birch Creek WSR Corridor.

The Primitive Management Unit is managed to protect the wild and natural character of the area. Facilities such as non-motorized trails and public shelter cabins were constructed of natural appearing materials and blend with the surrounding landscape. These management activities help protect the visual resources on 64,000 acres.

The three Semi-Primitive Motorized Management Units have a number of human-made facilities, such as trails, roads, and facilities related to current or past mining and trapping activities. These facilities were constructed as sustainable and to blend with the surrounding landscape characteristics, thus protecting visual resources on 1,075,000 acres.

Research Natural Areas may be impacted by camping and by the development of trails and travel routes within the boundary of the RNAs. These impacts will be small but may impact the landscape features of the RNAs especially line, color and texture.

Effects from Travel Management

Under Alternative A, the Research Natural Areas and the Primitive Management Unit are closed to OHV use. This helps protect visual resources by preventing surface disturbance to vegetation and soils from the use of motorized vehicles, on 67,000 acres. Trails and user-created travel routes will impact line, color and texture over a relatively small area (67,000 acres).

Management in the Birch Creek WSR Corridor allows motorized use of OHV weighing 1,500 pounds GVWR and less without permit for winter travel. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation. These management activities help protect the visual resources on 69,000 acres.

The Semi-Primitive Motorized Management Units all allow for unrestricted travel by OHVs weighing 1,500 pounds GVWR and less year round. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation. These management activities help protect the visual resources on 1,075,000 acres. However, allowing summer and winter cross-country travel by OHVs could result in an increase of user-created travel routes with impacts to vegetation and soils in line, color and texture. It is anticipated that over the life of the plan, 300 miles of additional user-created travel routes may be developed. While the total area of impact is very small, only approximately 872 acres, the sensitivity to the natural landscape is relatively high in the areas likely to be impacted. Typically, user-created summer travel routes are more visible than winter travel routes that tend to be positioned near valley bottoms and are protected by snow and frozen ground. Summer travel routes are typically developed in areas that show changes to line, texture and color with repeated passes.

The use of motorized vehicles greater than 1,500 pounds GVWR within the Steese National Conservation Area and Birch Creek WSR off a valid right-of-way may be allowed by permit. Impacts would vary depending on the size of vehicle, season of travel, and the number of passes made but, would be similar to impacts described for open cross-country travel in section 4.3.1.9.

Travel on lands outside the Steese National Conservation Area and Birch Creek WSR is unrestricted and may impact visual resources primarily by disturbing vegetation by repeated passes and by clearing travel routes. Unrestricted travel impacts 45,000 acres.

Effects from Special Designations

Under all alternatives, the Birch Creek WSR Corridor is managed to preserve the river and its immediate environment in its natural, primitive condition, in accordance with the Wild and Scenic Rivers Act (P.L. 90542). The designated corridor (69,000 acres) is managed as a VRM Class I area.

Under all alternatives, two areas have been designated as Research Natural Areas (RNAs) where no surface-disturbing activities are allowed except by permit in association with research projects.

These areas are closed to OHV, and mineral location and leasing. These management activities will help protect visual resources by limiting surface-disturbing activities in association with permits issued for research projects on 3,000 acres

4.5.1.5.3. Alternative B

In general, Alternative B anticipates the lowest level of resource development and adopts VRM classes that would be the most restrictive to development.

Effects from Fish and Aquatic Species

Under Alternative B, three watersheds have been identified as High Priority Restoration Watersheds and would be emphasized for restoration and/or protection. They are North Fork Birch Creek, Harrison Creek and Twelvemile Creek. Active restoration projects, such as willow plantings, seeding and fertilizing would have positive impacts to areas with surface disturbance. Changes to line, color and texture would result in that the area would be returned to a more natural looking landscape on approximately 21,000 acres.

Of VRI Class I lands within High Priority Restoration Watersheds (2,000 acres) one-hundred percent would be managed under Class I retaining the natural appearance of the landscape. Of VRI Class II lands within High Priority Restoration Watersheds, four percent or 913 acres would be managed as Class I, ninety-five percent or 19,000 acres would be managed as Class II lands while one percent (187 acres) would be managed as Class IV lands allowing a visible level of change to the landscape.

There are 21 Riparian Conservation Areas (RCAs) identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 561,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

Of VRI Class I lands in RCAs (67,000 acres) one-hundred percent would be retained under Class I management. Of VRI Class II lands in RCAs, two percent or 7,000 acres would be managed as Class I while ninety-eight percent or 463,000 acres would be managed as Class II lands. Of VRI Class III lands in RCAs (8,000 acres) one-hundred percent would be managed as Class I lands. Of VRI Class IV lands in RCAs one-hundred percent (16,000 acres) would be managed as Class IV lands.

Effects from Visual Resources

Under Alternative B, of VRI Class I 73,000 acres (six percent), one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character of these lands. These lands are the Birch Creek WSR Corridor and have an A rating for scenic quality, have both high and medium sensitivity, and occur in the foreground-middle ground zone.

Of VRI Class II lands (eighty–nine percent or 1,153,000 acres), two percent or 21,000 acres would be managed as VRM Class I resulting in preservation of the existing visual character of these lands associated with the Birch Creek WSR Corridor. Approximately eighty–seven percent of VRI Class II lands (1,130,000 acres) would be managed as VRM Class II allowing a low level of change. Less than one percent (2,000 acres) would be managed as VRM Class IV potentially resulting in a high level of change to the landscape characteristics. These lands have an A rating for scenic quality, a high sensitivity, and occur in all three zones.

Of VRI Class III lands (two percent or 20,000 acres), less than one percent (12,000 acres) would be managed as VRM Class I resulting in preservation of the existing visual character of these lands which are associated with the Birch Creek WSR Corridor. Less than one percent (8,000 acres) would be managed as VRM Class II allowing a low level of change to the landscape. These lands have a C rating for scenic quality, a high sensitivity, and occur in the occur in foreground-middle ground zone.

Of VRI Class IV lands (four percent or 45,000 acres) less than one percent (1,000 acres) would be managed as VRM Class II resulting in the preservation of the existing visual character of these lands associated with the Birch Creek WSR Corridor. While three percent or 44,000 acres would be managed as VRM Class IV potentially resulting in a high level of change to the landscape characteristics. These lands have a C rating for scenic quality, have both high and medium sensitivity, and occur in the occur in the Foreground-Middleground and Background zones.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities can contribute significantly in reducing impacts to visual resources, regardless of VRM Class.

Effects from Wilderness Characteristics

Visual characteristics are related to the criteria used to determine the presence of wilderness characteristics which includes naturalness. Management decisions to maintain wilderness characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining the natural vegetation and landform. Under Alternative B wilderness characteristics will be maintained on 1,199,000 acres, limiting activities that impact the appearance of naturalness.

Of VRI Class I lands where wilderness characteristics will be maintained (57,000 acres) one-hundred percent would be managed under Class I retaining the natural appearance of the landscape. Of VRI Class II lands where wilderness characteristics will be maintained, two percent or 19,000 acres would be managed as Class I while ninety-two percent or 1,114,000 acres would be managed as Class II lands. Of VRI Class III lands where wilderness characteristics will be maintained (8,000 acres) one-hundred percent would be managed as Class II lands resulting in the preservation of the existing visual character of these lands. Of VRI Class IV lands where wilderness characteristics will be maintained one-hundred percent (1,000 acres) would be managed as Class II lands resulting in the preservation of the existing visual character of these lands.

Effects from Forest and Woodland Products

Under Alternative B, personal use of timber, timber salvage sales, commercial timber sales, and commercial use of forest products would not be allowed within the Steese SRMA (inclusive of Birch Creek WSR). Temporary camps and various impacts from different harvest techniques would not impact 1,245,000 acres. These management actions would help protect visual resources. The rest of the subunit would be open to all these types of use, potentially impacting visual resources on 45,000 acres. The size and scope of impacts would depend on the size of the area and harvest techniques used.

Effects from Land and Realty

The two transportation corridors in the Steese National Conservation Area, encompassing 52,000 acres, would continue to concentrate the building of access roads and possibly provide a location for other rights-of-way such as pipelines, transmission lines and associated facilities. This consolidation of rights-of-way would help protect visual resources by limiting the locations of surface disturbance and facilities development. Impacts of rights-of-way are described in section 4.3.1.9 Impacts Common to All Subunits.

Of VRI Class I lands, one-hundred percent (8,000 acres) would be managed as Class I lands. Of VRI Class II lands one-hundred percent (44,000 acres) would be managed as Class II lands. No lands were identified as VRI Class I or III lands.

The designation of Mount Prindle and Big Windy RNAs, the Steese ACEC, and the Birch Creek WSR Corridor as right-of-way avoidance areas, except where the transportation corridor overlaps, would protect visual resources by generally not allowing clearance of vegetation and construction of structures associated with different kinds of rights-of-ways on 90,000 acres. A natural landscape in line, form, color and texture would be maintained in these areas.

Effects from Fluid Leasable Minerals

Under Alternative B, 1,231,000 acres would be closed to fluid leasable minerals, including the Steese SRMA (inclusive of Birch Creek WSR Corridor), the Central Administrative Site, and all disposal lands. Approximately 42,000 acres of split-estate and lands near Circle would be open to fluid mineral leasing subject to no surface occupancy. These actions would protect visual resources.

Approximately 45,000 acres would be open to seismic exploration, resulting in impacts from those activities, such as green trails and the removal of vegetation in straight lines causing changes to color, line and texture. It is assumed that 130 to 212 miles of seismic line would be shot in the Yukon Flats Basin every five years. Of this, less than 20 miles would be located on BLM lands. No development of fluid minerals is anticipated over the life of the plan. Impacts to visual resources from seismic exploration are described more fully in section 4.3.1.9.

Of VRI Class II lands, ninety-three percent (849 acres) would be managed as Class I lands with major constraints while seven percent (64 acres) would be managed as Class IV with major constraints allowing a visible level of change to the landscape. Of VRI Class IV lands one-hundred percent (44,000 acres) would be managed as Class IV lands with major constraints with 3,000 acres with no constraints. No lands were identified as VRI Class I or III lands.

Effects from Solid Leasable Minerals

The areas described above as closed to fluid leasable minerals would also be closed to solid leasable minerals. These actions would protect visual resources. Approximately 45,000 acres would be open to solid leasable minerals. However, no exploration or development of solid leasable minerals is anticipated during the life of the plan. If activity did occur, potential impacts are described in section 4.3.1.9.

Effects from Locatable Minerals

Under Alternative B, 1,231,000 acres would be closed to locatable minerals, including the Steese SRMA (inclusive of Birch Creek WSR Corridor), subject to valid existing rights. Visual resources would only be impacted by mining on 5,000 acres of valid existing claims within the closed areas.

These impacts would be present in varying degrees depending on the number and size of active mining operations and the degree of reclamation on existing disturbed areas.

Remaining lands in the subunit, 45,000 acres, would be open to new locatable mineral entry. The level of mining activity is expected to increase slightly compared to Alternative A. Two large-scale placer mine operations are anticipated. Each operation would have a disturbed annual footprint of 16 acres over the life of the mine for a total of 60 to 80 acres of disturbance. Impacts from both operations would impact 120 to 160 acres over the life of this plan. Up to eight small-scale placer mine operations, one more than in Alternative A, are anticipated over the life of the plan. Each operation would have a disturbed annual footprint of 4.4 acres over the life of the mine for a total of 20 to 30 acres of disturbance. Impacts from all eight operations would impact 160 to 240 acres over the life of this plan.

Of VRI Class II lands, one-hundred percent (64 acres) would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands one-hundred percent (44,000 acres) would be managed as Class IV lands. No lands were identified as VRI Class I or III lands.

Impacts from suction dredging would be the same as Alternative A. Impacts from the various types of mining operations are described under section 4.3.1.9.

Effects from Salable Minerals

Under Alternative B, the Steese SRMA (including all of the Steese National Conservation Area), 1,231,000 acres, would be closed to salable minerals. Visual resources would not be impacted by mining of salable minerals on these lands. Impacts to visual resources by exploration, development and production of salable mineral resources on the remaining 45,000 acres would depend on the scale of the action and the number of mineral sites mined. Impacts from the development of salable minerals are described under section 4.3.1.9.

While 45,000 acres would be open to salable minerals, it is anticipated that demand for material will be met from production on state lands and no new federal material sites are anticipated within the subunit. Mining activities for salable minerals would generally occur along roads due to transportation requirements and BLM lands adjacent to roads are very limited.

Effects from Recreation

Recreation Management Zones (RMZs) are managed for different physical settings which include remoteness, naturalness and visitor facilities. Of these, naturalness and visitor facilities impact visual resources by setting prescriptions for management, i.e., describing the amount of naturalness and how facilities will sit on the landscape. These prescriptions include a range of Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and description of how facilities will sit on the landscape. Impacts from recreation management activities are described under section 4.3.1.9 Impacts Common to All Subunits.

Of VRI Class I lands, one-hundred percent (73,000 acres) would be retained under Class I management. Of VRI Class II lands two percent or 21,000 acres would be managed as Class I lands, while eighty–seven percent (1,130,000 acres) would be managed as Class II lands and less than one percent (2,000 acres) would be managed as Class IV lands. Of VRI Class III lands, less than one percent (12,000 acres) would be managed as Class I lands while less than one percent

(8000) acres would be managed as Class II lands. Of VRI Class IV lands less than one percent (1,000 acres) would be managed as Class II lands with the remaining 46,000 acres managed as Class IV.

Under Alternative B, specially designated areas (Big Windy and Mount Prindle RNAs and Birch Creek WSR Corridor) would have a VRM Class I (107,000 acres). The Pinnell Mountain, Preacher Creek, Wolf Creek and Harrison RMZs would have a VRM Class II (1,139,000 acres). All other lands would have a VRM Class IV (46,000 acres).

Effects from Travel Management

Travel management outside the SRMA

Cross-country winter travel on 45,000 acres outside the SRMA is restricted to snowmobiles weighing 1,000 pounds curb weight and less and with a width of 50 inches or less and may impact visual resources by disturbing primarily vegetation by repeated passes and by clearing of travel routes.

All other vehicle use may be allowed by permit. Impacts would vary depending on the size of vehicle, season of travel, and the number of passes made but, would be similar to impacts described for open cross-country travel in section 4.3.1.9. Impacts Common to All Subunits.

Travel management within the SRMA

Research Natural Areas would be closed to OHV use except by permit (Map 49), helping to protect visual resources by preventing surface disturbance to vegetation and soils on 3,000 acres. However winter use by federally Qualifies Subsistence Users may result in impacts to the visual landscape characteristics of vegetation. The remainder of the Primitive RMZ would be closed to summer OHV use, but open to winter use of snowmobiles with a curb weight of 1,000 pounds or less and a width of 50 inches or less which may impact visual resources by disturbing vegetation.

The **Semi-Primitive and Backcountry Zones** (211,000 acres), which include the Birch Creek and Harrison RMZs, allow cross-country motorized use of OHVs weighing 1,000 pounds curb weight and less and a width of 50 inches or less without permit for winter travel. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape even with cross-country travel allowed because of the frozen soils and snow cover on lower growing vegetation.

In all zones, vehicles that exceeded the OHV restrictions may be allowed by permit. Impacts from vehicles would vary depending on the size of vehicle, season of travel, and the number of passes made but, would be similar to impacts described for cross-country travel in section 4.3.1.9. These actions help protect visual resources by preventing surface disturbance to vegetation and soils on 1,035,000 acres.

Effects from Special Designations

Under Alternative B, 924,000 acres would be designated as the Steese ACEC to protect Fortymile caribou and Dall sheep habitat. The ACEC would be closed to leasable, locatable, and salable minerals, subject to valid existing rights. Management decisions to protect wildlife habitat helps to preserve the visual characteristics of the area. Seasonal restrictions for a one mile radius around ungulate mineral licks will limit development and use, protecting visual resources in these areas. Seasonal restrictions or closures of areas to motorized use may occur to protect habitat within the

ACEC. These actions would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape. The Steese ACEC would be a right-of-way avoidance area, protecting visual resources by not allowing clearance of vegetation and construction of structures associated with different kinds of rights-of-ways. These actions would protect visual resources on 927,000 acres.

Land use permits and leases would be considered subject to constraints for ungulate mineral licks. The size and scope of impacts would depend on the size of the requested use and techniques used. Impacts to visual resources from rights-of-way and travel activities are described in section 4.3.1.9.

Same as Alternative A, two designated RNAs would continue with no surface-disturbing activities are allowed except by permit in association with research projects. The areas would remain closed to OHV use, camping, and mineral location and leasing. These management actions will help protect visual resources by limiting surface-disturbing activities on 3,000 acres. Development of non-motorized travel routes within the RNAs would impact visual resources on 3,000 acres. Impacts from travel routes are similar to impacts from trail construction described in section 4.3.1.9. Impacts from scientific activities are described in the same section, under Effects from Cultural Resources.

Under Alternative B, approximately 4,500 acres associated with Big Windy Creek would be maintained as a natural landscape under the eligibility as a "wild" river and would be assigned a VRM Class I to protect the naturalness of the river corridor. "Wild" rivers are essentially primitive and undeveloped. Management decisions to preserve these characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining natural vegetation and landform on a scale of development from "wild" to "recreational."

Of VRI Class I lands within Special Designations, one-hundred percent or 47,000 acres would be retained under Class I management. Of VRI Class II lands within Special Designations, two percent (19,000 acres) would be managed as Class I lands while ninety-seven percent (858,000 acres) would be managed as Class II and less than one percent (30 acres) would be managed as Class IV allowing a visible level of change to the landscape. No lands within Special Designations were identified as VRI Class III or VI lands.

4.5.1.5.4. Alternative C

In general, this alternative anticipates a moderate level of resource protection, use and enhancement of resources and adopts VRM classes that would allow a range of development and still protect visual resource in certain areas.

Effects from Fish and Aquatic Species

Same as Alternative B, three watersheds have been identified as High Priority Restoration Watersheds and would be emphasized for restoration and/or protection. They are North Fork Birch Creek, Harrison Creek and Twelvemile Creek. Active restoration projects, such as willow plantings, seeding and fertilizing would have positive impacts to areas with surface disturbance. Changes to line, color and texture would result in that the area would be returned to a more natural looking landscape on approximately 21,000 acres.

Of VRI Class I lands (2,000 acres) one-hundred percent would be retained under Class I management. Of VRI Class II lands, less than one percent or 33 acres would be managed as

Class I, five percent or 889,000 acres would be managed as Class II lands while ninety-five percent (19,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape.

There are 18 RCAs identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 445,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

Of VRI Class I lands (65,000 acres) one-hundred percent would be retained under class I management. Of VRI Class II lands, four percent or 13,000 acres would be managed as Class I while thirty-nine percent or 138,000 acres would be managed as Class II lands and fifty-seven percent (205,000 acres) would be managed as Class V allowing a visible level of change to the landscape. Of VRI Class III lands (8,000 acres) one-hundred percent would be managed as Class I lands. Of VRI Class IV lands one-hundred percent (16,000 acres) would be managed as Class IV lands.

Effects from Visual Resources

Under Alternative C, of VRI Class I acres (73,000 acres, six percent), one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character of these lands. These lands, the Birch Creek WSR Corridor, have an A rating for scenic quality, have both high and medium sensitivity, and occur in the foreground-middle ground zone.

Of VRI Class II lands (eighty–nine percent,), approximately one percent (17,000 acres) would be managed as VRM Class I resulting in preservation of the existing visual character of lands associated with the Birch Creek WSR Corridor. Approximately fourty–four percent of VRI Class II land (569,000 acres) would be managed as VRM Class II allowing a low level of change. Approximately forty-four percent would be managed as VRM Class IV potentially resulting in a high level of change to the landscape characteristics. These lands have an A rating for scenic quality, a high sensitivity, and occur in all three zones. The majority of visual impacts would result from mineral development. No lands would be managed as Class III.

Of VRI Class III lands (two percent), less than one percent (12,000 acres) would be managed as VRM Class I resulting in preservation of the existing visual character. These lands are associated with the Birch Creek WSR Corridor. Less than one percent (8,000 acres) would be managed as VRM Class II allowing a low level of change to the landscape. These lands have a C rating for scenic quality, a high sensitivity, and occur in the occur in foreground-middle ground zone.

Less than one percent of VRI Class IV lands (four percent) will be managed as VRM Class II (1,000 acres) resulting in the preservation of the existing visual character of these lands associated with the Birch Creek WSR Corridor. While three percent would be managed as VRM Class IV (44,000 acres) potentially resulting in a high level of change to the landscape characteristics. These lands have a C rating for scenic quality, have both high and medium sensitivity, and occur in the occur in the Foreground-Middleground and Background zones.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities can contribute significantly in reducing impacts to visual resources, regardless of VRM Class.

Effects from Wilderness Characteristics

Visual characteristics are related to the criteria used to determine the presence of wilderness characteristics which includes naturalness. Management decisions to preserve wilderness characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining natural vegetation and landform. Under Alternative C, wilderness characteristics would be maintained on 647,000 acres, limiting activities that impact the appearance of naturalness.

Of VRI Class I lands being maintained for Wilderness Characteristics (57,000 acres) one-hundred percent would be managed as Class I retaining the natural appearance of the landscape. Of VRI Class II lands being maintained for Wilderness Characteristics, three percent or 15,000 acres would be managed as Class I while ninety-seven percent (565,000 acres) would be managed as Class II lands. Of VRI Class III lands being maintained for Wilderness Characteristics, one-hundred percent or 8,000 acres would be managed as Class II lands. Of VRI Class IV lands being maintained for Wilderness Characteristics, one-hundred percent (1,000 acres) would be managed as Class II lands resulting in preservation of the existing visual character of these lands.

Effects from Forest and Woodland Products

Personal use of timber, commercial timber sales, and commercial use of forest products would not be allowed within the Birch Creek WSR Corridor and the RNAs. Temporary camps and various impacts from different harvest techniques would not impact 72,000 acres. These management actions would help protect visual resources. The rest of the subunit, 1,000,000 acres would be open to all these uses, allowing the potential for impacts to visual resources. The size and scope of impacts would depend on the size of the area and harvest techniques used. Additionally, commercial timber sales are unlikely under any alternative, due to lack of access and lack of valuable timber.

Timber salvage sales would be considered throughout the subunit. The size and scope of impacts would depend on the size of the area and harvest techniques used. Temporary camps and various impacts from different harvest techniques could occur in localized areas within the 1,275,000 acres open to salvage sales. Impacts are discussed in section 4.3.1.9 Impacts Common to All Subunits.

Effects from Land and Realty

The two transportation corridors in the Steese National Conservation Area, encompassing 52,000 acres, would continue to concentrate the building of access roads and possibly provide a location for other rights-of-way such as pipelines, transmission lines and associated facilities. This consolidation of rights-of-way would help protect visual resources by limiting the locations of surface disturbance and facilities development. Impacts of rights-of-way are described in section 4.3.1.9 Impacts Common to All Subunits.

Of VRI Class I lands, one-hundred percent (8,000 acres) would be managed as Class I lands. Of VRI Class II lands fourteen percent (6,000 acres) would be managed as Class II lands while eighty-six percent or 38,000 acres would be managed as Class IV allowing a visible level of change to the landscape. No lands were identified as VRI Class III or IV lands.

Effects from Fluid Leasable Minerals

Under Alternative C, 992,000 would be closed to fluid leasable minerals, protecting visual resources in these areas (Map 35). Closed areas include the Birch Creek WSR Corridor, RNAs, and approximately sixty-five percent of the Steese National Conservation Area.

Approximately 214,000 acres in Preacher Creek and Clums RMZs, and lands around Circle would be open to fluid mineral leasing subject to minor constraints (e.g., seasonal closures). Additionally, 71,000 acres would be open. Open areas include portions of Harrison RMZ and split-estate land and would be subject to standard stipulations.

Lands open to leasing would also be open to exploration resulting in impacts from those activities, such as green trails and the removal of vegetation in straight lines causing changes to color, line and texture. Effects from seismic exploration would be the same as Alternative B.

No lands open for leasable minerals were identified as VRI Class I or III lands. Of VRI Class II lands, one-hundred percent or 241,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands, one-hundred percent or 44,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Solid Leasable Minerals

Under Alternative C, the areas described as closed to fluid leasable minerals would also be closed to solid leasable minerals. These actions would protect visual resources. Approximately 500,000 acres would be open to solid leasable minerals. However, no exploration or development of solid leasable minerals is anticipated during the life of the plan. If activity did occur, the impacts that could potentially occur in open areas are described in section 4.3.1.9.

Effects from Locatable Minerals

Under Alternative C, 992,000 acres would be closed to locatable minerals, protecting visual resources in these areas (Map 34). Closed areas include the Birch Creek WSR Corridor, the RNAs, Harrison Creek reclamation area (3,500 acres), and approximately sixty-five percent of the Steese National Conservation Area. This action would protect visual resources by not allowing surface-disturbing activities associated with mineral development.

All the remaining lands in the subunit (285,000 acres) would be open to locatable minerals. Levels of mining activity would increase substantially compared to Alternatives A and B. Four large-scale placer mine operations are anticipated. Each operation would have a disturbed annual footprint of 16 acres over the 10 to 20 year life of the mine for a total of 60 to 80 acres of disturbance. All four operations would impact 240 to 320 acres over the life of this plan. Up to 18 small-scale placer mine operations are anticipated. Each operation would have a disturbed annual footprint of 4.4 acres over the 10 to 20 year life of the mine for a total of 20 to 30 acres of disturbance. All 18 operations would impact between 360 to 540 acres (less than one percent of the subunit) over the life of this plan.

Mineral exploration activities with resulting camp and field sampling would impact visual resources on between six to 104 acres annually. Reclamation would generally occur annually with the only impacts to visual resources from camps. Up to two exploration operations may occur over the life of this plan.

Impacts from suction dredging would be similar to Alternative A, but would affect a larger area as up to nine suction dredge operations are anticipated annually under Alternative C. The movement of materials occurs underwater and thus does not have a noticeable impact to visual resources and

is generally redistributed each spring during break-up or high water events. Impacts from camps are anticipated to be less than nine acres annually. Impacts from the various types of mining operations are described in section 4.3.1.9.

No lands open for locatable minerals were identified as VRI Class I or III lands. Of VRI Class II lands, one-hundred percent or 241,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands, one-hundred percent or 44,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Salable Minerals

Under Alternative C, the Birch Creek WSR Corridor (69,000 acres) would be closed to salable minerals thus there would be no impact on these lands.

Impacts to visual resources by production of salable mineral resources on the remaining 1,207,000 acres would depend on the scale of the action and the number of mineral sites mined. While ninety-five percent of the subunit is open to salable minerals it is anticipated that demand for material will generally be met from production on state lands and no new federal material sites are anticipated. Impacts to visual resources by the development of salable minerals are described under section 4.3.1.9.

Effects from Recreation

Recreation Management Zones (RMZs) are managed for different physical settings which include remoteness, naturalness and visitor facilities. Of these, naturalness and visitor facilities impact visual resources by setting prescriptions for management, i.e., describing the amount of naturalness and how facilities will sit on the landscape. These prescriptions range from Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and description of how facilities will sit on the landscape.

Of VRI Class I lands (73,000 acres) one-hundred percent would be managed under Class I retaining the natural appearance of the landscape. Of VRI Class II lands, less than one percent or 17,000 acres would be managed as Class I, forty-four percent or 569,000 acres would be managed as Class II lands while forty-four percent (568,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class III lands (20,000 acres), less than one percent or 12,000 acres would be managed under Class I retaining the natural appearance of the landscape while less than one percent (8,000 acres) would be managed under Class II preserving the existing visual character of these lands. Of VRI Class IV lands (45,000 acres), less than one percent (1,000 acres) would be managed as Class II lands preserving the existing visual character of these lands. Approximately 44,000 aces or three percent would be managed as Class IV.

Under Alternative C, Big Windy and Mount Prindle RNAs and Birch Creek RMZ would have a VRM Class I (approximately 102,000 acres). Semi-Primitive Zones including Pinnell Mountain, Wolf Creek, Rocky Mountain, and Rock Creek RMZs would have a VRM Class II (587,000 acres). All other lands would have a VRM Class IV (611,000 acres).

Effects from Travel Management

Travel management outside the SRMA

Under Alternative C, summer travel by OHVs weighing 1,000 pounds curb weight and less with a width of 50 inches or less are allowed on existing routes only, except to retrieve legally harvested game. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape because travel is limited to hardened existing routes except for game retrieval. Multiple passes over the same travel route for the retrieval of game could cause changes in color, line, and texture on the landscape. Repeated OHV use leads to destruction of vegetation, which in turn results in soil exposure, creating a contrast between the adjacent greens of natural vegetation and the browns and grays of exposed soil and organic materials. A contrast in line occurs when the irregular characteristics of vegetation is altered by a more regular line in the form of a developed route or constructed trail. Texture characteristics change from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a developed trail, trail hardening techniques, or mineral soil area. These management activities would help protect the visual resources on 45,000 acres.

Vehicles weighing less than 10,000 pounds curb weight but more than 1,000 pounds curb weight would be allowed on existing roads only. This would protect visual resources by restricting use of larger vehicles to already hardened areas. All other vehicle use may be allowed under permit. Impacts would vary depending on the size of vehicle, season of travel, and the number of passes made but, would be similar to impacts described for open cross-country travel and unrestricted aircraft landings in section 4.3.1.9.

Travel management within the SRMA

Under Alternative C, the **Primitive Zones** would be closed to OHV use except by permit. This helps protect visual resources by preventing surface disturbance to vegetation and soils from the use of motorized vehicles, on 3,000 acres. However winter use of OHVs weighing 1,000 pounds curb weight and less with a width of 50 inches or less by federally Qualifies Subsistence Users may result in impacts to the visual landscape characteristics of vegetation.

The **Semi-Primitive and Backcountry Zones** (578,000 acres), which include the Birch Creek, Pinnell Mountain, Wolf Creek, Rock Creek, and Rocky Mountain Uplands RMZs, allow cross-country motorized use of OHV weighing 1,000 pounds curb weight and less with a width of 50 inches or less without permit for winter travel. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation.

Impacts to visual resources in the **Middlecountry and Frontcountry Zones**, which include the Preacher Creek, Clums, and Harrison RMZs, would be similar to that described above for *Travel management outside the SRMA*. Cross-country winter travel with motorized vehicles of 1,000 pounds curb weight and less with a width of 50 inches or less would be allowed and may impact visual resources by disturbing vegetation by repeated passes and by clearing of travel routes as described in section 4.3.1.9. Impacts from cross-country winter travel may occur on 566,000 acres.

Summer travel with OHVs weighing 1,000 pounds curb weight and less with a width of 50 inches or less is allowed on existing routes only, except to retrieve legally harvested game. This helps reduce the amount of surface disturbance as described above under *Travel management outside the SRMA*. Vehicles weighing less than 10,000 pounds curb weight but greater than 1,000 pounds curb weight would be allowed on existing roads only, protecting visual resources by restricting use to already hardened areas. These management actions would help protect the visual resources on 566,000 acres.

In all zones, the use of vehicles exceeding the OHV restrictions may be allowed by permit. The impacts from vehicles would vary depending on the size of vehicle, season of travel, and the number of passes made. Impacts from these uses would be similar to those described for open cross-country travel in section 4.3.1.9.

Effects from Special Designations

Under Alternative C, 457,000 acres would be designated as the Steese ACEC to protect caribou and Dall sheep habitat. Effects would be the same as Alternative B, except the ACEC would be smaller. Management decisions to protect wildlife habitat helps to preserve the visual characteristics of the area. The ACEC will remain closed to leasable and locatable minerals, subject to valid existing rights. Seasonal restrictions for a one mile radius around ungulate mineral licks will limit development and use, protecting visual resources in these areas. Seasonal restrictions or closures of areas to motorized use may occur to protect habitat. These actions would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape to 457,000 acres.

Salable minerals, land use permits, and leases could be authorized in the ACEC subject to constraints for ungulate mineral licks, but are unlikely. The size and scope of impacts would depend on the size of the requested use and techniques used. Impacts to visual resources from travel and various land uses are described in section 4.3.1.9.

Same as Alternatives A and B, two designated RNAs would continue with no surface-disturbing activities allowed except by permit in association with research projects. The areas would remain closed to OHV and mineral location and leasing. These management activities would help protect visual resources by limiting surface-disturbing activities to those associated with permits issued for research projects on 3,000 acres.

Development of non-motorized trails within the RNAs would impact visual resources on 3,000 acres. Most trails would attract attention of the casual observer if viewed from a higher observation point and if the trails were located within the Foreground-Middleground and Background zones. Trails or routes that are properly designed and viewed from ground level, however, would not generally attract the attention of a casual observer, with the exception from trailhead observation points. Primitive camping would be allowed under this alternative. Visual Impacts from trail construction and temporary camps are described under Effects from Travel Management in section 4.3.1.9.

Of VRI Class II lands within Special Designations one percent or 3,000 acres would be managed as Class I, eighty-two percent or 377,000 acres would be managed as Class II lands while seventeen percent (80,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape. No lands in Special Designations were identified as VRI Class I, III or IV lands.

Under Alternative C, Big Windy Creek would not be recommended as suitable for designation as a WSR, thus there would be no effects.

4.5.1.5.5. Alternative D

In general, this alternative anticipates the greatest amount of resource development and adopts the least restrictive VRM classes that would allow major development while protecting visual resources in certain areas.

Effects from Fish and Aquatic Species

Same as Alternative B, three watersheds have been identified as High Priority Restoration Watersheds and would be emphasized for restoration and/or protection. They are North Fork Birch Creek, Harrison Creek and Twelvemile Creek. Active restoration projects, such as willow plantings, seeding and fertilizing would have positive impacts to areas with surface disturbance. Changes to line, color and texture would result in that the area would be returned to a more natural looking landscape on approximately 21,000 acres.

Of VRI Class I lands within High Priority Restoration Watersheds (2,000 acres) one-hundred percent would be managed under Class I retaining the natural appearance of the landscape. Of VRI Class II lands within High Priority Restoration Watersheds, less than one percent or 233 acres would be managed as Class I, five percent or 889 acres would be managed as Class II lands while ninety-five percent (19,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape.

There are eight RCAs identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 205,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

Of VRI Class I lands within High Priority Restoration Watersheds (65,000 acres) one-hundred percent would be managed under Class I retaining the natural appearance of the landscape. Of VRI Class II lands, two percent or 2,000 acres would be managed as Class I while forty-four percent or 56,000 acres would be managed as Class II lands and fifty-four percent or 69,000 acres would be managed as Class IV allowing a visible level of change to the landscape. Of VRI Class III lands (8,000 acres) one-hundred percent would be managed as Class I lands. Of VRI Class IV lands within High Priority Restoration Watersheds one-hundred percent (5,000 acres) would be managed as Class IV lands.

Effects from Visual Resources

Under Alternative D, of VRI Class I acres (six percent or 73,000 acres), one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character. These lands, the Birch Creek WSR Corridor, have an A rating for scenic quality, have both high and medium sensitivity, and occur in the foreground-middle ground zone.

Of VRI Class II lands (eighty-nine percent or 1,153,000 acres), less than one percent (5,000 acres) would be managed as VRM Class I resulting in preservation of the existing visual character of these lands associated with the Birch Creek WSR Corridor. Approximately thirty-two percent or 423,000 acres of VRI Class II land would be managed as VRM Class II allowing a low level of change, while fifty–six percent (725,000 acres) would be managed as VRM Class IV potentially resulting in a high level of change to the landscape characteristics. These lands have an C rating for scenic quality, a high sensitivity, and occur in foreground-middle ground zone. The majority of visual impacts would result from mineral development.

Of VRI Class III lands (two percent or 20,000), less than one percent (12,000 acres) would be managed as VRM Class I resulting in preservation of the existing visual character of these lands associated with the Birch Creek WSR Corridor. Less than one percent (8,000 acres) would be managed as VRM Class IV potentially resulting in a high level of change to the landscape.

These lands have a C rating for scenic quality, a high sensitivity, and occur in the occur in foreground-middle ground zone.

Approximately one-hundred percent of VRI Class IV lands (four percent or 45,000 acres) will be managed as VRM Class IV potentially resulting in a high level of change to the landscape characteristics. These lands have a C rating for scenic quality, have both high and medium sensitivity, and occur in the occur in the Foreground-Middleground and Background zones.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities can contribute significantly in reducing impacts to visual resources, regardless of VRM Class.

Effects from Wilderness Characteristics

Visual characteristics are related to the criteria used to determine the presence of wilderness characteristics which includes naturalness. Management decisions to preserve wilderness characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining natural vegetation and landform. Under Alternative D, wilderness characteristics would be maintained on 483,000 acres, limiting activities that impact the appearance of naturalness.

Of VRI Class I lands where Wilderness Characteristics will be maintained (57,000 acres) one-hundred percent would be managed under Class I retaining the natural appearance of the landscape. Of VRI Class II lands where Wilderness Characteristics will be maintained, one percent or 3,000 acres would be managed as Class I, ninety-nine percent or 423,000 acres would be managed as Class II lands. No lands where Wilderness Characteristics will be maintained were identified as VRI Class III or IV lands.

Effects from Forest and Woodland Products

Under Alternative D, commercial timber sales and commercial use of forest products would not be allowed within the Birch Creek WSR, and RNAs. Temporary camps and various impacts from different harvest techniques would not impact 72,000 acres. These management actions would help protect visual resources. The rest of the subunit would be open to these uses. The size and scope of impacts would depend on the size of the area and harvest techniques used. Temporary camps and various impacts from different harvest techniques could impact localized areas within the 1,191,000 acres open to these uses. As in Alternative C, commercial timber sales would be unlikely.

The entire subunit would be open to personal use timber and timber salvage sales, potentially impacting visual resources on 1,281,000 acres. The size and scope of impacts would depend on the size of the area and harvest techniques used.

Effects from Land and Realty

Under Alternative D, no transportation corridors would be identified, potentially resulting in increased impacts to visual resources.

Effects from Fluid Leasable Minerals

Under Alternative D, 583,000 would be closed to fluid leasable minerals, protecting visual resources in these areas (Map 37). Closed areas include the Birch Creek WSR Corridor, the RNAs, and approximately fifty percent of the Steese National Conservation Area.

Approximately 524,000 acres would be open to fluid mineral leasing subject to minor constraints such as seasonal closures. Minor constraints would protect visual resources by limiting surface disturbance activities associated with fluid minerals at least seasonally. An additional 169,000 acres would be open to exploration subject to standard stipulations. No development of fluid minerals is anticipated over the life of the plan. In open areas, impacts such as creation of green trails and the removal of vegetation in straight lines causing changes to color, line and texture, could occur. Exploration could occur in open areas. Although a larger area would be open, impacts from seismic exploration would be the same as Alternative B.

No lands open for leasable minerals were identified as VRI Class I lands. Of VRI Class II lands, one-hundred percent or 530,000 acres would be managed as Class IV allowing a visible level of change to the landscape. Of VRI Class III lands one-hundred percent or 8,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands one-hundred percent (44,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Solid Leasable Minerals

Under Alternative D, the areas described as closed to fluid mineral leasing above, would also be closed to solid leasable minerals. These actions would protect visual resources. Approximately 693,000 acres would be open to solid mineral leasing, of this 524,000 acres would be subject to minor constraints such as seasonal closures. Minor constraints would protect visual resources by limiting surface disturbance activities at least seasonally. Although 693,000 acres would be open, no solid mineral exploration or leasing is anticipated during the life of the plan.

Effects from Locatable Minerals

Under Alternative D, 583,000 would be closed to locatable minerals, protecting visual resources in these areas (Map 36). Closed areas include the Birch Creek WSR Corridor, the RNAs, and approximately fifty-four percent of the Steese National Conservation Area. This would protect visual resources by not allowing surface-disturbing activities associated with mineral development. The reclaimed areas in Harrison Creek would not be closed. Increasing the potential for impacts to visual resources in this area.

Approximately 693,000 acres in the Harrison RMZ, Preacher Creek RMZ and portions of Clums RMZ within the National Conservation Area would be open to locatable minerals. The level of mining activity, particularly small-scale placer mines and suction dredging operations, would increase compared to Alternative C.

Four large-scale placer mine operations are anticipated. Each operation would have a disturbed annual footprint of 16 acres over the 10 to 20 year life of the mine for a total of 60 to 80 acres of disturbance. All four operations would impact 240 to 320 acres over the life of this plan. Up to 24 small-scale placer mine operations are anticipated. Each operation would have a disturbed annual footprint of 4.4 acres over the 10 to 20 year life of the mine for a total of 20 to 30 acres of disturbance. All eighteen operations would impact 480 to 720 acres, less than one percent of the planning area, over the life of the plan.

Mineral exploration activities with resulting camp and field sampling would impact visual resources on between 6 to 156 acres annually. Reclamation would generally occur annually with the only impacts to visual resources from camps. Up to three exploration operations may occur over the life of this plan.

Impacts from suction dredging would be similar to Alternatives A, B, and C but would affect a larger area. Approximately 12 suction dredge operations are anticipated annually, each with a camp footprint of less than one acre. The movement of materials occurs underwater and thus does not have a noticeable impact to visual resources and is generally redistributed each spring during break-up or high water events. Impacts from camps associated with suction dredging are anticipated to be less than 12 acres annually over the life of the plan. Impacts from the various types of mining operations are described under section 4.3.1.9.

No lands open for locatable minerals were identified as VRI Class I. Of VRI Class II lands, one-hundred percent or 652,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class III lands, one-hundred percent or 8,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands, one-hundred percent or 45,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Salable Minerals

Same as Alternative A.

Effects from Recreation

Recreation Management Zones are managed for different physical settings which include remoteness, naturalness and visitor facilities. Of these, naturalness and visitor facilities impact visual resources by setting prescriptions for management, i.e., describing the amount of naturalness and how facilities will sit on the landscape. These prescriptions provide a range from Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and description of how facilities will sit on the landscape.

Of VRI Class I lands (73,000 acres) one-hundred percent would be managed under Class I retaining the natural appearance of the landscape. Of VRI Class II lands, less than one percent or 5,000 acres would be managed as Class I, thirty-three percent or 423,000 acres would be managed as Class II lands while fifty–six percent (725,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class III lands, less than one percent (12,000 acres) would be managed as Class I while less than one percent (8,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands, one-hundred percent or 45,000 acres would be managed as Class IV lands.

Under Alternative D, the RNAs and Birch Creek WSR Corridor (90,000 acres) would have a VRM Class I. The Semi-Primitive Pinnell Mountain RMZ would have a VRM Class II (16,000 acres). Wolf Creek and Rocky Mountain Uplands Backcountry RMZs would have a VRM Class II (407,000 acres). All other lands would have a VRM Class IV (779,000 acres).

Effects from Travel Management

Travel management outside the SRMA

Under Alternative D, open cross-country travel on BLM lands, outside of the Steese National Conservation Area and Birch Creek WSR Corridor, is restricted to motorized vehicles 1,000 pounds curb weight and less with a width of 50 inches or less year round, and may impact visual resources primarily by disturbing vegetation by repeated passes and by clearing of travel routes. Vehicles weighing less than 10,000 pounds curb weight would be allowed on existing roads only, protecting visual resources by restricting use to already hardened areas. Weight restricted travel impacts 45,000 acres.

All other vehicle use may be allowed under permit. The impacts would vary depending on the size of vehicle, season of travel, and the number of passes made, but would be similar to impacts described for open cross-country travel in section 4.3.1.9.

Travel management within the SRMA

Impacts to visual resources from travel in the **Primitive Zones** (3,000 acres) would be the same as Alternative C.

The **Semi-Primitive and Backcountry Zones** (510,000 acres), which include the Birch Creek, Pinnell Mountain, Rocky Mountain Uplands, and Wolf Creek RMZs, allow winter cross-country motorized use of OHV weighing 1,000 pounds curb weight and less with a width of 50 inches or less without permit. All other vehicle use may be allowed under permit. These season of travel and weight restrictions help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation.

The **Middlecountry and Frontcountry Zones**, which include the Preacher Creek, Clums, and Harrison RMZs, allow for open cross-country travel, year round, with motorized vehicles 1,000 pounds curb weight or less. Cross-country travel impacts visual resources by disturbing vegetation by repeated passes and by clearing travel routes. Vehicles weighing less than 10,000 pounds curb weight would be allowed on existing roads only. This would protect visual resources by restricting use to already hardened areas. These management actions impact 733,000 acres.

In all zones, other vehicle use may be allowed under permit. Impacts would vary depending on the size of vehicle, season of travel, and the number of passes made but, would be similar to impacts from cross-country travel described in section 4.3.1.9.

Effects from Special Designations

Under Alternative D, 193,000 acres would be designated as the Steese ACEC to protect caribou and Dall sheep habitat. Management decisions to protect wildlife habitat helps to preserve the visual characteristics of the area. The effects would be the same as Alternatives B and C but would apply to fewer acres because the ACEC is smaller. The ACEC will remain closed to leasable and locatable minerals, subject to valid existing rights. Seasonal restrictions for a one-half mile radius around ungulate mineral licks will limit development and use in these areas. Seasonal restrictions or closures of areas to motorized use may occur to protect habitat. These actions would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape to 193,000 acres.

Salable minerals, land use permits, and leases could be authorized subject to constraints for ungulate mineral licks, but would be unlikely. The size and scope of impacts would depend on

the size of the requested use and techniques used. Impacts to visual resources from travel and various land uses are described insection 4.3.1.9.

Of VRI Class II lands within Special Designations, sixty-four percent or 123,000 acres would be managed as Class II while thirty-six percent or 69,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape. No lands within Special Designations were identified as VRI Class I, III or IV lands.

Effects from RNAs and Wild and Scenic Rivers would be the same as Alternative C.

4.5.1.5.6. Alternative E (Proposed RMP)

In general, Alternative E represents a mix and variety of actions that best resolves issues and concerns in consideration of all values and programs and adopts a blend of VRM classes that would allow major development while protecting visual resources in certain areas. It has the second highest percentage of VRM Class II lands of all Alternatives. Class II allows a low level of change to the characteristic landscape where management activities may be seen but not attract the attention of the casual observer.

Effects from Fish and Aquatic Species

Under Alternative E, four watersheds have been identified as High Priority Restoration Watersheds and would be emphasized for restoration and/or protection. They are North Fork Birch Creek, Harrison Creek, Twelvemile Creek and Volcano-Clums Fork. Active restoration projects, such as willow plantings, seeding and fertilizing would have positive impacts to areas with surface disturbance. Changes to line, color and texture would result in that the area would be returned to a more natural looking landscape on approximately 54,000 acres.

Of VRI Class I lands within High Priority Restoration Watersheds (2,000 acres) one-hundred percent would be managed under Class I retaining the natural appearance of the landscape. Of VRI Class II lands within High Priority Restoration Watersheds, less than one percent or 233 acres would be managed as Class I, five percent or 889 acres would be managed as Class II lands while ninety-five percent (19,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape.

Same as Alternative B, there are twenty-one Riparian Conservation Areas identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 550,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

Of VRI Class I lands within Riparian Conservation Areas (69,000 acres) one-hundred percent would be managed under Class I retaining the natural appearance of the landscape. Of VRI Class II lands within Riparian Conservation Areas, two percent or 16,000 acres would be managed as Class I while seventy percent or 900,000 acres would be managed as Class II lands and eighteen percent or 236,000 acres would be managed as Class IV allowing a visible level of change to the landscape. Of VRI Class III lands within Riparian Conservation Areas one percent (17,000 acres) would be managed as Class I lands while less than one percent (8,000 acres) would be managed as Class II. Of VRI Class IV lands within Riparian Conservation Areas one-hundred percent (34,000 acres) would be managed as Class IV lands while less than one percent would be managed as Class II. .

Effects from Visual Resources

Under Alternative E, of VRI Class I acres (five percent or 69,000 acres), one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character of these lands. These lands, the Birch Creek WSR Corridor, have an A rating for scenic quality, have both high and medium sensitivity, and occur in the foreground-middle ground zone (same as Alternative C).

Of VRI Class II lands (ninty percent or 1,154,000 acres), one percent (17,000 acres) would be managed as VRM Class I resulting in preservation of the existing visual character of these lands associated with the Birch Creek WSR Corridor. Approximately seventy percent or 900,000 acres of VRI Class II land would be managed as VRM Class II allowing a low level of change, while eighteen percent (236,000 acres) would be managed as VRM Class IV potentially resulting in a high level of change to the landscape characteristics. These lands have an C rating for scenic quality, a high sensitivity, and occur in foreground-middle ground zone. The majority of visual impacts would result from mineral development.

Of VRI Class III lands (two percent or 25,000), approximately one percent (17,000 acres) would be managed as VRM Class I resulting in preservation of the existing visual character of these lands associated with the Birch Creek WSR Corridor. Less than one percent (8,000 acres) would be managed as VRM Class II allowing a low level of change.

Approximately three percent of VRI Class IV lands (three percent or 34,000 acres) would be managed as VRM Class IV potentially resulting in a high level of change to the landscape characteristics, while less than one percent (1,000 acres) would be managed as VRM Class II lands allowing a low level of change. These lands have a C rating for scenic quality, have both high and medium sensitivity, and occur in the occur in the Foreground-Middleground and Background zones.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities can contribute significantly in reducing impacts to visual resources, regardless of VRM Class.

In summary, 103,000 acres will be managed as VRM Class I, 910,000 acres will be managed as VRM Class II, and 270,000 acres will be managed as VRM Class IV. No lands will be managed as VRM Class III.

Effects from Wilderness Characteristics

Under Alternative E, no lands would be managed to protect wilderness characteristics as a priority over other resource values and multiple. Wilderness characteristics would be maintained on 1,009,000 acres, by limiting activities that impact the appearance of naturalness.

Of VRI Class I lands managed to maintain Wilderness Characteristics (69,000 acres) one-hundred percent would be managed under Class I retaining the natural appearance of the landscape. Of VRI Class II lands managed to maintain Wilderness Characteristics, 17,000 acres would be managed as Class I, while 897,000 acres would be managed as Class II lands. No lands managed to maintain wilderness characteristics were identified as VRI Class III or IV lands.

Effects from Forest and Woodland Products

Under Alternative E, personal use of timber and forest products as well as commercial timber salvage and commercial use of forest products would be considered on all BLM-managed lands (1,282,000 acres). Commercial timber sales (large or small) would be considered on BLM–managed lands except within the Birch Creek WSR Corridor, Big Windy and Mount Prindle RNAs, and crucial caribou and Dall sheep habitat (526,000 acres). These acres would be protected from impacts associated with commercial timber sales on 526,000 acres of BLM–managed lands. Impacts would depend on the location, size or the area and harvest techniques used, however, harvesting forest products would impact color, line and texture throughout the subunit by allowing the harvest of white and black spruce forests for firewood and house logs.

Effects from Land and Realty

Under Alternative E, no transportation corridors would be identified, potentially resulting in increased impacts to visual resources, same as Alternative D.

Effects from Fluid Leasable Minerals

Under Alternative E, 1,237,000 would be closed to fluid leasable minerals, protecting visual resources in these areas (Map 38). Closed areas include the Steese National Conservation Area, Birch Creek WSR Corridor, and riparian conservation areas.

Approximately 30,000 acres would be open to fluid mineral leasing subject to minor constraints such as seasonal closures. Minor constraints would protect visual resources by limiting surface disturbance activities associated with fluid minerals at least seasonally. No development of fluid minerals is anticipated over the life of the plan. In open areas, impacts such as creation of green trails and the removal of vegetation in straight lines causing changes to color, line and texture, could occur. Exploration could occur in open areas. Although a larger area would be open, impacts from seismic exploration would be the same as Alternative B.

No lands open for leasable minerals were identified as VRI Class I, II or III lands. Of VRI Class IV lands one-hundred percent (26,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Solid Leasable Minerals

Under Alternative E, the areas described as closed to fluid mineral leasing above, would also be closed to solid leasable minerals. These actions would protect visual resources. Approximately 30,000 acres would be open to solid mineral leasing. Although 30,000 acres would be open, no solid mineral exploration or leasing is anticipated during the life of the plan.

Effects from Locatable Minerals

Under Alternative E, 1,237,000 would be closed to locatable minerals, protecting visual resources in these areas (Map 38). Closed areas include the Steese National Conservation Area, Birch Creek WSR Corridor, and riparian conservation areas. This would protect visual resources by not allowing surface-disturbing activities associated with mineral development.

Approximately 30,000 acres would be open to locatable minerals. The level of mining activity, would be similar to Alternative B.

Remaining lands in the subunit, 30,000 acres, would be open to new locatable mineral entry. The level of mining activity is expected to increase slightly compared to Alternative A. Two

large-scale placer mine operations are anticipated. Each operation would have a disturbed annual footprint of 16 acres over the life of the mine for a total of 60 to 80 acres of disturbance. Impacts from both operations would impact 120 to 160 acres over the life of this plan. Up to eight small-scale placer mine operations, one more than in Alternative A, are anticipated over the life of the plan. Each operation would have a disturbed annual footprint of 4.4 acres over the life of the mine for a total of 20 to 30 acres of disturbance. Impacts from all eight operations would impact 160 to 240 acres over the life of this plan.

No lands open for locatable minerals were identified as VRI Class I, II or III lands. Of VRI Class IV lands one-hundred percent (26,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape.

Mineral exploration activities with resulting camp and field sampling would impact visual resources on between 6 to 156 acres annually. Reclamation would generally occur annually with the only impacts to visual resources from camps. Up to three exploration operations may occur over the life of this plan.

Impacts from suction dredging would be similar to Alternatives A, B, and C but would affect a larger area. Approximately 12 suction dredge operations are anticipated annually, each with a camp footprint of less than one acre. The movement of materials occurs underwater and thus does not have a noticeable impact to visual resources and is generally redistributed each spring during break-up or high water events. Impacts from camps associated with suction dredging are anticipated to be less than 12 acres annually over the life of the plan. Impacts from the various types of mining operations are described under section 4.3.1.9.

Effects from Salable Minerals

Under Alternative E, only the Birch Creek WSR Corridor (69,000 acres) would be closed to salable minerals, protecting the visual resources. Impacts to visual resources by production of salable mineral resources on the remaining 1, 213,000 acres would depend on the scale of the action and the number of mineral sites mined. While ninety-four percent of the subunit is open to salable minerals it is anticipated that demand for material will generally be met from production on state lands and no new federal material sites are anticipated. Impacts to visual resources by the development of salable minerals are described under section 4.3.1.9. Lands open for salable minerals were identified as VRI Class II. Of VRI Class II lands one percent (18,000 acres) would be managed as Class I, seventy-seven percent (90,000 acres) would be managed as Class II lands, and twenty percent (236,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Recreation

Recreation Management Zones are managed for different physical settings which include remoteness, naturalness and visitor facilities. Of these, naturalness and visitor facilities impact visual resources by setting prescriptions for management, i.e., describing the amount of naturalness and how facilities will sit on the landscape. These prescriptions provide a range from Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and description of how facilities will sit on the landscape.

Of VRI Class I lands (69,000 acres) one-hundred percent would be managed under Class I retaining the natural appearance of the landscape. Of VRI Class II lands, one percent or 17,000 acres would be managed as Class I, seventy percent or 900,000 acres would be managed as Class

II lands while eighteen percent (236,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class III lands one-hundred percent 17,000 acres) would be managed as Class I, less than one percent (8,000 acres) would be managed as Class II lands Of VRI Class IV lands, less than one percent (1,000 acres) would be managed as Class I while three percent or 34,000 acres would be managed as Class IV lands.

Under Alternative E, the RNAs and Birch Creek WSR Corridor (103,000 acres) would have a VRM Class I. The Semi-Primitive Pinnell Mountain RMZ and Wolf Creek RMZ would have a VRM Class II (421,000 acres) as would the Backcountry Preacher Creek RMZ (488,000 acres). The Bachelor Creek, Clums and Harrison RMZs, both Frontcountry, would have a VRM Class IV (234,000 acres). All other lands would have a VRM Class IV (36,000 acres).

Effects from Travel Management

Under Alternative E, open cross-country travel on BLM lands is restricted to motorized vehicles 1,000 pounds curb weight or less and 50 inches or less in width year round, and may impact visual resources primarily by disturbing vegetation by repeated passes and by clearing of travel routes. Weight restricted travel impacts 1,267,000 acres. This restriction of motorized use to OHVs weighing 1,000 pounds curb weight or less with a width of 50 inches or less helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape on approximately 1,267,000 acres. However, allowing summer and winter cross-country travel by OHVs could result in an increase of user-created travel routes with impacts to vegetation and soils in line, color and texture. It is anticipated that an additional 300 miles of user-created travel routes would be developed over the life of the plan impacting up to 872 acres. While the total area of impact is very small, only approximately 872 acres (less than 1 percent of the Steese National Conservation Area), the areas likely impacted have relatively high scenic sensitivity. Typically, user-created summer travel routes are move visible than winter travel routes that tend to be positioned near valley bottoms and are protected by snow and frozen ground. Summer travel routes are typically developed in areas that show changes to line, color and texture with repeated passes.

Cross-country travel within Birch Creek WSR Corridor is limited to winter travel with limited impacts to line, color and texture, since summer use of OHVs within the corridor would not be allowed.

Vehicles weighing less than 10,000 pounds curb weight would be allowed on existing roads only, protecting visual resources by restricting use to already hardened areas. All other vehicle use may be allowed under permit. The impacts would vary depending on the size of vehicle, season of travel, and the number of passes made, but would be similar to impacts described for open cross-country travel in section 4.3.1.9.

Of VRI Class I lands (69,000 acres) one-hundred percent would be managed under Class I retaining the natural appearance of the landscape. Of VRI Class II lands, two percent or 16,000 acres would be managed as Class I while seventy percent or 900,000 acres would be managed as Class II lands and eighteen percent or 236,000 acres would be managed as Class IV allowing a visible level of change to the landscape. Of VRI Class III lands one percent (17,000 acres) would be managed as Class I lands while less than one percent (8,000 acres) would be managed as Class II. Of VRI Class IV lands one-hundred percent (34,000 acres) would be managed as Class IV lands while less than one percent would be managed as Class II. .

Effects from Wildlife

Under Alternative E, 457,000 acres would be managed to protect crucial caribou and Dall sheep habitat. Management decisions to protect wildlife habitat helps to preserve the visual characteristics of the area. The effects would be the same as Alternative C. Crucial caribou and Dall sheep habitat will remain closed to leasable and locatable minerals, subject to valid existing rights. Seasonal restrictions for a one-half mile radius around ungulate mineral licks will limit development and use in these areas. Seasonal restrictions or closures of areas to motorized use may occur to protect habitat. These actions would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape to 457,000 acres.

Salable minerals, land use permits, and leases could be authorized subject to constraints for ungulate mineral licks, but would be unlikely. The size and scope of impacts would depend on the size of the requested use and techniques used. Impacts to visual resources from travel and various land uses are described in section 4.3.1.9.

No lands within crucial caribou and Dall sheep habitat were identified as VRI Class I, III or IV lands. Of VRI Class II lands one-hundred percent (457,000 acres) would be managed as Class II lands protecting the natural appearance while allowing for a low level of change to the characteristic landscape.

Effects from RNAs and Wild and Scenic Rivers would be the same as Alternative C.

4.5.1.6. Wilderness Characteristics Steese Subunit

Summary of Effects

There are 1,270,000 acres identified within the Steese Subunit as having wilderness characteristics of size, naturalness, and the opportunity for solitude or a primitive unconfined type of recreation experience. Managing lands for wilderness characteristics limit surface-disturbing activities. See section 4.3.1.10 Impacts Common to All Subunits for impacts to wilderness characteristics. Alternative B would protect the most acres for wilderness characteristics while Alternative A would not identify any acres as having wilderness characteristics. Alternative C provides a balance between protection and resource use, while Alternative D provides for resource development and protects the least amount of lands for wilderness characteristics. Alternative E emphasizes other multiple uses while applying management restrictions to reduce impacts to wilderness characteristics.

4.5.1.6.1. Alternative A (No Action)

Effects from Wilderness Characteristics

No lands are managed for wilderness characteristics under this alternative. Of the 1,270,000 acres identified as having wilderness characteristics, none would be directly managed to protect those values. Other actions and management strategies may help protect those value indirectly, such as managing for a Primitive or Semi-Primitive recreation opportunity.

4.5.1.6.2. Alternative B

Effects from Wilderness Characteristics

Of the 1,270,000 acres identified as having wilderness characteristics, 1,199,000 acres (ninety-four percent) would be directly managed to protect those values. These areas include the majority of the Steese SRMA, except the Birch Creek WSR Corridor outside the Steese National Conservation Area. Other actions and management strategies may help protect those values indirectly on the remaining 71,000 acres. Mineral exploration or development is possible on 45,000 acres and on existing mining claims. However the reasonably foreseeable development scenario does not suggest a high percentage of development during the life of the plan. Even if all development is realized it would affect less than one percent of all available acres. If these claims were developed naturalness would be impacted within the view shed of the development until the site was reclaimed to the extent that it appeared natural looking see section 4.3.1.10 Impacts Common to All Subunits.

4.5.1.6.3. Alternative C

Effects from Wilderness Characteristics

Of the 1,270,000 acres identified as having wilderness characteristics, 647,000 acres (fifty-one percent) would be directly managed to protect those values. These areas include Primitive, Semi-Primitive, except Birch Creek RMZ below the Steese National Conservation Area boundary, and Backcountry RMZs. Other actions and management strategies may help protect those values indirectly on the remaining 623,000 acres. Mineral exploration or development is possible on 285,000 acres. However the reasonably foreseeable development scenario does not suggest a high percentage of development during the life of the plan. Even if all development is realized it would affect less than one percent of all available acres. If these claims were developed naturalness would be impacted within the view shed of the development until the site was reclaimed to the extent that it appeared natural looking. Development of recreation facilities and travel management in Middlecountry and Frontcountry RMZs, and on other BLM lands would also impact wilderness characteristics.

4.5.1.6.4. Alternative D

Effects from Wilderness Characteristics

Of the 1,270,000 acres identified as having wilderness characteristics, 483,000 acres (thirty-eight percent) would be directly managed to protect those values. These areas include Primitive, Semi-Primitive, except Birch Creek RMZ below the Steese National Conservation Area boundary, and Backcountry RMZs. Other actions and management strategies may help protect those values indirectly on 787,000 acres. Mineral exploration or development is possible on 693,000 acres however the reasonably foreseeable development scenario does not suggest a high percentage of development during the life of the plan. Even if all development is realized it would affect less than one percent of all available acres. If these claims were developed naturalness would be impacted within the view shed of the development until the site was reclaimed to the extent that it appeared natural looking. Development of recreation facilities and travel management in Middlecountry and Frontcountry would also impact wilderness characteristics.

4.5.1.6.5. Alternative E (Proposed RMP)

Of the 1,258,000 acres identified as having wilderness characteristics, those characteristics would be maintained on 1,009,000 acres by limiting activities that impact size, naturalness

and opportunities for solitude or primitive and unconfined recreation. Mineral exploration or development is possible on 35,000 acres however the reasonably foreseeable development scenario does not suggest a high percentage of development during the life of the plan. Even if all development is realized it would affect less than one percent of all available acres. If these claims were developed naturalness would be impacted within the view shed of the development until the site was reclaimed to the extent that it appeared natural looking. Development of recreation facilities and travel management in Middlecountry and Frontcountry would also impact wilderness characteristics.

4.5.1.7. Wildlife Steese Subunit

Summary of Effects

Alternative E will result in fewer impacts to wildlife relative to Alternative C, despite allowing cross-country summer OHV use on more than half of the subunit and not precluding all summer OHVs from Primitive, Semi-Primitive, and Backcountry RMZs. Alternative E would avoid impacts from locatable and leasable mineral development in the Steese National Conservation Area by maintaining the withdrawals, whereas in Alternative C withdrawals would be lifted on 274,000 acres. Overall impacts to wildlife would be lowest in Alternative B, and progressively higher in Alternatives E, A, and C, and highest in Alternative D (where more than half the subunit is open to mineral location, entry, and leasing). Potential cumulative impacts in Alternatives C and D include impairment of migratory caribou habitats.

Alternatives C designates the Steese ACEC (457,000 acres) which would provide protection to many key wildlife habitats, including most current and historical caribou calving habitats. In Alternative E, an ACEC is not designated. Instead an identical area is delineated as crucial caribou and Dall sheep habitat, and a very similar set of management decisions apply to the delineated area, including the restriction of,summer OHV use to designated trails following travel management plan completion

Management of recreation in Alternatives B, C, and E would generally result in positive effects to wildlife (relative to Alternative A), as most key caribou and Dall sheep habitats would be in Primitive, Semi-Primitive or Backcountry RMZs and/or in an ACEC or delineated crucial caribou and Dall sheep habitat. Alternatives B and C would benefit wildlife by closing all or half (respectively) of the SNCA to summer OHV use, and limiting use of summer OHVs elsewhere to designated trails/routes. Interim management in Alternative E would resemble Alternative A (except that winter snowmobile use would be allowed in RNAs) until a travel management plan is completed. Summer OHV use will then be managed to meet objectives of RMZs and the caribou migration corridor and limited to designated routes in 457,000 acres delineated as crucial caribou and Dall sheep habitat, and possibly elsewhere.

4.5.1.7.1. Alternative A (No Action)

Effects from Wildlife

Present and historical caribou habitat will be managed as a primary land use in this and all alternatives. There is no specific provision in this alternative to monitor or limit off-trail snowmobile use in caribou habitat, and a caribou migration habitat corridor is not identified.

Effects from Leasable Minerals

None of the subunit is open to leasing.

Effects from Locatable Minerals

The entire subunit is currently closed to mineral location and entry. Small- and large-scale placer mining occurs on hundreds of pre-existing mineral claims (totalling 7,000 acres, of which 5,000 acres are in the Steese National Conservation Area). Many valid claims exist along streams in the Clum's Fork area and areas north of Birch Creek, with scattered claims in other areas. Impacts of mining at current levels involves localized disturbance of wildlife and habitats by road, trails, and mining operations and the period of recovery of riparian and aquatic habitats is typically long (see Fish and Aquatic Species section 4.3.1.4 for more description of impacts to these habitats). Roads and trails result in increased off-trail OHV use by recreationists. Under this alternative, some additional mining is likely if minerals prices increase, or if additional access is created.

Effects from Recreation

Existing recreational use and management in the Steese National Conservation Area has focused on Birch Creek WSR, Pinnell Mountain Trail, and highway waysides. Dispersed recreation use occurs from hikers in the Mount Prindle area, and OHV users in portions of Preacher Creek and in the south Steese unit (north of Birch Creek). Only the Primitive Management Unit (adjacent to the White Mountains NRA), the Pinnell Mountain Trail, and the Birch Creek WSR Corridor are closed to summer OHV use. In the areas open to summer OHVs, cross-country travel is allowed, which has created a network of trails. Summer OHV use in the area south of Birch Creek WSR Corridor generally does not occur due to lack of access. This area is rarely visited at any time of year; most use likely occurs by snowmobile in winter and includes some trapping activity. Winter snowmobile use is not restricted anywhere in the subunit, except in the RNAs.

Under Alternative A, recreation affects wildlife primarily along the Pinnell Mountain Trail, Birch Creek, Mount Prindle, and in areas of OHV use. Wildlife is displaced, at least temporarily, by recreational activities, and that effect is greatest at sites of higher recreational use. Disturbance of nesting raptors can potentially lead to nest abandonment or reduced survival of nestlings and likely occurs at times along Birch Creek. Bears can be attracted to garbage which can lead to conflicts and potential removal. Recreational OHV users are becoming more abundant and are traveling further and expanding the zone of impact. User-pioneered trails have expanded into remote portions of the north Steese unit, including the upper North Fork of Preacher Creek. Motor boat use on lower Birch Creek results in wildlife disturbance, including potential impacts to a few nesting bald eagles.

Effects from Travel Management

Most of the subunit (all but the Primitive Management Unit in the north Steese National Conservation Area, RNAs, Pinnell Mountain Trail and Birch Creek WSR Corridor) is open to cross-country OHV travel and susceptible to the impacts of cross-country travel described in the section 4.3.1.12 Impacts Common to all Subunits. The area to the south of the Birch Creek WSR Corridor, although open to OHVs, has received very little use due to the inability to legally cross Birch Creek and the remoteness. If access were developed to the unit from the south, OHV use would likely occur in that area. Development of motorized access within any of the subunit would expand the intensity and area of OHV use. All areas except RNAs are open for snowmobile use and extensive off-trail use, which could potentially impact wildlife, especially caribou winter habitats that are sparsely or non-forested.

Effects from Special Designations

Mount Prindle and Big Windy Hot Springs RNAs are the only specially designated areas. In Alternative A, no camping is allowed in the RNA (though this has not been enforced) to avoid disturbing research projects. This limits human activities in the areas and limits disturbance of Dall sheep, gyrfalcon, and other species.

Management of Birch Creek as a WSR, even though it attracts recreational use, limits impacts to wildlife overall.

4.5.1.7.2. Alternative B

Effects from Wildlife

A wildlife decision (section 2.8.2.1.1.6 Wildlife) to monitor snowmobile use of non-forested caribou habitat, and adjust management if necessary, will reduce potential future impacts should use of these habitats increase. An identified caribou migration corridor (Map 68) is closed to mineral location, entry, and leasing and density of developments will be monitored and limited.

Effects from Leasable Minerals

Only BLM lands near Circle are open to leasing (34,000 acres). No leasable minerals are expected to be developed in the Steese Subunit due to low potential for occurrence of economically recoverable resources. The RMP will need to be amended before coal could be leased. Leasing of other minerals would require additional NEPA analysis. Seismic exploration for leasable minerals could occur in the areas open to leasing resulting in local displacement of wildlife and some fragmentation of habitat. This is one of two areas (the other being across the Yukon River to the east in the Upper Black River Subunit) where oil and gas leasing is considered most likely to occur during the life of the plan. The entire subunit may be considered for coal inventory and exploration, although none is predicted in the subunit due to small potential (Map 88). Considerable surface disturbance may occur with exploration for coal.

Effects from Locatable Minerals

With the exception of BLM lands near Circle (34,000 acres), nearly all areas in the subunit are closed to location and entry of new mining claims. Except in the areas near Circle, impacts of mining will be very similar to Alternative A. Exploration for locatable minerals would also occur only on BLM lands near Circle and on 7,000 acres of valid existing claims. Additional access could be developed to reach existing claims. Little additional mining is expected under this alternative. However, mineral price increases or changes in access could result in greater mining activity.

Effects from Recreation

The Steese SRMA, including most BLM lands in the subunit, would have specific management objectives and prescription settings (Map 49). The entire SRMA would be managed as Primitive, Semi-Primitive, or Backcountry. The level of use expected under this management would have very small impacts to wildlife. Most of the area would be in a Primitive classification (1,034,000 acres) and would prohibit summer OHV use (other than use under a subsistence permit). This would largely eliminate potential impacts from recreational motorized vehicle use.

Effects from Travel Management

Almost the entire subunit (except for lands near Circle and Birch Creek) would be managed for recreation settings which do not allow summer OHV use. All areas except RNAs are open for snowmobile use and extensive off-trail use could potentially impact wildlife, especially caribou winter habitats that are sparsely or non-forested. There are wildlife management actions in this alternative which call for monitoring of such use and adjusting management when necessary to minimize impacts to caribou and Dall sheep.

Qualified subsistence users would be allowed to access all portions of the Steese subunit with OHVs (except RNAs) after acquiring a free permit. Relative to other alternatives, this would introduce new impacts to areas that are currently closed to summer OHV use (including the Rocky Mountain Primitive zone and Birch Creek WSR Corridor). In addition to impacts from subsistence users, some non-qualified users will be attracted by existing and new tracks and trails. However, the use by subsistence users would be relatively small and, because the entire Steese National Conservation Area would be closed to casual use and a permit required for subsistence users, unauthorized use would be relatively easy to control. Impacts from OHV use would likely be lower in this alternative relative to Alternatives A and D, but higher than Alternative C where OHV use is limited to Middlecountry and Frontcountry RMZs and cross-country travel is not allowed.

Effects from Special Designations

Designated RNAs are the same as Alternative A and managed similarly. The Steese ACEC boundaries were drawn to include the majority of historical calving habitats of the Fortymile caribou herd, which includes most of the Steese National Conservation Area. The large area of historical calving also includes the current calving and postcalving habitats of the White Mountains caribou herd and current postcalving habitats of the Fortymile herd, as well as all Dall sheep habitats in the National Conservation Area. Calving and postcalving habitats are considered the most sensitive for the Fortymile herd (Fortymile caribou herd Planning Team 2000). The ACEC is closed to mineral location, entry and leasing and motorized vehicle use will be limited so as to maintain caribou and sheep habitat quality. In this alternative, the entire SRMA is designated as a Primitive, Semi-Primitive, or Backcountry RMZ and, because these RMZs are closed to motorized vehicle use and mineral location, entry and leasing, ACEC designation will have little additional effect. SOPs will apply to other activities permitted by the BLM in the ACEC, which would provide some additional protection to caribou and sheep. This alternative, with or without ACEC designation, will best assure long-term habitat conservation.

Big Windy Creek would be considered suitable for designation as a “wild” river. Management as a “wild” river would differ little from that otherwise proposed in this alternative. However WSR designation would be more permanent than provisions in this plan and would better protect wildlife values along Big Windy Creek (Appendix E, *Wild and Scenic Rivers Inventory*).

Effects form Land Use Authorizations

Only in Alternative B would any portion of the Steese subunit be considered a ROW Avoidance area (ACEC, RNAs, Birch Creek WSR corridor). Attempting to place ROWs outside of these areas, where feasible, would generally benefit wildlife, because these are high value wildlife habitats.

4.5.1.7.3. Alternative C

Effects from Wildlife

Same as Alternative B, except that only portions of the caribou migration corridor will be closed to mineral location, entry, and leasing.

Effects from Leasable Minerals

A much larger portion of the subunit (285,000 acres) is open to leasing of minerals under this alternative than Alternative B. Effects from exploration would be similar to those in Alternative B, except that exploration will be more likely to occur in areas that are open to leasing.

Effects from Locatable Minerals

More than half of BLM lands in the subunit will remain closed to mineral entry (992,000 acres), including the Birch Creek WSR Corridor, an area south of Birch Creek (which includes the Clum's Fork calving area, Dall sheep habitat, and recent caribou calving habitat), and most of the north Steese National Conservation Area (which includes the White Mountains caribou calving/postcalving habitat and Dall sheep habitat, and portions of the historical Fortymile calving habitat). A closed area (Map 34) adjacent to upper Birch Creek WSR Corridor is within the historical Fortymile caribou migration corridor.

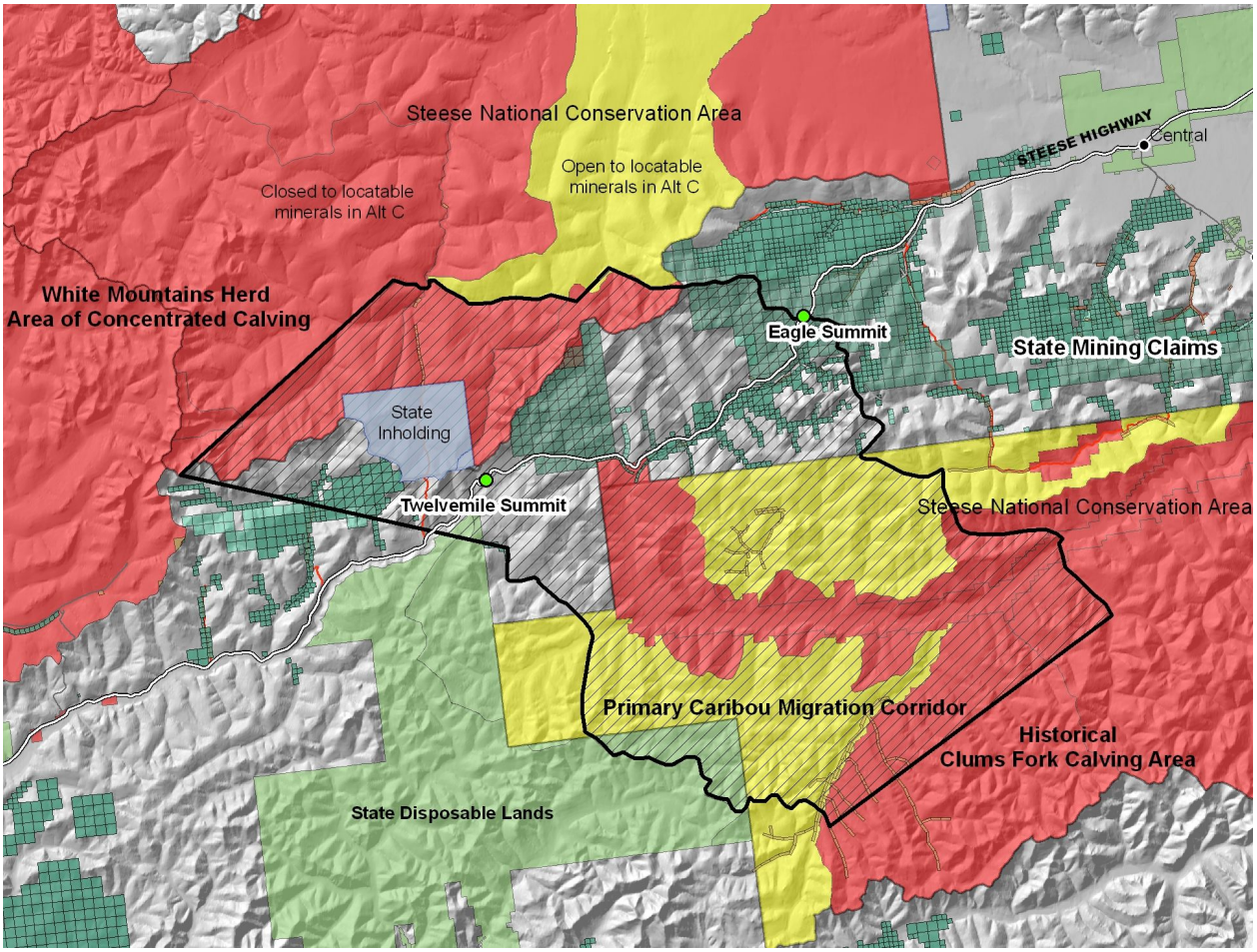
All Dall sheep habitat and most current and recent caribou calving/postcalving habitat is closed to mineral location and entry in this alternative, minimizing potential impacts to sheep and caribou. Most identified priority raptor nest sites are within areas closed to mineral entry; SOPs (Appendix A) would apply to open areas and reduce impacts.

Substantial increases in placer mining activity are predicted under this alternative, approximately doubling the number of large and small-scale placer operations from that expected under Alternatives A and B. This will increase the areas of localized disturbance to riparian and aquatic habitats which feature typically long recovery periods (see Fish and Aquatic Species section 4.3.1.4 for more description of impacts to these habitats), and increase the miles of roads and trails needed for access. Roads and trails result in increased off-trail OHV use by recreationists, however summer OHV use will be limited to existing trails in this alternative.

Much of the area historically used by Fortymile caribou to access White Mountains and Preacher Creek calving/postcalving habitat in the White Mountains is open to mineral entry (Figure 4.6, "Caribou Migration Corridor and Minerals Decisions"). Roads, trails, mining operations with high density and levels of activity could potentially reduce the likelihood of future re-establishment of a pattern of migration to those calving habitats, resulting in an effective loss of habitat. A caribou migration corridor has been identified in the wildlife section of this alternative (Map 68) which includes the central, more highly used portion of historical migration habitat (which was also used as calving and postcalving habitat historically). The wildlife decision directs road and trail density in the corridor to be limited to ensure use by caribou for migration. However, the BLM has little control over the density of roads, trails, and mining operations used by miners to develop valid mining claims and no control over what occurs on state and private land within the corridor. The opening of portions of the area to mineral location and entry, could result in a greater density of roads in an already relatively densely roaded area.

Greater than predicted increases in mining activity are possible with the opening of twenty-two percent of subunit (285,000 acres) to mineral location and entry. Dependent on the results of exploration, prices of minerals, and access routes which may be provided by other activities, mining activity can vary substantially and impacts could be considerably greater than anticipated. Possible development of a large lode deposit in the Steese highway vicinity could spur

considerable interest and activity in nearby areas of the Steese National Conservation Area. Also, the staking of mining claims can result in effects long beyond the life of the plan.



BLM lands open to locatable mineral entry in Alternative C and state mining claims (circa 2011) in and near a delineated caribou migration corridor.

Figure 4.6. Caribou Migration Corridor and Minerals Decisions

The opening of new areas to mineral location and entry will likely result in substantial exploration activity. Surface disturbance due to explorations at the Livengood Money Knob lode mine, for example, has involved miles of roads and many drill pads. One such pre-feasibility development operation is predicted, involving 10 acres of disturbance per year for five years and heavy helicopter use to and near the site (12 hr/day flight time). SOPs (Appendix A) concerning activities near priority raptor nest sites will apply in all action alternatives, but not all nest sites of priority raptors are known and few nest sites of other raptors are known. SOPs limit activities in caribou calving/postcalving, but disturbance of caribou may occur outside of the restricted time periods.

Effects from Recreation

More lands are designated as Frontcountry and Middlecountry than in Alternative B, resulting in more facilities and greater recreational use, including motorized use. However, most key wildlife habitats are in Primitive, Semi-Primitive, or Backcountry RMZs, with the exception of much of the caribou migration corridor.

Effects from Travel Management

Summer OHV use will be allowed over most of the subunit and winter OHV use allowed over all of the subunit except RNAs. Summer OHV travel will be limited to a set of existing routes which will greatly reduce impacts and potential impacts to wildlife and wildlife habitat (described in section 4.3.1.12 Impacts Common To All Subunits). In some places, existing trails will be replaced by constructed, sustainable trails or new trails will be constructed in areas with no trails. In contrast to Alternatives A and D, construction of trails will not result in increased cross-country use in the vicinity of the trail. Constructed trails can be routed to minimize impacts to wildlife. The potential for impacts to wildlife from motorized vehicle use will be much reduced in this alternative relative to Alternative A, due to reduced area where they are allowed and restricting of use to existing routes. As in Alternative B, all areas except RNAs are open for snowmobile use and extensive off-trail use could potentially impact wildlife, especially caribou winter habitats that are sparsely or non-forested. There are wildlife management actions in this alternative which call for monitoring of such use and adjusting management when necessary to minimize impacts to caribou and Dall sheep.

Effects from Special Designations

Designated RNAs are the same as Alternative B, but primitive camping is allowed, which may result in slightly greater human activities in the areas and disturbance of Dall sheep, gyrfalcon, and other species.

Relative to Alternative B, this alternative excludes large areas (467,000 acres) of historical Fortymile caribou calving and migration habitat from the ACEC. The Alternative C ACEC includes current White Mountains calving/postcalving habitat, Dall sheep habitat and ungulate mineral licks (Preacher Creek and Big Windy/Puzzle Gulch), current Fortymile concentrated calving/postcalving habitats, and the Clum's Fork calving area used by the Fortymile herd in the 1960s and 1970s.

The ACEC in this alternative largely falls within the Rocky Mountain Uplands RMZ (Backcountry) and the Wolf Creek RMZ (Semi-Primitive; Map 50), which do not allow motorized vehicle use and are closed to mineral location, entry, and leasing. SOPs (Appendix A) will apply to other activities permitted by the BLM in the ACEC and provide some additional protection to caribou and sheep. The ACEC overlaps a portion of the Clums RMZ in the Clums Fork drainage and it is only here that the ACEC would result in significant modification of future management. In this area, which has many existing mining claims, the ACEC designation will limit motorized use and not allow additional mining claims or mineral leasing. The Clums Fork calving area was used by Fortymile caribou for at least 16 years in the 1960s and 1970s. In Alternative A this area was identified to remain closed to mineral entry to protect the value of the area as caribou calving habitat. The ACEC designation will maintain the mineral entry closure and also minimize motorized use at a level which will maintain the value of the habitat for caribou.

The exclusion of 467,000 acres of historical calving and migration habitats from the ACEC (relative to Alternative B) could result in somewhat reduced potential for future use of these habitats by Fortymile and White Mountains caribou. The higher levels of recreational activities (especially motorized activities) and mineral development allowed in this area will result in some fragmentation of caribou habitat and avoidance of the vicinity of those activities. The area designated as a "caribou migration corridor" in this alternative, has an objective to limit the density of development in the area to that which will allow the future re-establishment of a pattern of migration to historical calving habitats. However, allowance of mineral location and entry

could restrict the ability of BLM managers to limit development in the corridor, as reasonable access must be granted to mining claim owners.

The ACEC, in addition to Dall sheep habitat and caribou calving/postcalving habitat is also used by caribou during all other seasons. Other wildlife species in the area will benefit as well from management as an ACEC.

Big Windy Hot Springs is not classified as suitable for designation as a "wild" river in this alternative. This will have little effect during the life of the plan, due to other management provisions (e.g., within a Semi-Primitive RMZ and the Steese ACEC), but may provide less protection in the longer term.

4.5.1.7.4. Alternative D

Effects from wildlife

The fewest protections for wildlife, especially caribou, are included in this alternative, negative effects on wildlife will be greatest. No special protection of caribou migration corridor habitats is included.

Effects from Leasable Minerals

A large portion, 54 percent of the subunit, is open to leasing of minerals (compared to 22 percent in Alternative C). Leasing is not expected anywhere in the subunit and seismic exploration is expected only on BLM lands near Circle. Some caribou calving/postcalving habitat and Dall sheep habitat, including the area around the Preacher Creek mineral lick, is open to leasing. Most of the caribou migration corridor is open and no special provisions apply to the caribou migration corridor in this alternative. Effects would be similar to Alternative C, except more area, including some sensitive habitats, are open.

Effects from Locatable Minerals

More than half (fifty-four percent; 693,000 acres) of the subunit will be open to mineral location and entry (Map 34). The areas that are closed under Alternative C but open under this alternative include portions of current White Mountains caribou calving/postcalving habitat (and historical Fortymile calving/postcalving/and migration habitat) and a Dall sheep mineral lick movement corridor.

Relative to Alternative C, some increases in suction dredging (thirty-three percent) and small-scale placer (sixty percent) operations are predicted under this alternative. Fewer RCAs are designated and many are open to locatable minerals. There will be an increase in the areas of localized disturbance to riparian and aquatic habitats and long recovery periods can be expected (see Fish and Aquatic Species section 4.3.1.4 for more description of impacts to these habitats). Miles of roads and trails needed for access will also increase. Roads and trails result in increased off-trail OHV use by recreationists. In this alternative, cross-country OHV use is allowed in all areas open to mining.

Relative to Alternative C, this alternative will provide less protection to north Steese National Conservation Area caribou calving/postcalving habitats and less assurance that migration of Fortymile caribou to these habitats will remain largely unimpeded.

Almost all of the area historically used by Fortymile caribou to access White Mountains and Preacher Creek calving/postcalving habitat in the White Mountains is open to mineral entry. This is a considerable increase in open area relative to Alternative C. Roads, trails, and mining operations with high enough density and levels of activity could potentially reduce the likelihood that the pattern of migration to those calving habitats would in the future be re-established, resulting in loss of habitat. The "caribou migration corridor" management provisions in Alternatives B and C, which direct road and trail density to be limited to ensure use by caribou for migration, are not part of Alternative D. Impacts to caribou calving/postcalving and migration to the White Mountains would be higher than under Alternative C. Use by Dall sheep of the movement route to a mineral lick on Preacher Creek could be impaired by mining or road activity. This route has little to no escape terrain, and so sheep are likely very sensitive to disturbance while using it.

Greater increases in mining activity than predicted are possible with the opening of larger areas to mineral location and entry. Dependent on the results of exploration, prices of minerals, and access routes which may be provided by other activities, mining activity can vary substantially and impacts could be considerably greater than anticipated. Also, the staking of mining claims in a considerably larger area open to staking can result in effects long beyond the life of the plan.

Effects from Recreation

The Rocky Mountain Uplands Backcountry RMZ is reduced in size from that in Alternative C and is similar in size and location to the Primitive Management Unit in Alternative A (Map 51). The allowance of cross-country OHV use will compound the impacts in areas where OHVs would be allowed (Middlecountry and Frontcountry RMZs). Caribou use of calving/postcalving, summer, and migration habitats and Dall sheep use of a mineral lick (in the Preacher Creek RMZ) could potentially be affected by allowed cross-country OHV use, if that level of use increases.

Effects from Travel Management

Potential for impacts to wildlife from summer OHV use are greater than Alternative C due to increased area in which they are allowed and the allowance of cross-country OHV use. Impacts are very similar to Alternative A. Alternative D includes the large Wolf Creek Backcountry RMZ (Map 51), which is closed to summer OHV use, while Alternative A allows such use in that area; however the area is essentially inaccessible. All areas except RNAs are open for snowmobile use and extensive off-trail use could potentially impact wildlife, especially caribou winter habitats that are sparsely or non-forested. No specific management provisions for monitoring of excessive off-trail use and making management changes are included in this alternative.

Effects from Special Designations

The effects from RNAs are the same as Alternative C.

The Steese ACEC includes only Dall sheep mineral licks, core calving habitats of the White Mountains caribou herd, the recently used Clums Fork calving area (Fortymile herd) and the current concentrated calving/postcalving range of the Fortymile herd (193,000 acres). These areas will be closed to mineral entry, location, and leasing.

In most of the remainder of the subunit, mineral location, entry, and leasing are allowed. However, much of Fortymile historical calving range and Dall sheep habitat south of Birch Creek occurs in the Wolf Creek (Semi-Primitive) RMZ, which is closed to mineral location, entry, and

leasing. Important wildlife habitats open to mineral location, entry and leasing in Alternative D include a movement corridor to the Preacher Creek Dall sheep mineral lick, historical Fortymile calving/postcalving habitat in both north and south Steese National Conservation Area, current White Mountains caribou calving/postcalving habitat in the north Steese National Conservation Area, and caribou migration habitats. These areas outside the ACEC and open to mineral entry, location, and leasing are also to be managed as Frontcountry and Middlecountry RMZs and summer cross-country OHV use will be allowed. Although activities in these areas are currently not heavy, the combined effects of opening them to mineral location, entry, and leasing and allowance of unrestricted summer OHV use may result in degradation of wildlife habitat in these areas, including reduced use of the Preacher Creek Mineral lick by Dall sheep, reduced likelihood of reestablishing migration to White Mountains calving range by the Fortymile Herd, and reduced calving habitat quality in these areas.

Effects from Wild and Scenic Rivers designation and management are the same as Alternative C.

4.5.1.7.5. Alternative E (Proposed RMP)

Effects from Wildlife

Same as Alternative B, except that a set of management decisions and SOPs will apply to delineated crucial caribou and Dall sheep habitats instead of to a designated ACEC. These management decisions and SOPs will maintain effectiveness of these habitats for supporting caribou and Dall sheep, much as very similar ACEC management provisions would in Alternative C. In alternative E, summer OHV use is not prohibited in any RMZ (it was not allowed in Primitive, Semi-Primitive, or Backcountry RMZs in Alternative C). Management provisions that apply to crucial caribou and Dall sheep habitats will be considered during Travel Management Planning and reduce potential impacts of summer OHVs within the crucial caribou and Dall sheep habitats, in part by limiting use to designated trails. In the caribou migration corridor, OHV use will be managed to "ensure free movement of caribou between upper Birch Creek, the north Steese National Conservation Area, and the White Mountains NRA" but will not necessarily be limited to designated trails, as in Alternatives B and C.

Effects from Forest and Woodland Products

Commercial timber sales would not be allowed in Birch Creek WSR Corridor, RNAs or crucial caribou and Dall sheep habitat (527,000 acres), generally benefiting wildlife by avoiding road and trail development and changes to forest habitats. However, commercial timber salvage sales and personal use of timber are allowed on all lands. In Alternative C, commercial timber sales and commercial timber salvage sales are allowed on all but 72,000 acres.

Effects from Leasable Minerals

All but 30,000 acres of BLM lands in the subunit will remain closed to mineral entry, including the Birch Creek WSR Corridor and all of the Steese National Conservation Area. As in other alternatives, seismic exploration could occur on BLM lands near Circle, resulting in local displacement of wildlife and some fragmentation of habitat.

Effects from Locatable Minerals

All but 30,000 acres of BLM lands in the subunit will remain closed to mineral entry, including the Birch Creek WSR Corridor and all of the Steese National Conservation Area. This will eliminate

potential impacts from Locatable Minerals on Dall sheep and caribou calving habitat in the closed areas other than mining on existing claims. (There are currently about 100 valid mining claims and 10 active mining operations in the National Conservation Area). Placer mining on existing claims will create areas of localized disturbance to riparian and aquatic habitats which feature typically long recovery periods (see Fish and Aquatic Species section 4.3.1.4 for more description of impacts to these habitats), and may result in some road and trail construction needed for access.

Much of the land with high mineral potential in the subunit occurred within a corridor historically used by caribou for migration to calving areas in Beaver and Birch creeks (Map 68). Potential impacts to those habitats from minerals development will be avoided. This will enable BLM to maintain control of road and trail density within that corridor and help to ensure that caribou can freely re-establish a pattern of migration to calving habitats. Significant growth of the Fortymile caribou herd may depend on that expansion of calving range into the White Mountains (Boertje et al. 2012).

The area is already relatively densely roaded and so, by remaining closed to mineral development, a higher density of roads can be avoided.

Effects from Recreation

More lands are designated as Semi-Primitive and Backcountry RMZs than in Alternative C, resulting in fewer facilities and lower levels of recreational use, including motorized use. Most key wildlife habitats are in Primitive, Semi-Primitive, or Backcountry RMZs, with the exception of much of the caribou migration corridor, which includes Middlecountry and Frontcountry RMZs.

Effects from Travel Management

Summer OHV use will be allowed over most of the subunit (except RNAs) and winter OHV use allowed over all of the subunit, including RNAs. Summer OHV travel will not be limited to a set of existing routes (as it was in Alternative C) which will greatly increase impacts and potential impacts to wildlife and wildlife habitat (described in section 4.3.1.12Impacts Common To All Subunits), especially in Middlecountry and Frontcountry RMZs. In those RMZs, cross-country travel will make it difficult to manage density of linear disturbance in the caribou migrations corridor. However, the extent of Primitive and Backcountry RMZs (where motorized use will be limited) is larger than in Alternative C.

Summer OHV use is not precluded in Primitive, Semi-Primitive, and Backcountry RMZs, as it is in other action alternatives, and could result in impacts to wildlife and wildlife habitats. However, summer OHV use will be regulated in order to meet management settings for these RMZs, and could be also be prohibited during Travel Management Planning (which will entail additional NEPA analysis). Effects of summer OHVs in Alternative E will depend on the length of time necessary to complete a Travel Management Plan, because significant expansion of the trail system could occur in that time.

All areas are open for snowmobile use in Alternative E (including RNAs) and extensive off-trail use could potentially impact wildlife, especially caribou winter habitats that are sparsely- or non-forested. There are wildlife management actions in this alternative which call for monitoring of such use and adjusting management when necessary to minimize impacts to caribou and Dall sheep. A Travel Management Plan, which is to be completed within five years could limit cross-country summer OHV travel and limit use.

Snowmachine use will be allowed in RNAs during winter, potentially impacting nesting raptors in the Mount Prindle RNA (gyrfalcon and peregrine falcon) and Dall sheep use of areas of habitat not immediately near extensive escape terrain.

Motorboat use on Birch Creek has been limited by low water levels and narrow channels on the upper end. Motorboat use is common on the lower end, but uncommon upstream in the Steese National Conservation Area, due to distance from the put-in and shallow waters in the Steese National Conservation Area. Rapids below the mouth of Clum's Fork limit most motorboat use. Alternative E is unique in allowing airboats and hovercraft in the Steese National Conservation Area (it is silent on personal watercraft which would be prohibited in Alternatives B–D). Airboats may utilize the South Fork and Birch Creek upstream to near the Clums Fork The rapids below Clums Fork would likely limit passage of airboat traffic upstream, and confined channels may limit use of the upper river by airboats except in high water. Hovercraft could navigate all of the River; could navigate up major tributaries as well, such as the South Fork and Clum's Fork; and could also potentially enter the river from Harrison Creek. Personal watercraft could be very disturbing to wildlife along the river, however, they are not likely to be used in shallow waters of upper Birch Creek and would not likely travel into the Steese National Conservation Area from the lower Birch Creek put-in. See "Effects Common to All Subunits" for a discussion of effects from motorized boats. Allowance of these types of boats within the Steese National Conservation Area would also likely increase traffic of these boat types in the lower portions of Birch Creek National Wild and Scenic River.

Effects from Special Designations

A Steese ACEC is not designated in this alternative. Instead, an area equivalent to the Steese ACEC in Alternative C is delineated as crucial caribou and Dall sheep habitat and very similar (nearly identical) management decisions and SOPs are applied. Wildlife habitat values should be very similarly maintained as those in the Alternative C ACEC, although potentially given slightly lower priority relative to other resources and uses.

4.5.1.7.6. Cumulative Impacts

Cumulative impacts will accrue from BLM management decisions in addition to activities on surrounding lands during and beyond the life of the plan. Cumulative impacts to caribou in Alternatives C and D may potentially be substantial if development reduces the potential for Fortymile caribou to use the historical migration corridor and therefore calving habitats in the north Steese National Conservation Area and White Mountains NRA. There are indications that re-establishment of a pattern of use of the White Mountains NRA and portions of the north Steese National Conservation Area by caribou during calving and summer may be necessary for the Fortymile herd to continue to grow without a decline in nutritional condition. Re-establishing this migratory pattern may be less likely if levels of surface disturbance and human activity are high. This could result from combinations of increased recreational use of the area, increased use of the Steese Highway, high levels of mineral development, and disposal of state lands with associated private land development. Alternatives B and E will maintain mineral withdrawals in the Steese National Conservation Area and minimize potential cumulative impacts from locatable and leasable mineral development to those occurring on existing mining claims and on state and private lands.

More than one third of the delineated migration corridor is comprised of state land that lies on both sides of the Steese Highway and between the north and south units of the Steese National

Conservation Area (Figure 4.6, "Caribou Migration Corridor and Minerals Decisions"). More than a quarter of the state lands currently open to mining claims in this corridor were staked (mostly as lode claims) as of May 2011. Adjacent areas of the Steese National Conservation Area will also be open to both locatable and leasable minerals in Alternatives C and D. Development of minerals in the Steese National Conservation Area could add cumulative impacts to those occurring as a result of mineral and other development on adjacent state lands in and near the identified corridor. The total area open for mineral development ranges from thirty-four percent of the corridor in Alternative B and E(where no BLM lands in the Steese NCA except existing claims are open for mineral development) to fifty-nine percent in Alternative C and eighty percent in Alternative D. The *Reasonably Foreseeable Development* scenario predicted that additional mining activity in the Steese National Conservation Area would not increase substantially under any Alternative, but most of that activity is likely to occur within or near the migration corridor. In addition, impacts beyond the life of the RMP from opening to mineral location and entry could occur because large mines take many years to get started and because mining claims can be maintained indefinitely. Once opened to mineral location and entry, future management options become limited. After mining claims are validly staked, it may be difficult for BLM or the State to manage the area for a level of disturbance which does not reduce caribou use.

Alternative E would avoid increases in direct impacts from locatable or leasable mineral development, by maintaining existing withdrawals in the entire Steese National Conservation Area. Management of OHVs in Alternative E could increase potential cumulative impacts to caribou migration and calving/postcalving habitats, relative to Alternatives B and C. Considering all decisions in Alternative E together, it will be more protective of caribou habitats than all alternatives except B, and will thereby reduce potential cumulative impacts to caribou and other wildlife.

See also section 4.3.1.12 Impacts Common to All Subunits.

4.5.2. Resource Uses

4.5.2.1. Locatable Minerals Steese Subunit

Summary of Effects

Alternative A would not open up any new lands for locatable minerals. Future exploration and development would be limited to existing claims. As claims are lost, new claims could not be restaked and mining activity would decrease over time. Alternatives B, C, D, and E would open up additional land to locatable mineral entry, ranging from 30,000 acres in Alternative E to 682,000 acres in Alternative D. Certain lands remain closed throughout all the alternatives: Birch Creek WSR Corridor, Mount Prindle and Big Windy Hot Springs RNAs, Wolf Creek RMZ, Pinnell Mountain Trail RMZ, Rocky Mountains Uplands RMZ, Steese ACEC, disposal lands, and the BLM's Central Administrative Site. Alternative D would open the Bachelor and Preacher Creek drainages to locatable minerals. This area has mineral potential as well as reasonable access. Economic effects of mineral decisions are discussed in section 4.5.4.1 Economics Steese Subunit.

4.5.2.1.1. Effects Common to All Alternatives

State- and Native-selected lands would remain segregated from mineral entry and location until final land title has been established. New mining operations on withdrawn lands would require a

validity exam prior to approval of a Plan of Operation. All active mining operations would be required to submit a Plan of Operation if the 1,000 ton bulk sample is exceeded (3809.11(b)) or if cyanide is used in the processing of amenable ores. Mining claim surface occupancy is guaranteed, but must remain reasonably incident to the current levels of mining activity. Bonding is required of all mining operations other than those grandfathered under 43 CFR 3809.300 and 43 CFR 3809.400. Reclamation of surface disturbance would be required. Undue and unnecessary degradation would remain the standard for mining operations on BLM lands. The right of reasonable access across BLM lands to unpatented federal mining claims is assured. Cultural resources encountered during surface-disturbing activities are subject to the Antiquities Act (43 CFR 3809.420(b)(8).

Riparian Conservation Areas (RCAs) are being instituted on drainages that have been identified as high priority fish habitat. Additional baseline data would be required in these areas prior to surface disturbance on valid existing claims. Active restoration practices would be developed and implemented in these areas, increasing costs for operators.

4.5.2.1.2. Alternative A (No Action)

Under Alternative A, no withdrawal review would occur and ANCSA 17(d)(1) withdrawals would not be revoked. The BLM would continue to administer new and existing operations on federal unpatented mining claims though Notices or Plans of Operations. However, the potential for future exploration and development would be limited to 5,000 acres of existing mining claims. Overall mining activity would decrease as there would be no opportunity to stake new federal mining claims to offset the claims that disappear. This alternative would offer no process to address existing withdrawals.

4.5.2.1.3. Alternative B

Under Alternative B, 1,233,000 acres in the Steese Subunit would be closed to locatable mineral entry (Map 32), including the Steese National Conservation Area, the Birch Creek WSR, disposal lands, and BLM's Central Administrative Site. There would be 21 RCAs, all in the closed areas. The lands closed to mineral entry include high mineral potential areas. The minerals in these closed areas would not be available for the benefit of society.

The remaining 34,000 acres in the subunit would be available to mineral location. The open lands would include low mineral potential lands near Circle. New claims could be staked on tributaries to Birch Creek or the Yukon River, but would be limited to small-scale operations due to the limited resource potential. This alternative would provide more opportunities than Alternative A, but would still greatly limit mining opportunity.

4.5.2.1.4. Alternative C

Under Alternative C, 993,000 acres in the Steese Subunit would be closed to locatable mineral entry (Map 34), including portions of the Steese National Conservation Area, the Birch Creek WSR, disposal lands, and BLM's Central Administrative Site. There would be 18 RCAs, most of which are within closed areas. The RCA designation would have little effect because all of the RCAs except two near Circle are withdrawn from mineral entry.

Preacher Creek and Bachelor Creek drainages (including some tributaries) would be closed except for valid existing claims. These streams are considered high potential for locatable minerals and

have road access. The minerals located within these drainages, and other areas that would be closed under this alternative, would not be available for the benefit of society. Those minerals would be unrecoverable for the foreseeable future.

Approximately 274,000 acres, or twenty percent of the Steese Subunit, would be available to mineral location under Alternative C, including high mineral potential lands within the northern and western portion of the South Steese National Conservation Area Unit. These areas contain roads and trails which facilitate access. Having available access into these high potential lands would account for the majority of the anticipated 18 small-scale placer operations and nine suction dredge operations.

4.5.2.1.5. Alternative D

Under Alternative D, 585,000 acres (forty-six percent of the Steese Subunit) would be closed to locatable mineral entry, including portions of the Steese National Conservation Area, the Birch Creek WSR, disposal lands, and the BLM's Central Administrative Site (Map 36). These minerals and their benefits to society would remain unavailable for the foreseeable future.

There would be eight RCAs, mostly along Birch Creek. Parts of the RCAs are within closed areas. The RCAs in areas recommended to be open would restrict placer mining. RCA designation would increase operational costs due to required pre-disturbance documentation and enhanced reclamation requirements. This additional cost for doing business would turn many prospective operators away, and recovery of minerals within RCAs would not be available for the benefit for society.

The remaining 682,000 acres (fifty-four percent) of the subunit would be open to locatable minerals, including Bachelor and Preacher creeks. These accessible and high mineral potential lands would account for the majority of the 24 anticipated small-scale placers and 12 suction dredge operations.

4.5.2.1.6. Alternative E (Proposed RMP)

Under Alternative E, 1,237,000 acres would be closed to locatable mineral entry, including the Steese National Conservation Area, the Birch Creek WSR, RCAs, and the BLM's Central Administrative Site. RCAs would be the same as Alternative B. All RCAs would be closed to mineral entry, even those ouside of the Steese National Conservation Area and Birch Creek WSR Corridor. This alternative would be the most restrictive.

The remaining 30,000 acres in the subunit would be available to mineral location. The open lands include low mineral potential lands near Circle. New claims could be staked on tributaries to Birch Creek or the Yukon River, but would be limited to small-scale operations due to the limited resource potential. This alternative would provide more opportunities than Alternative A, but would still greatly limit mining opportunity.

4.5.2.1.7. Cumulative Impacts

Impacts to locatable minerals that are individually minor may cumulatively reduce exploration and production of commodities from public lands. Factors that affect mineral extraction and prospecting include, but are not limited to, such things as permitting and permitting delays, regulatory policy, public perception and concerns, travel management, transportation, mitigation

measures, proximity to sensitive areas (such as ACECs, RCAs), low commodity prices, taxes, and housing and other necessities for workers. Many of these issues are issues over which the BLM has no control. Most of these issues result in additional costs and/or permitting delays that can individually or cumulatively impact projects.

Public lands that currently have no access could reduce the amount of mineral exploration and development that may occur. Mineral resources on non-BLM lands may not be developed if the adjacent public lands are withdrawn from mineral entry because it may not be economical to develop if only a portion of the deposit is available.

Alternatives B and E in the Steese Subunit would be the most restrictive to mineral development and would result in the greatest cumulative impacts. It proposes the most acres closed to mineral entry, the most areas limited or closed to motorized travel, and the highest protection to other resources. Alternative D would have the least cumulative impact to locatable minerals.

4.5.2.2. Recreation Steese Subunit

Summary of Effects

The proposed alternatives would result in a wide range of possible recreation experiences and activities. Proper resource management, including site-specific measures to protect healthy, functioning watersheds, riparian areas, and associated fish and wildlife habitats, would result in short- and long-term, beneficial impacts to fish and wildlife related recreation. Special designations and management of areas, including ACECs and WSRs, would further protect areas within the subunit, potentially increasing wildlife populations that benefit wildlife viewing, hunting, and fishing opportunities as well as other values such as scenic, geologic and historic which enhance recreational experiences.

Proposed management in ACECs and WSRs would encourage recreation activities of a more non-motorized, Semi-Primitive nature. As the size and scope of these special designations change, opportunities for non-motorized forms of recreation would also change. Proposed management in ACECs and WSRs would impact recreation negatively, if additional restrictions were placed on OHV use or other recreational activities.

The delineation of a SRMA and subsequent Recreation Management Zones, within the Steese National Conservation Area and Birch Creek WSR would protect and enhance recreational resources providing a range of opportunities while encouraging specific targeted outcomes in these areas. Land, and water activities would continue to remain the focus in these designations, including the commonly conducted activities of boating and river based recreation, camping, fishing, hunting, hiking and backpacking, gathering of edible plants and berries, OHV use (both summer and winter), skiing, dogmushing, and other forms of recreation.

Alternative B emphasizes less motorized recreation use in a more primitive setting with experiences of solitude, escape from crowds and enjoying the smells and sounds of nature in a natural landscape. Alternative C provides for multiple recreation opportunities and experiences, while sustaining the recreation-resource base and other sensitive resource values of the subunit. Experiences available for both motorized and non-motorized users include escape from crowds, experiencing nature, and enjoying the smells and sounds of nature in a naturally appearing landscape. Alternative D offers more motorized recreation use and includes the most acreage for cross-country OHV travel. Experiences available for motorized users include experiencing

a naturally appearing landscape in a more developed setting with family or friends groups. Alternative E offers the most Backcountry of all the alternatives.

Table 4.14. Comparison of Recreation Indicators Steese Subunit

Indicator	Alternatives							
	B (acres)		C (acres)		D (acres)		E (acres)	
Special Recreation Management Area	1,246,000		1,246,000		1,246,000		1,246,000	
other BLM lands	36,000		36,000		36,000		36,000	
recreation setting character Class (acres)								
RSC Class	Steese NCA	SRMA	Steese NCA	SRMA	Steese NCA	SRMA	Steese NCA	SRMA
Primitive	1,035,000	1,035,000	3,000	3,000	3,000	3,000	3,000	3,000
Semi-Primitive	0	87,000	436,000	87,000	16,000	103,000	434,000	521,000
Backcountry	124,000	124,000	154,000	154,000	407,000	407,000	488,000	488,000
Middlecoun-try	0	0	452,000	452,000	608,000	609,000	120,000	120,000
Frontcountry	0	0	114,000	114,000	124,000	124,000	114,000	114,000

Semi-Primitive lands within the SRMA but outside the Steese National Conservation Area (NCA) are lands associated with Birch Creek WSR Corridor and the Birch Creek RMZ.

4.5.2.2.1. Alternative A (No Action)

Under continued management, recreation resources would be managed according to the recreation setting character settings (RSC) and on an activity basis with consideration for identifying and meeting recreation experiences. RSC settings are identified as Primitive and Semi-Primitive with little facility development. User groups tend to be small, however, there are no identified target group sizes. The major experiences and benefits managed for include escape personal pressures and crowds, experiencing nature and solitude, and enjoyment of nature. Motorized use is allowed throughout most of the Steese National Conservation Area and on all other lands within the subunit. The National Conservation Area, inclusive of Birch Creek WSR Corridor, is being managed as an SRMA. Birch Creek WSR is not considered part of the Steese National Conservation Area.

Effects from Fish and Aquatic Species

Management activities to protect fish habitat along tributaries of Birch Creek WSR including South Fork and its tributaries, Clums Fork, Sheep Creek, and Harrington Fork, will generally protect resources by restricting surface-disturbing activities. The use of special stipulations to protect crucial habitats may impact recreation by limiting or restricting development and use of these areas.

Effects from Visual Resources

Managing visual resources is an important aspect for recreation resources and experiences of naturalness. Maintaining the natural setting is a key component in each recreation management

unit. The VRM classes protect the recreation opportunities for Primitive and Semi-Primitive RMZs.

The Birch Creek WSR Corridor (69,000 acres), which is not included in the Steese National Conservation Area, is assigned VRM Class I with the objective to preserve the existing character of the landscape yet allow very limited management activities. The level of change to the characteristic landscape should be very low and must not attract attention of a casual observer. This objective allows for facilities development in protection of resources while maintaining the naturalness of the unit and protecting the experience of naturalness and the closeness of nature in a natural landscape.

The Primitive Management Unit (inclusive of Mount Prindle RNA) is assigned a VRM Class II with the objective to retain the existing character of the landscape where the level of change to the characteristic landscape should be low and management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. This allows for some facilities development and users to enjoy the natural sights and sounds of nature in a naturally appearing landscape. Approximately 64,000 acres are managed as VRM Class II.

The Semi-Primitive Management Units (inclusive of Big Windy RNA) are assigned a VRM Class III with an objective to partially retain the existing character of the landscape, where the level of change to the characteristic landscape can be moderate and management activities may attract the attention but should not dominate the view of the casual observer. Changes should repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. This allows for some facilities development and users to enjoy the natural sights and sounds of nature in a naturally appearing landscape. Approximately 1,075,000 acres would be managed as VRM Class III.

VRM Classes are not assigned on the remaining lands (64,000 acres) outside the Steese National Conservation Area and Birch Creek WSR Corridor. Effects on visual resources are evaluated and mitigated on a project-specific basis.

Effects from Wildlife

Wildlife goals of protecting and enhancing wildlife populations and crucial habitat areas within the Steese National Conservation Area would continue to impact recreation. Healthy wildlife populations would benefit wildlife viewing, hunting and trapping activities and experiences of a closeness to nature enhanced by observing wildlife. The biggest impacts to recreation from wildlife management would be in limiting potential motorized and non-motorized recreational opportunities.

Effects from Forest and Woodland Products

Under Alternative A, personal use of timber is allowed within the Steese National Conservation Area and Birch Creek WSR Corridor (1,211,000 acres), but commercial use of timber is not. Little to no personal use of forest and woodland products has occurred within this area to date. Impacts would depend on the location, size of the area and harvest techniques used but, are assumed to be limited since personal use harvest is limited to small volumes of timber.

Effects from Land and Realty

Land use authorizations within the Steese National Conservation Area such as leases and rights-of-way could indirectly and directly impact recreation resources and experiences of naturalness and escape from crowds and pressures of life, if leases or rights-of-ways were allowed in Primitive or Semi-Primitive Management Units.

Under Alternative A, four transportation corridors have been identified within the Steese National Conservation Area. To the extent possible, rights-of-way would be limited to these corridors. The use of corridors to concentrate use would impact the recreational opportunity in the management units they are located in, but could enhance recreational opportunity in areas where no corridors exist and rights-of-way would be less likely to be authorized.

Both the Montana-Preacher Creek and the Loper Creek transportation corridors are located within a Semi-Primitive Management Unit in the North Steese National Conservation Area. These corridors would impact the naturalness of the area if developments were approved in the corridor. However, they could also provide access to some remote areas enhancing recreation opportunities by making more areas available for primitive type recreational experiences of solitude and escape from crowds. These corridors could impact up to 20,000 acres of the Semi-Primitive Management Unit, however impacts would be minimal because the Steese National Conservation Area would remain closed to new mineral entry, and subsequent development and other rights-of-ways would be unlikely.

Both the Great Unknown Creek and the Portage Creek-Buckly Bar transportation corridors are located in the South Steese National Conservation Area Unit, within the Semi-Primitive Management Unit. Both also cross Birch Creek WSR Corridor. These transportation corridors would impact the naturalness of the area if rights-of-way were authorized in the corridor. However, they could also provide access to some remote areas enhancing recreation opportunities by making more areas available for primitive type recreational experiences of solitude and escape from crowds. These corridors could impact up to 33,000 acres of the Semi-Primitive Unit, however impacts would be minimal because the Steese National Conservation Area would remain closed to new mineral entry and subsequent development and other rights-of-ways would be unlikely.

Effects from Minerals

Maintaining the closure to mineral entry and leasing on all lands within the subunit, including lands within the Steese National Conservation Area and Birch Creek WSR Corridor (1,206,000 acres) would protect recreation resources and experiences of naturalness and escape from crowds by not allowing surface-disturbing activities related to mineral development.

Salable minerals such as sand and gravel would continue to be considered throughout the subunit and may impact recreation activities and experiences. Impacts would depend on the location, size and methods of mineral extraction. No known salable materials have been mined within the Steese National Conservation Area or Birch Creek WSR Corridor.

Effects from Recreation

The Steese National Conservation Area and Birch Creek WSR Corridor would continue to be managed for recreation opportunities and experiences based on the recreation setting character and managed as an SRMA but without niche decisions, management objective decisions, primary targeted outcomes, setting character decisions, and implementation framework decision. Management actions would continue to provide for multiple recreation activities within two

recreation setting character classes: 64,000 acres would be managed as Primitive and 1,075,000 acres would be managed as Semi-Primitive. Birch Creek WSR Corridor would continue to be managed as a Primitive area with winter motorized use. Facilities would continue to be built to protect resources and provide for enhancement of activities and experiences.

Lands outside the Steese National Conservation Area and Birch Creek WSR Corridor (69,000 acres) would continue to be managed for custodial actions only to reduce conflicts and protect health and safety of users. No facilities would be constructed for user comforts to enhance activities or experiences.

Effects from Travel Management

The RNAs and the Pinnell Mountain Trail are closed to all motorized use. The Primitive Management Unit (64,000 acres) in the Steese National Conservation Area is closed to summer OHV use, but allows for use of snowmobiles and aircraft. These management prescriptions would limit recreational opportunities but also enhance non-motorized experiences associated with Primitive areas, such as experiences of self-reliance, naturalness and closeness to nature and escape from crowds. These restrictions would negatively impact activities such as hunting and trapping that depend on motorized vehicles for access, and activities that benefit from motorized use such as cross-country skiing and dogmushing where vehicles are used to set trails or tracks.

The travel management prescription for the Semi-Primitive Management Unit in the Steese National Conservation Area (1,075,000 acres) allows summer and winter use of vehicles of 1,500 pounds GVWR and less and use of aircraft. User conflicts may occur and cross-country use with this size of vehicle could impact naturalness.

The Travel management prescription for Birch Creek WSR Corridor (69,000 acres) allows cross-country winter use of snowmobiles of 1,500 pounds GVWR and less and use of aircraft. It is closed to hovercraft and airboats. Recreation users may experiences conflicts between different user groups.

In all management units of the Steese National Conservation Area and in Birch Creek WSR Corridor, a permit or approved plan of operation is required for any type of motorized use that exceeds the travel management prescriptions. Impacts would depend of the size of vehicle, season of travel and area of travel. If permitted, these activities could impact naturalness and solitude for users, or create conflicts between different user groups.

Outside the Steese National Conservation Area and Birch Creek WSR Corridor (64,000 acres), there are no OHV designations. Thus all forms of motorized travel are allowed. Recreation users may experiences conflicts between different user groups.

Impacts from cross-country travel by OHVs would depend vegetation, soil types and season of travel however it is foreseeable that user conflicts will increase between non-motorized users and motorized users in all areas with the allowance of year round cross-country OHV travel. Naturalness will be impacted by cross-country summer OHV travel in areas with poor soils, permafrost and with vegetation types such as tussock tundra, black spruce bogs and black and white spruce forests within riparian zones. user-created non-sustainable travel routes will impact naturalness due to the limitations of vehicles to side hill areas and the tendency of users to travel straight up or down a hill side from valley bottom to ridge line. Naturalness will be impacted by users tendency to braid travel routes in poor soil areas. Solitude may be impacted by motorized use by users participating in non-motorized activities.

Effects from Special Designations

The management of Big Windy and Mount Prindle RNAs (3,000 acres) within the Steese National Conservation Area would continue to protect the natural process and type needs identified for each RNA and would protect recreation resources and experiences of naturalness as well as provide for hiking, climbing, hunting and the enjoyment of an undeveloped hot springs in a Primitive setting (Map 48). Some minor trail development may occur.

Birch Creek WSR (69,000 acres) would continue to be managed by the approved River Management Plan to protect and enhance the values for which it was set aside, free-flowing characteristics and water quality. Continued management would continue to enhance recreation use of the river for high quality multi-day road accessible primitive recreational float-boat experience for the experienced canoeist.

4.5.2.2.2. Alternative B

Alternative B anticipates the lowest level of resource development. Recreation experiences trend towards those dependent on undeveloped to moderately developed activities with small user groups in a natural landscape. The major experiences and benefits managed for include escape personal pressures and crowds, experiencing nature and solitude, and exploration of nature. The RSC ranges from Primitive to Backcountry.

Effects from Fish and Aquatic Species

Impacts to recreation resources by measures to protect and/or restore healthy, functioning watersheds, riparian areas, and associated fish habitats in 21 Riparian Conservation Areas (RCAs) and three High Priority Restoration Watersheds could impact recreation by requiring reclamation through active revegetation and streambank stabilization within three years for all surface-disturbing activities associated with mining. This would enhance the naturalness of previously disturbed areas. Recreation facilities would need to be designed and constructed to meet the Desired Future Conditions for aquatic habitats. Obliteration of recreation facilities would need to include reclamation of disturbed areas using appropriate active revegetation and streambank stabilization techniques. Development of recreation facilities such as trailheads and trails would most likely only impact five acres per developed area. Portions of 17 of the RCAs and portions of all three Restoration Watersheds are within the Steese National Conservation Area.

Effects from Visual Resources

Managing visual resources is an important aspect for recreation resources and experiences of naturalness. Maintaining the natural setting is a key component in every recreation opportunity setting description. Under Alternative B, VRM decisions would protect the recreation experience for both the Primitive RMZs within the Steese National Conservation Area and the Semi-Primitive Birch Creek RMZ.

The Birch Creek RMZ, Pinnell Mountain Trail RMZ, and the RNAs would be assigned VRM Class I, with the objective to preserve the existing character of the landscape yet allow very limited management activities. The level of change to the landscape should be very low and must not attract attention of a casual observer. This objective will allow for facilities development in protection of resources, while maintaining the naturalness and protecting the experience of naturalness and the closeness of nature in a natural landscape. Approximately 106,000

acres would be managed as VRM Class I, including 87,000 acres outside the Steese National Conservation Area.

The Backcountry RMZs and remaining Primitive RMZs, would be assigned a VRM Class II with an objective to retain the existing character of the landscape where the level of change to the characteristic landscape should be low and management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. This will allow for some facilities development and small groups to enjoy the natural sights and sounds of nature in a naturally appearing landscape. Approximately 1,139,000 acres within the Steese National Conservation Area would be managed as VRM Class II.

Visual Resource Management Class IV would be assigned to other BLMlands (45,000 acres) where the objective is to allow for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt would be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements. Recreation activities based on elements of solitude and experiences of naturalness would be impacted by development of these lands from medium to large surface-disturbing activities if seen from the Foreground-Middleground Zone or from an elevated location.

Effects from Wilderness Characteristics

The maintenance of wilderness characteristics on 1,199,000 acres would directly protect the Primitive RMZs (within the Steese National Conservation Area) and the Semi-Primitive Birch Creek RMZ where naturalness and solitude enhance the experiences and enjoyment of the sights and sounds of nature and closeness to the natural environment, and the experiences of escaping from crowds and the pressures of daily life. All of the 1,035,000 acres identified as Primitive are also identified for maintenance of wilderness characteristics (Map 74). Of the 87,000 acres identified as Semi-Primitive, 84,000 acres are also identified for maintenance of wilderness characteristics.

No areas with wilderness characteristics were identified on other BLM lands.

Effects from Wildlife

Wildlife goals of protecting and enhancing wildlife populations and crucial habitat areas within the Steese National Conservation Area would continue to impact recreation. Healthy wildlife populations would benefit wildlife viewing, hunting and trapping activities and experiences of a closeness to nature enhanced by observing wildlife.

Avoidance areas and other restrictions could impact recreational development including possible seasonal or timing closures, location, and limiting the extent of activities or development. Wildlife concerns could make projects more costly, more difficult to accomplish, or projects may not meet recreation objectives after restrictions are applied. The biggest impacts to recreation from wildlife would be in limiting potential motorized and non-motorized recreational opportunities.

The prohibition on the use of domestic goats, sheep and camelids in Dall sheep habitat could impact recreation use by users seeking to use these animals as pack animals as part of their

recreation experience. It is anticipated that this is a small user group but interest has been growing in the lower 48 states.

Effects from Forest and Woodland Products

Under Alternative B, personal use of timber, timber salvage sales, commercial sales, and commercial use of forest products would not be allowed within the Steese SRMA (1,246,000 acres of which 1,142,000 acres are in the Steese National Conservation Area). These management actions would help protect recreation resources and experiences of naturalness and closeness to nature. It is assumed that the use of forest and woodland products would be low within the Steese SRMA (Map 49). Effects under Alternative B would be similar to or lower than under Alternative A.

Personal use of timber under free-use permits, timber salvage sales, commercial sales, and commercial use of forest products would be allowed within other BLM lands (45,000 acres) where impacts to recreation experiences and opportunities would depend on the size of the area and harvest techniques used. It is assumed that the use of forest and woodland products would be low on other BLM lands within the subunit.

Effects from Land and Realty

Land use authorizations such as leases and rights-of-way could indirectly and directly impact recreation resources and experiences of naturalness and escape from crowds and pressures of life, if leases or rights-of-ways were allowed in Primitive, Semi-Primitive and Backcountry recreational opportunity spectrum settings.

Under Alternative B, two transportation corridors within the Steese National Conservation Area, have been identified. To the extent possible, all rights-of-way would be within one of these corridors. The use of corridors to concentrate use would impact the recreational opportunity spectrum settings they are located in, but could enhance other recreational opportunity spectrum settings where no corridors exist and rights-of-way would be less likely to be authorized.

The Montana-Preacher Creek transportation corridor is located within the Preacher Creek RMZ which has a Primitive recreation setting. This corridor would impact the naturalness of the area if rights-of-ways within the corridor were developed. However, it could also provide access to some remote areas enhancing recreation opportunities by making more areas available for primitive type recreational experiences of solitude and escape from crowds. This corridor could impact up to 12,000 acres of the Preacher Creek RMZ, however impacts would be minimal because the Steese SRMA would remain closed to mineral entry and subsequent development and other rights-of-ways would be unlikely.

The Great Unknown Creek transportation corridor is located in the Harrison RMZ with a Backcountry recreation setting, Birch Creek RMZ with a Semi-Primitive setting, and the Wolf Creek RMZ with a Primitive setting. The Backcountry Zone allows for development of facilities as long as they blend with the surrounding landscape. Allowing development within this zone would enhance recreation experiences by providing access. Development of facilities within Semi-Primitive Zone would impact the naturalness of the area, but could be allowed if they are designed to blend with the surrounding landscape. Development of facilities within the Primitive Zone would impact the naturalness of the area; however it could also provide access to remote areas enhancing recreation opportunities by making areas available for primitive type recreation experiences of solitude, escape from crowds and pressures of life, and small groups of generally

three or less. This corridor could impact approximately 12,000 acres of the Backcountry Harrison Creek RMZ, 3,000 acres of the Birch Creek RMZ and 3,000 acres of the Primitive Wolf Creek RMZ, however impacts would be low because the Steese SRMA would remain closed to mineral entry and subsequent development and few rights-of-ways are anticipated in these areas.

Identifying the Steese ACEC and the Research Natural Areas, both within the Steese National Conservation Area, and Birch Creek WSR Corridor (except in the identified transportation corridor) as right-of-way avoidance areas would protect recreation resources and experiences of naturalness on approximately 1,182,000 acres within the Preacher Creek and Wolf Creek Primitive RMZs, Birch Creek Semi-Primitive RMZ and Harrison Backcountry RMZ.

Maintaining the ANILCA withdrawal from locatable mineral entry for the Steese National Conservation Area would enhance the naturalness experience in the all RMZs by not allowing surface disturbance activities associated with mineral development on 1,246,000 acres.

Portions of Birch Creek, Pinnell Mountain and Preacher Creek RMZs would be closed to locatable minerals (18,000 acres). These lands are outside the Steese National Conservation Area and Birch Creek WSR Corridor but are adjacent to these units and the closer would enhance the naturalness experience by not allowing surface disturbance activities associated with mineral development.

Effects from Minerals

Closing the entire Steese SRMA (1,245,000 acres) to leasable minerals, locatable minerals and salable minerals would protect recreation resources and experiences of naturalness and escape from crowds by not allowing surface-disturbing activities related to mineral development. Seismic exploration activities could impact recreation by improving winter access through the clearing of seismic lines. Impacts to naturalness could occur through the clearing of lines for both summer and winter recreation and the experience of escape from crowds would be impacted during seismic operations.

Valid existing mining claims located within Primitive and Backcountry recreational opportunity spectrum setting classes, both within the Steese National Conservation Area, would impact the naturalness of the area and the experience of escape from crowds. Continued mining on 5,000 acres of existing claims would impact recreation under this alternative.

Other BLM lands would be open to fluid and solid mineral leasing, locatable and salable minerals impacting recreation activities by development activities enhancing access but also causing surface disturbance in otherwise natural areas.

Effects from Recreation

Management actions would provide for multiple recreation activities within three recreation setting character settings. 1,035,000 acres would be managed as Primitive in the Preacher Creek, Wolf Creek, Mount Prindle RNA, Big Windy RNA, and Pinnell Mountain RMZs, all within the Steese National Conservation Area. 87,000 acres would be managed as Semi-Primitive in the Birch Creek RMZ while 124,000 acres would be managed as Backcountry in the Harrison RMZ (within the National Conservation Area).

At eighty-three percent the Primitive RMZ accounts for the largest setting, while Semi-Primitive accounts for seven percent (Birch Creek WSR) and the Backcountry RMZ accounts for ten percent. These percentages are indicative of the management emphasis for recreation activities on BLM-managed lands within the subunit and the Steese National Conservation Area. Much of

the SRMA would be managed for the primitive experiences, minimal facilities development for resource protection and small user groups generally of less than three persons. These settings would protect and enhance the experiences of naturalness, escape from crowds and solitude. Semi-Primitive areas would be managed for winter motorized use, rustic and rudimentary facilities development generally constructed using natural materials, and designed to blend with surrounding landscape and small user groups generally of four or fewer persons. Backcountry experiences of motorized use, with small facilities development (approximately three acres for each site developed) generally constructed using naturally appearing materials, and designed to blend with surrounding landscape to support user groups of up to seven people average.

Other BLM lands would not be managed under a recreation setting character setting and would not be managed for an identified range of experiences or activities.

Effects from Travel Management

The Primitive Zones of Preacher Creek, Wolf Creek, and Pinnell Mountain RMZs (all within the Steese National Conservation Area) would be open to non-motorized travel, winter snowmobile travel (1,000 pounds or less curb weight and 50 inches or less width) and aircraft landings without clearing of vegetation, limiting recreational opportunities but enhancing self-reliance, naturalness and closeness to nature and escape from crowds. The RNAs (Mount Prindle RNA, Big Windy RNA) would be managed for non-motorized travel. A permit or approved plan of operation for all forms of OHV (including clearing of vegetation for aircraft landings) use would be required in the Primitive Zones. If permitted, these activities could impact naturalness and solitude for users and the impacts would depend on the size of vehicle, route and season of travel. Closure of 1,034,000 acres (eighty-three percent of the SRMA) to summer OHV use would negatively impact activities such as hunting and trapping that depend on motorized vehicles for access.

The Semi-Primitive Birch Creek RMZ (87,000 acres) and the Backcountry Harrison RMZ (124,000 acres) within the Steese National Conservation Area, would be open to winter use of snowmobiles of 1,000 pounds curb weight and less and 50 inches or less width, limiting recreational opportunities to non-motorized summer OHV access while allowing aircraft landing and motorboats and winter motorized use. Recreation experiences include self-reliance, naturalness and closeness to nature and escape from crowds with minimal facilities. The closure of these areas to summer OHV use would negatively impact motorized assisted activities such as hunting. Aircraft use would be unrestricted and this may directly and indirectly impact naturalness and solitude for users. A permit or approved plan of operation would be required for all other forms of OHV use. If permitted, these activities could impact naturalness and solitude for users. Effects would depend on the size of vehicle, route and season of travel.

Within the Birch Creek WSR Corridor and the Steese National Conservation Area, the use of hovercraft, airboats and personal water craft would not be allowed on BLM determined non-navigable section within the Steese National Conservation Area. The Birch Creek WSR management plan would be amended to allow summer OHV cross-country travel by federally qualified subsistence users (thirty—five percent of the Alaska population) using OHVs equal to or less than 1,000 pound vehicle curb weight with a permit. Opening the river corridor to summer motorized OHV use by federally qualified subsistence users could impact essentially primitive watersheds and shorelines, water quality and the Outstandingly Remarkable Values of scenic and recreation through the development of user-created non-sustainable travel routes. User conflicts may be expected if subsistence access is granted for OHV while restrictions exist for casual users. Impacts would be most likely during hunting season.

Other BLM lands (45,000 acres) would be open to winter use of snowmobiles of 1,000 pounds curb weight and less with a width of 50 inches or less limiting recreational opportunities to non-motorized summer access, while allowing winter motorized use. Recreation users may experiences conflicts between different user groups. Aircraft use would be unrestricted and this may directly and indirectly impact users. A permit or approved plan of operation would be required for all other forms of OHV use. If permitted these activities could create conflicts between different user groups. Effects would depend on the size of vehicle, route, and season of travel.

Effects from Special Designations

Designation of 927,000 acres within the Steese National Conservation Area as the Steese ACEC (Map 64) with restrictions and limitations of resource development would protect recreation resources and experiences of naturalness in all underlying RSC settings. Impacts to recreation use may occur if restrictions are placed on facilities development and use in order to maintain caribou and Dall sheep habitat in all RSC settings underlying important habitat.

The management of Big Windy and Mount Prindle RNAs, within the Steese National Conservation Area (Map 64) to protect the natural process and type needs identified for each, would protect recreation resources and experiences of naturalness and a closeness to the sights and sounds of nature in these areas identified as Primitive under the RSC. Prohibiting camping associated with recreational activities within the boundaries of the RNAs would impact recreation experiences by not allowing users to camp in close proximity to the area of activity, increasing travel time and the possible creation of unsustainable social routes as people hike over the same route to access climbing areas and enjoy hot spring areas.

One additional river segment, Big Windy Creek, totaling 14 miles within the Steese National Conservation Area, would be recommended for designation to the National Wild and Scenic Rivers System as a "wild" river (Map 74). The designation of this river by Congress would ensure the protection and enhancement of the outstandingly remarkable scenic, wildlife, and geologic values for which the river was identified, providing long-term, benefits to recreation experiences of naturalness and a closeness to the sights and sounds of nature on 4,500 acres.

Effects from management of Birch Creek WSR would be the same as Alternative A.

4.5.2.2.3. Alternative C

In general, Alternative C anticipates a moderate level of resource development. Recreation experiences trend towards those dependent on moderately developed activities with medium sized user groups in a naturally appearing landscape. The major experiences and benefits managed for include escape personal pressures and crowds, experiencing nature and solitude, and exploration of nature. The RSC ranges from Primitive to Frontcountry.

Effects from Fish and Aquatic Species

Effects would be similar to Alternative B. However, only 18 RCAs and three High Priority Restoration Watersheds would be identified. Portions of 15 of the RCAs and portions of all three Restoration Watersheds are located within the Steese National Conservation Area. Impacts to recreation would occur if these are applied in Backcountry, Middlecountry and Frontcountry RSC settings where development of recreation facilities would most likely occur, and users want to enjoy riparian areas and want developed access to water sources.Development of recreation

facilities such as campgrounds, trailheads, and trails would most likely only impact five acres per developed area.

Effects from Visual Resources

As in Alternative B, managing visual resources is important for maintaining naturalness, and maintaining the natural setting is a key component in every recreation opportunity setting description. Under Alternative C, the VRM decisions would protect the recreation experience for Birch Creek WSR Corridor and the Primitive RMZs within the Steese National Conservation Area, with an assigned VRM Class I objective to preserve the existing character of the landscape yet allow very limited management activities. The level of change to the landscape should be very low and must not attract attention of a casual observer. This objective will allow for facilities development in protection of resources while maintaining the naturalness of the zones and protecting the experience of naturalness and the closeness of nature in a natural landscape. Approximately 102,000 acres would be managed as VRM Class I, including 87,000 acres outside the National Conservation Area.

The Semi-Primitive RMZs within the Steese National Conservation Area (other than Birch Creek RMZ), Backcountry RMZs, and lands with wilderness characteristics would be assigned a VRM Class II with an objective to retain the existing character of the landscape where the level of change to the characteristic landscape should be low and management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. This would allow for some facilities development and small groups to enjoy the natural sights and sounds of nature in a naturally appearing landscape. Approximately 578,000 acres in the Steese National Conservation Area would be managed as VRM Class II.

Visual Resource Management Class IV would be assigned to Middlecountry and Frontcountry RMZs (within the Steese National Conservation Area), and other BLM lands where the objective is to allow for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. Every attempt would be made, however, to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements. Recreation activities based on elements of solitude and experiences of naturalness would be impacted by development of these lands, from medium to large surface-disturbing activities, if visible from the Foreground-Middleground Zone or from an elevated location. Approximately 611,000 acres, including 566,000 acres in the Steese National Conservation Area, would be managed as VRM Class IV.

Effects from Wilderness Characteristics

The maintenance of wilderness characteristics on 647,000 acres would directly protect the Primitive and Semi-Primitive RMZs where naturalness and solitude enhance the experiences and enjoyment of the sights and sounds of nature and closeness to the natural environment, and the experiences of escaping from crowds and the pressures of daily life. All of the 3,000 acres identified as Primitive are also identified for maintenance of wilderness characteristics. Of the 523,000 acres identified as Semi-Primitive, 479,000 acres are also identified for maintenance of wilderness characteristics, including lands within the Birch Creek WSR Corridor. Maintenance of wilderness characteristics in the Backcountry RMZ would protect naturalness and solitude but may limit the development of recreation facilities on 154,000 acres. Approximately 578,000 acres of lands with wilderness characteristics are within the Steese National Conservation Area.

Effects from Wildlife

Under Alternative C, the effects from Wildlife Management would essentially be the same as Alternative B, except the use of domestic goats, sheep and camelids in Dall sheep habitat would be allowed. It is anticipated that this is a small user group but interest has been growing in the lower 48 states.

Effects from Forest and Woodland Products

Under Alternative C, personal use of timber, commercial timber sales, and commercial use of forest products would be allowed on 1,156,000 acres within the SRMA, including most of the Steese National Conservation Area. These management actions could impact recreation resources and experiences of naturalness and closeness to nature in Semi-Primitive and Backcountry Zones. In Middlecountry and Frontcountry Zones, impacts would be less due to the more developed nature of these settings. Impacts would depend on the size of the area and harvest techniques used, but would likely be limited in scope, due to lack of valuable timber and lack of demand.

Timber salvage sales could be considered on 1,245,000 acres within the SRMA, with impacts dependent on the location, size of the area and harvest techniques used. It is assumed that demand for salvage sales would be low and impacts would be correspondingly low.

Personal use of timber, timber salvage sales, commercial timber sales, and commercial use of forest products would be allowed within other BLM lands where impacts to recreation experiences and opportunities would depend on the size of the area and harvest techniques used. It is assumed that the use of forest and woodland products would be low on other BLM lands and thus impacts would also be low.

Effects from Land and Realty

Land use authorizations such as leases and rights-of-way could indirectly and directly impact recreation resources and experiences of naturalness and escape from crowds and pressures of life if leases or rights-of-ways were allowed in Primitive, Semi-Primitive and Backcountry recreational opportunity spectrum settings (679,000 acres of which 87,000 acres are outside the Steese National Conservation Area).

Two transportation corridors within the Steese National Conservation Area are identified under this alternative. To the extent possible, all rights-of-way would be limited to these corridors. The use of corridors to concentrate use would impact the recreational opportunity spectrum settings they are located within, but would enhance other recreational opportunity spectrum settings where no corridors exist and rights-of-way may proliferate.

The Montana-Preacher Creek corridor is located within the Middlecountry Preacher Creek RMZ. The corridor would impact the naturalness of the area if it were developed. However; it could also provide access to some remote areas enhancing recreation opportunities by making more areas available for primitive type recreational experiences of solitude and escape from crowds. The corridor could impact up to 10,000 acres of the Preacher Creek RMZ, however impacts would be minimal because the Steese SRMA would remain closed to mineral entry and rights-of-ways associated with mining would be limited.

The Great Unknown Creek corridor is located in the Frontcountry Harrison RMZ, the Semi-Primitive Birch Creek RMZ, and the Middlecountry Clums Fork RMZ. The Middlecountry prescription allows for development of facilities as long as they blend with the surrounding

landscape. Allowing development within this zone would enhance recreation experiences by providing access. Development of facilities within Semi-Primitive Zone would impact the naturalness of the area, but are allowed if they are designed to blend with the surrounding landscape. Other restrictions may apply due to the "wild" river designation. Within the Frontcountry prescription, development of facilities are generally allowed because they enhance recreation opportunities, making areas available for recreation experiences with family and small groups yet allowing for experiences of nature and the escape from crowds and pressures of life. The transportation corridor could impact up to 12,000 acres of the Harrison Creek RMZ, 3,000 acres of the Birch Creek RMZ and 3,000 acres of the Clums Fork RMZ.

Maintaining the ANILCA withdrawal from locatable mineral entry on lands within Big Windy and Mount Prindle RNAs, Birch Creek, Pinnell Mountain, Wolf Creek, Rock Creek and Rocky Mountains RMZs, the Steese ACEC, the Bachelor Creek section of Preacher Creek RMZ, all Riparian Conservation Areas and 1,500 acres of Harrison Creek would enhance the naturalness experience in these areas by not allowing surface disturbance activities associated with mineral development on 955,000 acres all within the Steese National Conservation Area.

Portions of Birch Creek, Pinnell Mountain and Preacher Creek RMZs would be closed to locatable minerals (18,000 acres). These lands are outside the Steese National Conservation Area and Birch Creek WSR Corridor but are adjacent to these units and the closer would enhance the naturalness experience by not allowing surface disturbance activities associated with mineral development.

Effects from Minerals

Closing 992,000 acres to fluid leasable minerals and solid leasable minerals, and locatable minerals would protect recreation resources and experiences of naturalness and escape from crowds by not allowing surface-disturbing activities related to mineral development in the Primitive, Semi-Primitive (87,000 acres within the Birch Creek WSR Corridor), and Backcountry recreational opportunity spectrum settings, the Steese ACEC and the Bachelor Creek portion of Preacher Creek RMZ. The recreation settings would be protected on 751,000 acres within the Steese National Conservation Area. An additional 172,000 acres would be open to fluid and solid leasable minerals with minor constraints, however these constraints would have little impacts to recreational experiences and naturalness.

Seismic exploration activities could impact recreation by improving winter access through the clearing of seismic lines. Impacts to naturalness could occur through the clearing of lines for both summer and winter recreation and the experience of escape from crowds would be impacted during seismic operations.

Closing 69,000 acres to salable minerals would protect recreation resources and experiences of naturalness and escape from crowds by not allowing surface-disturbing activities related to mineral development in the Birch Creek RMZ. The remainder of the SRMA would be open to salable minerals. Impacts recreation resources and experiences of naturalness and escape from crowds would depend on the access, location, and size. It is anticipated that demand for mineral materials in the Steese Subunit would be met from sources on state land and that most sales would be located close to roads. No new mineral sales on BLM lands are anticipated.

Other BLM lands would be open to leasable, locatable and salable minerals, impacting recreation activities by development activities enhancing access but also causing surface disturbance in otherwise natural areas.

Effects from Recreation

Management actions would provide for multiple recreation activities within five Zones. The Mount Prindle and Big Windy RNAs (3,000 acres) would be managed as Primitive, all within the Steese National Conservation Area. The Rock Creek, Wolf Creek, Birch Creek and Pinnell Mountain RMZs (523,000 acres) would be managed as Semi-Primitive, all within the Steese National Conservation Area except 99,000 acres of the Birch Creek RMZ. The Rocky Mountain Uplands RMZ (154,000 acres) would be managed as Backcountry, also within the Steese National Conservation Area. The Preacher Creek and Clums RMZs, would be managed as Middlecountry (452,000 acres), the Harrison RMZ (114,000 acres) would be managed as Frontcountry, all within the Steese National Conservation Area.

The Primitive Zone (less than one percent) accounts for the smallest setting, while Semi-Primitive accounts for forty-two percent. The Backcountry zone accounts for twelve percent. The Middlecountry Zone accounts for thirty-six percent and Frontcountry accounts for nine percent.

These percentages are indicative of the management emphasis for recreation activities on BLM-managed lands within the subunit. Less than one percent of the SRMA would be managed for the Primitive experiences, minimal facilities development for resource protection and small user groups generally of three or fewer persons. This setting would protect and enhance the experiences of naturalness, escape from crowds and solitude. Semi-Primitive areas would be managed for winter motorized use, rustic and rudimentary facilities development generally constructed using natural materials, and designed to blend with surrounding landscape and small user groups generally of four or fewer persons. Backcountry experiences of motorized use, with small facilities development (approximately three acres) generally constructed using naturally appearing materials, and designed to blend with surrounding landscape to support user groups of up to seven people average. Middlecountry is the second largest setting and would be managed for cross-country winter use and summer motorized use on designated routes, some development of medium sized facilities (generally less than five acres per site), opportunities for larger group activities or party sizes in a partially modified landscape. Experiences of escape from pressures, crowds and exploration of areas could occur in larger groups of 10 people average with more developed facilities. The Frontcountry setting would be managed for cross-country winter and summer motorized use on designated routes, some development of larger sized facilities (over five acres per site), opportunities for larger group activities or party sizes in a partially modified landscape. Experiences of escape from pressures, crowds and exploration of areas could occur in larger groups of 12 people average with more developed facilities.

Other BLM lands would not be managed under a recreation setting character setting and would not be managed for an identified range of experiences or activities.

Effects from Travel Management

Travel management prescriptions for the Primitive Zones of Mount Prindle and Big Windy RNAs would allow non-motorized travel and aircraft landings without clearing of vegetation, limiting recreational opportunities but enhancing self-reliance, naturalness and closeness to nature and escape from crowds. A permit or approved plan of operation would be required for all forms of OHV use (including clearing of vegetation for aircraft landings), which could impact naturalness and solitude for users. Impacts would depend on the size of vehicle, route and season of travel. Closure of these areas (3,000 acres) to OHV use would negatively impact activities such as hunting and trapping that depend on motorized vehicles for access, and activities that

benefit from motorized use such as cross-country skiing and dogmushing where vehicles are used to set trails or tracks.

Travel management prescriptions for the Semi-Primitive Zones of Birch Creek, Pinnell Mountain, Rock Creek and Wolf Creek RMZs, and the Backcountry Rocky Mountain Uplands RMZ, would allow winter use of snowmobiles of 1,000 pounds curb weight and less and 50 inches or less in width, limiting recreational opportunities to non-motorized summer OHV access, while allowing winter motorized use and motorboats. Aircraft use would be unrestricted and this may directly and indirectly impact naturalness and solitude for users. A permit or approved plan of operation would be required for all other forms of OHV use. If permitted, these activities could impact naturalness and solitude for users and would depend on the size of vehicle, route and season of travel. Closure of 680,000 acres in these areas to summer OHV use would negatively impact motorized assisted activities such as hunting. All of these areas except 99,000 acres of the Birch Creek RMZ are located within the Steese National Conservation Area.

Within the Birch Creek WSR Corridor and the Steese National Conservation Area, the use of hovercraft, airboats and personal water craft would not be allowed. above the confluence of Birch Creek and the South Fork of the Yukon Fork of Birch Creek.

The Middlecountry Zones of Preacher Creek and Clums RMZs, and the Frontcountry Harrison RMZ would be open to cross-country winter use of snowmobiles of 1,000 pounds curb weight and less with a width of 50 inches or less, and summer use of vehicles 1,000 pounds curb weight and less and a width of 50 inches or less on existing routes only, except for game retrieval. These management actions would limit recreational opportunities for cross-country summer travel. Recreation users may experience conflicts between different user groups. Aircraft use would be unrestricted and this may directly and indirectly impact naturalness and solitude for users. A permit or approved plan of operation would be required for all other forms of OHV use. Impacts would depend of the size of vehicle, season of travel and area of travel. If permitted these activities could create conflicts between different user groups. Restricting summer use to existing routes would negatively impact summer motorized activities such as hunting and free riding on 566,000 acres.

Other BLM lands (45,000 acres) would be open to winter use of snowmobiles of 1,000 pounds curb weight and less with a width of 50 inches or less, and summer use of vehicles with a 1,000 pounds curb weight and less with a width of 50 inches or less on existing routes only, except for game retrieval. This prescription would limit recreational opportunities such as hunting and free riding. Recreation users may experiences conflicts between different user groups. Aircraft use would be unrestricted and this may directly and indirectly impact users. A permit or approved plan of operation would be required for all other forms of OHV use. Impacts would depend of the size of vehicle, season of travel and area of travel. If permitted these activities could create conflicts between different user groups.

Effects from Special Designations

Designation of 460,000 acres as the Steese ACEC (Map 66) with restrictions and limitations of resource development would protect recreation resources and experiences of naturalness in all underlying RSC settings. All of the Steese ACEC is within the Steese National Conservation Area. Impacts to recreation use may occur if restrictions are placed on facilities development and use in order to maintain caribou and Dall sheep habitat and mineral licks in all RSC settings underlying important habitat and mineral licks sites.

The management of Big Windy and Mount Prindle RNAs (3,000 acres) within the Steese National Conservation Area, to protect the natural process and type needs identified for each RNA, would protect recreation resources and experiences of naturalness and a closeness to the sights and sounds of nature in these areas which are identified as Primitive (Map 65). Allowing camping associated with recreational activities within the RNAs would enhance recreation experiences by allowing users to camp in close proximity to the area of activity, some short unsustainable social routes may develop as people hike over the same route to access climbing areas and enjoy hot spring areas.

Effects from management of Birch Creek WSR would be the same as Alternative A.

4.5.2.2.4. Alternative D

In general, Alternative D anticipates the most resource development. Recreation experiences trend towards those dependent on more developed activities with larger sized user groups in a naturally appearing landscape. The major experiences and benefits managed for include escape personal pressures and crowds, experiencing nature, and exploration of nature. The RSC ranges from Primitive to Frontcountry.

Effects from Fish and Aquatic Species

Effects would be similar to Alternatives B and C, but less since only eight RCAs and three High Priority Restoration Watersheds are identified. Portions of seven of the RCAs and portions of all three Restoration Watersheds are located within the Steese National Conservation Area. Impacts to recreation would occur if these are applied in Middlecountry and Frontcountry RSC settings, where development of recreation facilities would most likely occur, and where users want to enjoy riparian areas and want developed access to water sources. Development of recreation facilities such as campgrounds, trailheads, and trails would most likely only impact five acres per developed area.

Effects from Visual Resources

As in Alternative B, managing visual resources is important for maintaining naturalness, and maintaining the natural setting is a key component in every recreation opportunity setting description. Under Alternative D, VRM decisions would protect the recreation experience for the Birch Creek RMZ and Primitive RMZs with an assigned VRM Class I objective to preserve the existing character of the landscape yet allow very limited management activities. The level of change to the characteristic landscape should be very low and must not attract attention of a casual observer. This objective would allow for facilities development in protection of resources while maintaining the naturalness of the zones and protecting the experience of naturalness and the closeness of nature in a natural landscape. Approximately 90,000 acres would be managed as VRM Class I, including 87,000 acres outside the Steese National Conservation Area.

The Semi-Primitive RMZs and Backcountry RMZs would be assigned a VRM Class II with an objective to retain the existing character of the landscape where the level of change to the characteristic landscape should be low and management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. This would allow for some facilities development and small groups to enjoy the natural sights and sounds of nature in a naturally appearing landscape. Approximately 423,000 acres in the Steese National Conservation Area would be managed as VRM Class II.

No RMZs would be assigned a VRM Class III.

Visual Resource Management Class IV would be assigned to Middlecountry and Frontcountry RMZs and other BLM lands where the objective is to allow for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt would be made to minimize the impacts through careful location, minimal disturbance, and repeating the basic elements. Recreation activities based on elements of solitude and experiences of naturalness would be impacted by development of these lands from medium to large surface-disturbing activities if visible from the Foreground-Middleground Zone or from an elevated location. Approximately 778,000 acres, including 733,000 acres in the Steese National Conservation Area, would be managed as VRM Class IV.

Effects from Wilderness Characteristics

The maintenance of wilderness characteristics on 483,000 acres, all within the Steese National Conservation Area, would directly protect Primitive and Semi-Primitive RMZs where naturalness and solitude enhance the experiences and enjoyment of the sights and sounds of nature and closeness to the natural environment, and the experiences of escaping from crowds and the pressures of daily life. Of the 3,000 acres identified as Primitive, one-hundred percent is identified for maintenance of wilderness characteristics. Of the 103,000 acres identified as Semi-Primitive, 71,000 acres are identified for maintenance of wilderness characteristics. Additionally, wilderness characteristics would be maintained in the Wolf Creek Backcountry RMZ (325,000 acres). Maintenance of wilderness characteristics in the Backcountry RMZ would protect naturalness and solitude but may limit the development of recreation facilities on 407,000 acres. Approximately 483,000 acres of lands with wilderness characteristics are within the Steese National Conservation Area.

No areas with wilderness characteristics were identified on other BLM lands.

Effects from Wildlife

Same as Alternative C.

Effects from Forest and Woodland Products

Effects under Alternative D would be similar to Alternative C. The primary difference is that personal of timber products would be considered in a larger area (1,245,000 acres), including the Birch Creek WSR Corridor and the RNAs. Commercial timber sales would be allowed on 1,156,000 acres within the SRMA (excludes the Birch Creek WSR Corridor and the RNAs). These management actions could impact recreation resources and experiences of naturalness and closeness to nature in Semi-Primitive and Backcountry Zones. Impacts would depend on the location, size of the area and harvest techniques used.

Effects from the commercial use of forest products in the SRMA would be the same as Alternative C. Effects from harvest of forest and woodland products on other BLM lands would also be the same as Alternative C.

Effects from Land and Realty

Land use authorizations such as leases and rights-of-way could indirectly and directly impact recreation resources and experiences of naturalness and escape from crowds and pressures of life if allowed in Primitive, Semi-Primitive and Backcountry recreational opportunity spectrum settings. Impacts would depend on the size of the project, use, and associated facilities. No right-of-way avoidance areas or transportation corridors are identified.

Portions of Birch Creek and Pinnell Mountain RMZs would be closed to locatable minerals (17,000 acres). These lands are outside the Steese National Conservation Area and Birch Creek WSR Corridor but are adjacent to these units and the closure would enhance the naturalness experience by not allowing surface disturbance activities associated with mineral development.

Effects from Minerals

Closing 583,000 acres to leasable and locatable minerals would protect recreation resources and experiences of naturalness and escape from crowds by not allowing surface-disturbing activities related to mineral development in the Primitive, Semi-Primitive, and Backcountry recreational opportunity spectrum settings, the Steese ACEC and the Bachelor Creek portion of Preacher Creek RMZ. Of the closed acres, all but 87,000 acres associated with Birch Creek WSR Corridor and 2,000 acres of other lands are located inside the Steese National Conservation Area.

Seismic exploration activities could impact recreation by improving winter access through the clearing of seismic lines. Impacts to naturalness could occur through the clearing of lines for both summer and winter recreation and the experience of escape from crowds would be impacted during seismic operations throughout the subunit including the Steese National Conservation Area.

The entire SRMA (1,246,000 acres) including the Steese National Conservation Area, would be open to salable minerals. Impacts to recreation resources and experiences of naturalness and escape from crowds would depend on the access, location, and size. It is anticipated that demand for mineral materials in the Steese Subunit would be met from sources on state land and that most sales would be located close to roads. No new mineral sales on BLM lands are anticipated.

All other BLM lands would be open to fluid and solid mineral leasing, locatable and salable minerals impacting recreation activities by development activities enhancing access but also causing surface disturbance in otherwise natural areas.

Effects from Recreation

Management actions would provide for multiple recreation activities within five recreation setting character settings. The Mount Prindle and Big Windy RNAs (3,000 acres) would be managed as Primitive, both within the Steese National Conservation Area. The Birch Creek and Pinnell Mountain RMZs (104,000 acres of which 87,000 acres are outside the National Conservation Area) would be managed as Semi-Primitive. The Rocky Mountain Uplands and Wolf Creek RMZs (407,000 acres) would be managed as Backcountry, both within the Steese National Conservation Area. The Preacher Creek and Clums RMZs (608,000) acres would be managed as Middlecountry and the Harrison RMZ (124,000 acres) would be managed as Frontcountry, all within the Steese National Conservation Area.

The Primitive RMZ (less than one percent) accounts for the smallest setting, while Semi-Primitive accounts for eight percent. The Backcountry RMZ accounts for thirty-three percent. The Middlecountry RMZ accounts for forty-nine percent, while Frontcountry accounts for ten percent.

These percentages are indicative of the management emphasis for recreation activities on BLM-managed lands within the subunit. Less than one percent of the SRMA would be managed for the primitive experiences, minimal facilities development for resource protection and small user groups generally of three or fewer persons. This setting would protect and enhance the experiences of naturalness, escape from crowds and solitude. Semi-Primitive areas (eight percent) would be managed for winter motorized use, rustic and rudimentary facilities development generally constructed using natural materials, and designed to blend with surrounding landscape and small user groups generally of four or fewer persons. Backcountry experiences of motorized use, with small facilities development (approximately three acres) generally constructed using naturally appearing materials, and designed to blend with surrounding landscape to support user groups of up to seven people average. Middlecountry is the largest setting (forty-nine percent) and would be managed for cross-country winter use and summer motorized use on designated routes, some development of medium sized facilities (generally less than five acres per site), opportunities for larger group activities or party sizes in a partially modified landscape. Experiences of escape from pressures, crowds and exploration of areas could occur in larger groups of 10 people average with more developed facilities. The Frontcountry setting would be managed for cross-country winter and summer motorized use on designated routes, some development of larger sized facilities (over five acres per site), opportunities for larger group activities or party sizes in a partially modified landscape. Experiences of escape from pressures, crowds and exploration of areas could occur in larger groups of 12 people average with more developed facilities.

Other BLM lands would not be managed under a recreation setting character setting and would not be managed for an identified range of experiences or activities.

Effects from Travel Management

The Primitive Mount Prindle and Big Windy RNAs, both within the Steese National Conservation Area, would be open to non-motorized travel and aircraft landings without clearing of vegetation, limiting recreational opportunities but enhancing self-reliance, naturalness and closeness to nature and escape from crowds. A permit or approved plan of operation would be required for all forms of OHV use (including clearing of vegetation for aircraft landings). If permitted, these activities could impact naturalness and solitude for users. Impacts would depend on the size of vehicle, route and season of travel. Closure of 3,000 acres in these areas to OHV use would negatively impact activities such as hunting and trapping that depend on motorized vehicles for access, and activities that benefit from motorized use such as cross-country skiing and dogmushing where vehicles are used to set trails or tracks.

The Semi-Primitive Zones of Birch Creek (87,000 acres outside the Steese National Conservation Area) and Pinnell Mountain RMZs, and the Backcountry Zones of Rocky Mountain Uplands and Wolf Creek RMZs, would be open to winter use of snowmobiles of 1,000 pounds curb weight and less with a width of 50 inches or less limiting recreational opportunities to non-motorized OHV summer access, while allowing winter motorized use and motorboats. A permit or approved plan of operation would be required for all other forms of OHV use. If permitted, these activities could impact naturalness and solitude for users and would depend on the size of vehicle, route and season of travel. Aircraft use would be unrestricted and this may directly and indirectly impact naturalness and solitude for users. Closure of 510,000 acres to summer OHV use would negatively impact motorized assisted activities such as hunting.

Within the Birch Creek WSR Corridor and the Steese National Conservation Area, the use of hovercraft, airboats and personal water craft would not be allowed. Motorized boats would

not be allowed above the confluence of Birch Creek and the South Fork of the Yukon Fork of Birch Creek.

The Middlecountry Preacher Creek and Clums RMZs and the Frontcountry Harrison RMZ, all within the Steese National Conservation Area, would be open cross-country winter and summer use of vehicles of 1,000 pounds curb weight and less, allowing for both summer and winter motorized use off of existing routes on 733,000 acres. Recreation users may experience conflicts between different user groups. A permit or approved plan of operation would be required for all other forms of OHV use and impacts would depend of the size of vehicle, season of travel and area of travel. If permitted these activities could create conflicts between different user groups. Aircraft use would be unrestricted and this may directly and indirectly impact naturalness and solitude for users.

Other BLM lands (45,000 acres) would be open to cross-country winter and summer use of vehicles of 1,000 pounds curb weight and less, allowing for free travel for recreational activities such as hunting, trapping and free riding. Effects would be similar to the Middlecountry and Frontcountry Zones.

Effects from Special Designations

Designation of 193,000 acres as the Steese ACEC (Map 67), all within the Steese National Conservation Area, with restrictions and limitations of resource development would protect recreation resources and experiences of naturalness in all underlying RSC settings. Impacts to recreation use may occur if restrictions are placed on facilities development and use in order to maintain caribou and Dall sheep habitat and mineral licks in all RSC settings underlying important habitat and ungulate mineral lick sites.

Effects from RNAs would be the same as Alternative C. Effects from management of Birch Creek WSR would be the same as Alternative A.

4.5.2.2.5. Alternative E (Proposed RMP)

In general, Alternative E represents a mix and variety of actions that best resolves issues and concerns in consideration of all values and programs of all the alternatives. Under this alternative recreation experiences trend towards those dependent on more rustic activities with smaller sized user groups in a naturally appearing landscape. The major experiences and benefits managed for include escape personal pressures and crowds, experiencing nature, and exploration of nature. The RSC ranges from Primitive to Frontcountry.

Effects from Fish and Aquatic Species

Effects would be similar to Alternative B with twenty-one RCAs and four High Priority Restoration Watersheds are identified. Portions of eighteen of the RCAs and portions of all four Restoration Watersheds are located within the Steese National Conservation Area. Impacts to recreation would occur if these are applied in Middlecountry and Frontcountry RSC settings, where development of recreation facilities would most likely occur, and where users want to enjoy riparian areas and want developed access to water sources. Development of recreation facilities such as campgrounds, trailheads, and trails would most likely only impact five acres per developed area.

Effects from Visual Resources

Managing visual resources is important for maintaining naturalness, and maintaining the natural setting is a key component in every recreation opportunity setting description. Under Alternative E, VRM decisions would protect the recreation experience for the Birch Creek RMZ and Primitive RMZs with an assigned VRM Class I objective to preserve the existing character of the landscape yet allow very limited management activities. The level of change to the characteristic landscape should be very low and must not attract attention of a casual observer. This objective would allow for facilities development in protection of resources while maintaining the naturalness of the zones and protecting the experience of naturalness and the closeness of nature in a natural landscape. Approximately 103,000 acres would be managed as VRM Class I, including 87,000 acres outside the Steese National Conservation Area.

The Wolf Creek RMZ (Semi-Primitive), Preacher Creek RMZ and the Pinnell Mountain RMZ (Backcountry) would be assigned a VRM Class II with an objective to retain the existing character of the landscape where the level of change to the characteristic landscape should be low and management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. This would allow for some facilities development and small groups to enjoy the natural sights and sounds of nature in a naturally appearing landscape. Approximately 909,000 acres in the Steese National Conservation Area would be managed as VRM Class II.

No RMZs would be assigned a VRM Class III.

Visual Resource Management Class IV would be assigned to Bachelor Creek and Clums RMZs (Middlecountry) and Harrison RMZ (Frontcountry) and other BLM lands where the objective is to allow for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt would be made to minimize the impacts through careful location, minimal disturbance, and repeating the basic elements. Recreation activities based on elements of solitude and experiences of naturalness would be impacted by development of these lands from medium to large surface-disturbing activities if visible from the Foreground-Middleground Zone or from an elevated location. Approximately 260,000 acres, including 234,000 acres in the Steese National Conservation Area, would be managed as VRM Class IV.

Effects from Wilderness Characteristics

Under Alternative E, no lands would be managed to protect wilderness characteristics as a priority over other resource values and multiple use. Wilderness characteristics would be maintained on 1,009,000 acres, or eighty percent of lands having wilderness characteristics, by limiting activities that impact wilderness characteristics of size, naturalness and outstanding opportunities for solitude or primitive and unconfined recreation. OHV use would be allowed on all lands subject to weight limits. The remaining 249,000 acres (twenty percent) would be managed for other resources as priority over protecting wilderness characteristics.

No areas with wilderness characteristics were identified on other BLM lands.

Effects from Wildlife

Under Alternative E, the effects from Wildlife Management would essentially be the same as Alternative B, except the use of OHVs for cross-country travel would be allowed unless that use

interferes with free movement of caribou within the caribou migration corridor. Protection of the caribou migration corridor may have greater impacts on the development of recreation facilities, especially linear trails or roads within portions of Bachelor Creek and Clums (Middlecountry), Pinnell Mountain, Birch Creek and Wolf (Semi-Primitive) and Harrison (Frontcountry) RMZs.

Designation of 457,000 acres as crucial caribou and Dall sheep habitat (Map 67), all within the Steese National Conservation Area, with restrictions and limitations of resource development would protect recreation resources and experiences of naturalness in all underlying RSC settings. Impacts to recreation use may occur if restrictions are placed on facilities development and use in order to maintain crucial caribou and Dall sheep habitat and mineral licks in all RSC settings underlying important habitat and ungulate mineral lick sites. Crucial caribou and Dall sheep habitat is closed to cross-country summer OHV travel, except by permit. Where crucial caribou and Dall sheep habitat overlaps with RMZs, the closure will apply. This impacts thirty-seven percent of the SRMA, within portions of Bachelor Creek, Pinnell Mountain, Preacher Creek and Wolf Creek RMZs.

Effects from Forest and Woodland Products

Effects under Alternative E would be similar to Alternative D. Personal use of timber would be allowed on all lands within the subunit (1,282,000 acres). Commercial timber salvage sales would be allowed on all lands within the subunit (1,282,000 acres). Commercial timber sales (large and small) would be allowed on 720,000 acres within the SRMA (excludes the Birch Creek WSR Corridor, the RNAs, and crucial caribou and Dall sheep habitat ; 526,000 acres).

Effects from the commercial use of forest products in the SRMA would be greater than any other alternative, impacting the entire subunit (1,282,000 acres). Effects from harvest of forest and woodland products on other BLM lands would also be the same as Alternative C.

These management actions would impact recreation resources and experiences of naturalness and closeness to nature in Semi-Primitive and Backcountry Zones the greatest, but would impact all RMZs. Impacts would depend on the location, size of the area and harvest techniques used. Personal use of timber products would potentially impact all RMZs, especially areas close to the Steese Highway and other access areas through the harvest of both black and white spruce for firewood and house logs. Black spruce and white spruce forest areas with easy summer and winter access could be clear-cut for personal use. The most likely areas impacted would be Birch Creek, Bachelor, Clums and Harrrison RMZs.

Effects from Land and Realty

Land use authorizations such as leases and rights-of-way could indirectly and directly impact recreation resources and experiences of naturalness and escape from crowds and pressures of life if allowed in Primitive, Semi-Primitive and Backcountry recreational opportunity spectrum settings. Impacts would depend on the size of the project, use, and associated facilities. No right-of-way avoidance areas or transportation corridors are identified.

Effects from Minerals

Under Alternative E, 1,237,000 acres would be closed to fluid and solid mineral leasing, and locatable minerals protecting recreation values within the Steese National Conservation Area and Birch Creek WSR. All other BLM lands except riparian conservation areas (30,000 acres), would be open to fluid and solid mineral leasing, and locatable minerals impacting recreation activities

by development activities enhancing access but also causing surface disturbance in otherwise natural areas. Opened lands would be subject to Standard Lease Terms, Fluid Mineral Leasing Stipulations and Standard Operating Procedures.

Closing 1,237,000 acres to leasable and locatable minerals would protect recreation resources and experiences of naturalness and escape from crowds by not allowing surface-disturbing activities related to mineral development in all recreational opportunity spectrum settings.

Seismic exploration activities could impact recreation by improving winter and summer access through the clearing of seismic lines. Impacts to naturalness could occur through the clearing of lines for both summer and winter recreation and the experience of escape from crowds would be impacted during seismic operations throughout the subunit including the Steese National Conservation Area.

Under this alternative, all BLM-managed lands (1,213,000 acres) except for the Birch Creek WSR Corridor, would be open to salable minerals. The Steese National Conservation Area would be open to salable minerals. Impacts to recreation resources and experiences of naturalness and escape from crowds would depend on the access, location, and size. It is anticipated that demand for mineral materials in the Steese Subunit would be met from sources on state land and that most sales would be located close to roads. No new mineral sales on BLM lands are anticipated.

Effects from Recreation

Management actions would provide for multiple recreation activities within five recreation setting character settings. The Mount Prindle and Big Windy RNAs (3,000 acres) would be managed as Primitive, both within the Steese National Conservation Area. The Birch Creek, Pinnell Mountain and Wolf Creek RMZs (521,000 acres of which 87,000 acres are outside the National Conservation Area) would be managed as Semi-Primitive. The Preacher Creek RMZ (488,000 acres) within the Steese National Conservation Area would be managed as Backcountry. The Bachelor Creek and Clums RMZs (120,000) acres would be managed as Middlecountry and the Harrison RMZ (114,000 acres) would be managed as Frontcountry, all within the Steese National Conservation Area.

The Primitive RMZ (less than one percent) accounts for the smallest setting, while Semi-Primitive accounts for forty-two percent. The Backcountry RMZ accounts for thirty-nine percent. The Middlecountry RMZ accounts for ten percent, while Frontcountry accounts for nine percent. These percentages are indicative of the management emphasis for recreation activities on BLM-managed lands within the subunit. Less than one percent of the SRMA would be managed for Primitive experiences, minimal facilities development for resource protection and small user groups generally of three or fewer persons and allow for winter motorized use of vehicles weighing 1,000 pounds curb weight or less and 50 inches or less in width. This setting would protect and enhance the experiences of naturalness, escape from crowds and solitude, except when OHVs were present and through the development of user-created non-sustainable winter travel routes. Primitive areas are closed to motorized summer use under all other alternatives. Camping and trail development would also be allowed in the Research Natural Areas, previously closed to these activities.

Semi-Primitive areas (forty-two percent) would be managed for winter and summer cross-country OHV use with vehicles weighing 1,000 pounds or lesscurb weight with a width of 50 inches or less, small user groups generally of up to four persons, rustic and rudimentary facilities development generally constructed using natural materials, and designed to blend with

surrounding landscape and small user groups generally of four or fewer persons. Opening Semi-Primitive areas to summer OHV use will impact naturalness through the development of user-created non-sustainable travel routes and impact solitude when OHVs are present.

Backcountry experiences allow motorized use, with small facilities development (approximately three acres) generally constructed using naturally appearing materials, and designed to blend with surrounding landscape to support user groups of up to seven people average. Winter and summer cross country OHV use with vehicles weighing 1,000 pounds curb weight or less with widths of 50 inches or less would impact naturalness though the development of user-created non-sustainable travel routes.

Middlecountry is the largest setting (forty-nine percent) and would be managed for cross-country winter and summer motorized use by vehicles weighing 1,000 pounds or less curb weight with a width of 50 inches or less, some development of medium sized facilities (generally less than five acres per site), opportunities for larger group activities or party sizes in a partially modified landscape. Experiences of escape from pressures, crowds and exploration of areas could occur in larger groups of 10 people average with more developed facilities. Cross country OHV use would impact naturalness though the development of user-created non-sustainable travel routes.

The Frontcountry setting would be managed for cross-country winter and summer motorized use by vehicles weighing 1,000 pounds curb weight or less with a width of 50 inches or less, some development of larger sized facilities (over five acres per site), opportunities for larger group activities or party sizes in a partially modified landscape. Experiences of escape from pressures, crowds and exploration of areas could occur in larger groups of 12 people average with more developed facilities. Cross country OHV use would impact naturalness though the development of user-created non-sustainable travel routes.

Crucial caribou and Dall sheep habitat is closed to cross-country summer OHV travel, except by permit. Where crucial caribou and Dall sheep habitat overlaps with RMZs, the closure will apply. This impacts 457,000 acres (37 percent of the SRMA) within portions of Bachelor Creek, Pinnell Mountain, Preacher Creek and Wolf Creek RMZs.

It is foreseeable that user conflicts will increase between non-motorized users and motorized users in all RMZs with the allowance of year round cross-country OHV travel. Naturalness in all RMZs will be impacted by cross-country summer OHV travel in areas with poor soils, permafrost and with vegetation types such as tussock tundra, black spruce bogs and black and white spruce forests within riparian zones. user-created non-sustainable travel routes will impact naturalness due to the limitations of vehicles to side hill areas and the tendency of users to travel straight up or down a hill side from valley bottom to ridge line. Naturalness will be impacted by users tendency to braid travel routes in poor soil areas. Solitude will be impacted by motorized use in areas previously closed to summer and/or winter by allowing more people to potentially access the area and by noise from motorized vehicles with dbA levels reaching 108 dbA.

Other BLM lands would not be managed under a recreation setting character setting and would not be managed for an identified range of experiences or activities.

Effects from Travel Management

The Primitive Mount Prindle and Big Windy RNAs, both within the Steese National Conservation Area, would be open to non-motorized travel, cross-country winter OHV (equal to or less than 1,000 pound vehicle curb weight with a width of 50 inches or less), and aircraft landings, allowing

a full range of recreational opportunities but reducing self-reliance, naturalness and closeness to nature and escape from crowds. Opening 3,000 acres in these areas to winter OHV use could negatively impact activities such as hiking, backpacking and primitive camping through disturbances to vegetation and positively impact activities such as hunting and trapping that depend on motorized vehicles for access, and activities that benefit from motorized use such as cross-country skiing and dogmushing where vehicles are used to set trails or tracks.

The Semi-Primitive Zone of Birch Creek (100,000 acres total with 32,100 acres outside the Steese National Conservation Area) would remain open to OHVs (equal to or less than 1,000 pound vehicle curb weight and width of 50 inches or less) winter cross-country travel by all users. The river corridor would also be open to the use of hovercraft, airboats and personal water craft. Noise from airboat and hovercraft use is in the range of 90–108 dbA, similar to a chain-saw at 110 dbA, and rock concerts at 110–120 dbA. Noise levels of these types of watercraft will have a negative impact on recreational float boaters. Thought noise levels would appear to be temporary in nature as the vehicles passes by, in actuality a floater or anyone on the uplands above the river will hear these watercraft from great distances due to the structure of the river valley. The ability to use amphibious water craft like an airboat will increase the opportunity to transport OHV's into areas that have not seen previous OHV travel, especially during the hunting seasons. This may cause user conflicts but is more likely to increase user-created trails on the south side of Birch Creek extending into the Wolf Creek RMZ.

The Pinnell Mountain National Recreation Trail within the Pinnell Mountain RMZ would remain closed to all OHV use.

The Semi-Primitive Wolf Creek RMZ (405,000 acres), and the Backcountry Zone of Preacher Creek RMZ (488,000 acres) would be open to cross-country winter and summer use of OHVs (1,000 pounds curb weight and less with a width of 50 inches or less) allowing a full range of recreational opportunities but reducing self-reliance, naturalness and closeness to nature and escape from crowds. Aircraft use would be unrestricted and this may directly and indirectly impact naturalness and solitude for users.

The Middlecountry Bachelor Creek (31,000 acres) and Clums (89,000 acres) RMZs and the Frontcountry Harrison RMZ (114,000 acres), all within the Steese National Conservation Area, would be open to cross-country winter and summer use of vehicles of 1,000 pounds curb weight and less and 50 inches or less width, allowing for both summer and winter motorized use on 733,000 acres. Recreation users may experience conflicts between different user groups. A permit or approved plan of operation would be required for all other forms of OHV use and impacts would depend of the size of vehicle, season of travel and area of travel. If permitted these activities could create conflicts between different user groups but mitigations could be applied through the NEPA process. Aircraft use would be unrestricted and this may directly and indirectly impact naturalness and solitude for users.

Crucial caribou and Dall sheep habitat is closed to cross-country summer OHV travel, except by permit. Where crucial caribou and Dall sheep habitat overlaps with RMZs, the closure will apply. This impacts 457,000 acres (37 percent of the SRMA) within portions of Bachelor Creek, Pinnell Mountain, Preacher Creek and Wolf Creek RMZs.

Impacts would depend vegetation, soil types and season of travel however it is foreseeable that user conflicts will increase between non-motorized users and motorized users in all RMZs with the allowance of year round cross-country OHV travel. Naturalness in all RMZs will be impacted by cross-country summer OHV travel in areas with poor soils, permafrost and with vegetation

types such as tussock tundra, black spruce bogs and black and white spruce forests within riparian zones. user-created non-sustainable travel routes will impact naturalness due to the limitations of vehicles to side hill areas and the tendency of users to travel straight up or down a hill side from valley bottom to ridge line. Naturalness will be impacted by users tendency to braid travel routes in poor soil areas. Solitude will be impacted by motorized use in areas previously closed to summer and/or winter by allowing more people to potentially access the area and by noise from motorized vehicles.

Other BLM lands (45,000 acres) would be open to cross-country winter and summer use of vehicles of 1,000 pounds curb weight and less with a 50 inche or less width, allowing for free travel for recreational activities such as hunting, trapping and free riding. Effects would be similar to the Middlecountry and Frontcountry Zones.

Effects from Withdrawals

Same as Alternative B.

Effects from Special Designations

Under Alternative E, the RNAs would be open to OHV use of 1,000 pounds curb weight or less for both winter cross-country travel. These areas have previously been closed to all OHV travel. Both RNAs will also be open to camping and trail development which has previously been prohibited. These changes will negatively impact activities that benefit from motorized use such as cross-country skiing and dogmushing where vehicles are used to set trails or tracks.

In Alternative E, the river corridor would also be open to the use of hovercraft, airboats and personal water craft. Opening Birch Creek WSR to hovercraft, airboats and personal watercraft could impact essentially primitive watersheds and shorelines, water quality and the Outstandingly Remarkable Values of Scenic and Recreation though the development of upland camping areas by motorized users during high water events, allowing easier access by OHVs carried in motorized watercraft to shorelines essentially primitive, and result in abandoned equipment as inexperienced motorized users travel upstream beyond their experience or water levels quickly recede from high levels.

4.5.2.2.6. Cumulative Impacts

The effects of past, present and future actions, including the demand for recreational use, changes to the landscape as a result of surface-disturbing activities, and area closures or restrictions for resource protection, could affect recreation management in the Steese Subunit.

The demand for recreational use in the Steese Subunit is anticipated to increase by ten to fifteen percent over the life of the plan, due to general population increases, increases in recreation-related technology, and shifts from other public use areas where visitors are experiencing crowding. This use would occur for both non-motorized (such as hiking, backpacking, hunting, float-boating, river-based recreation, camping, fishing, and gathering of edible plants and berries) and motorized (such as OHV use, including snowmobiles) activities, resulting in changes to the natural landscape and experiences of solitude, escape from crowds and experiences of the sights and sounds of nature. As use increases, there is potential for increasing conflicts among recreationalists seeking similar experiences through different activities, generally between non-motorized users and motorized users, but also conflicts between different uses such as mineral development and recreation.

Surface-disturbances resulting from mineral activities, forestry and unmitigated OHV use could cumulatively affect recreational users if activities were concentrated in heavily recreated areas and if activities overlapped in duration. Effects to recreation as a result of these cumulative effects may include the potential dislocation of wildlife for hunting and viewing purposes, and/or the alteration of naturally appearing, scenic viewsheds.

Special designations, including ACECs and WSRs, would further protect the Steese Subunit, by increasing wildlife numbers that benefit wildlife viewing, hunting, and fishing opportunities. As the size and scope of these areas change, opportunities for land and water based recreation uses that incorporate scenic viewsheds as part of the experience would also change. However, as areas that require special management attention, to prevent irreparable damage to historic, cultural and scenic values, the need for additional restrictions could limit motorized use and other recreational activities and experiences.

Implementing each alternative would contribute to a significant change to recreational opportunities on public lands with Alternative B limiting motorized use and enhancing the primitive experience for non-motorized use, Alternative C balancing motorized and non-motorized use and Alternative D enhancing motorized use and more developed recreation opportunities.

4.5.2.3. Travel Management Steese Subunit

Summary of Effects

Effects on travel management from the proposed alternatives would result in a wide range of possible outcomes. Site-specific measures to protect and preserve recreation resources and other sensitive resource values, including fish and wildlife, soil, water, Special Status Species, and cultural and paleontological resources, could result in seasonal or permanent route restrictions or closures. Surface-disturbing activities, caused by forestry and mineral actions, could affect travel management through the expansion of the existing transportation network.

Alternative C would provide the greatest range of motorized and non-motorized recreation experiences, while protecting area resources and minimizing user conflicts. It would be followed by Alternative B, then A and E, with Alternative D having the most potential for resource impacts and conflict among users.

Table 4.15. Comparison of OHV Designations: Steese Subunit

Area Designation	Alternative									
	A		B		C		D		E	
	Acres	%*	Acres	%*	Acres	%*	Acres	%*	Acres	%*
Year-round										
Undesignated	55,000	4	0	0	0	0	0	0	0	0
Open	0	0	0	0	0	0	0	0	0	0
Closed	3,000	<1	3,000	<1	3,000	<1	3,000	<1	0	0
Limited	1,224,000	96	1,279,000	99.8	1,279,000	99.8	1,279,000	99.8	1,288,000	100
Winter (October 15 through April 30)										

Area Designation	Alternative									
	A		B		C		D		E	
	Acres	%*	Acres	%*	Acres	%*	Acres	%*	Acres	%*
Limited: Cross-country use of vehicles 1,000 pounds curb weight and less allowed	1,224,000	96	1,279,000	99.8	1,279,000	99.8	1,279,000	99.8	1,288,000	100
Summer (May 1 through October 14)										
Limited: Cross-country use of vehicles 1,000 pounds curb weight and less allowed	1,082,000	84	0	0	0	0	769,000	60	1,137,000	89
Limited: Existing Routes and 1,000 pounds curb weight and less (except for game retrieval)	0	0	0	0	611,000	47	0	0	0	0
Limited: Closed to summer OHV use[b]	142,000	11	1,288,000	99.8	677,000	53	510,000	40	145,000	11

*Percent of the lands within the Steese Subunit (1,282,000 acres), include 14,000 acres of state inholdings in the Steese NCA. Management would not apply to state land unless acquired by BLM.

[b]Additive to lands under a year-round Closed Area Designation

All of the Steese National Conservation Area will either be Limited or Closed OHV designation under Alternatives B, C, D and E.

4.5.2.3.1. Effects Common to All Alternatives

Effects from Locatable Minerals

Placer mining activities have the potential to affect travel and transportation management through the expansion of the existing route network. The construction of winter roads and trails for mineral development would provide a direct benefit to OHV users through the enhancement of public access opportunities. These effects would be the highest under Alternative D, followed by Alternatives C, B, and A.

Effects from Travel Management

Under all alternatives, travel management actions would continue to provide for a range of motorized and non-motorized opportunities, while protecting resource values and minimizing user conflicts. This would allow the BLM to sustain and enhance travel opportunities and experiences, visitor access and safety, and resource conservation.

Approximately 200 miles of existing recently used summer routes were identified for interim management (Maps 48, 49, 50, 51, and 52) until a Travel Management Plan can be developed. Since all public lands are required to have OHV area designations, Travel Management Zones (TMZs) were designated as Limited or Closed. No areas were designated as Open. Limited designations may restrict motorized vehicles to existing routes, weight, and/or season of use. Closed designation prohibits off-road vehicle use year round.

Under all alternatives, non-motorized travel (e.g., float-boating, pedestrian, equestrian, and mountain bikes) would continue to be allowed on all BLM lands in the Steese Subunit (1,288,000 acres). There would be no change from current management, and opportunities would continue for visitors who access public lands by float-boat (e.g., rafts, kayaks, and canoes), foot, horse, or bicycle. Fixed-wing and helicopter access would remain generally unrestricted, except in Primitive Zones where landing without a permit would be allowed as long as no clearing of vegetation occurs.

The Steese Subunit would continue to be managed in support of its waterways and non-motorized cross-country travel routes, to provide opportunities of a more primitive nature.

Effects from Special Designations

Under all alternatives, the 126 miles of Birch Creek WSR, as designated through ANILCA, would continue to be managed as a "wild" river pursuant to the WSRA. Management of "wild" rivers, per BLM guidance, would impact travel in Birch Creek WSR Corridor where the construction of new roads, primitive roads, trails, or other provisions for overland motorized travel would not be permitted (BLM 8351 Manual).

Research Natural Areas would be open to non-motorized travel and aircraft landings without clearing of vegetation. Development of non-motorized trails may occur.

4.5.2.3.2. Alternative A (No Action)

Effects from Forest and Woodland Products

Commercial Timber harvest is not allowed in the Steese National Conservation Area. Current levels of timber and forest product harvest for personal use have minimal effects on travel and transportation management. Permits are monitored to ensure that the authorized amounts, locations, and stipulations of the permit have been followed. Proliferation of routes could occur, but stipulations for winter cutting or walk-in only would limit this impact. This program could affect travel management through the expansion of the existing transportation network or if restrictions or emergency closures became necessary, to mitigate impacts to damaged areas.

Effects from Lands and Realty

Maintaining four transportation corridors in the Steese National Conservation Area will allow for concentrated travel within these corridors and could possibly restrict the development of rights-of-ways in other areas. The four corridors cover 53,000 acres. No withdrawal review would occur and the ANCSA 17(d)(1) withdrawals would be retained. This would limit the need for winter overland move routes and summer travel associated with mining to areas with current or historic travel routes. There may be a need for a few additional travel routes associated with current mining claims.

Effects from Recreation

This alternative provides the most motorized public access of any of the alternatives. Travel would remain limited to vehicles 1,500 pounds GVWR and less, except for RNAs, which are closed to OHV use. Thus, while this alternative would offer the most opportunities for recreational activities that involve the use of motorized travel, including hunting and OHV riding; fewer opportunities would exists for recreational users seeking a primitive, non-motorized type of experience.

Effects from Travel Management

This alternative would provide motorized and mechanized public access, as travel and transportation would continue to manage 1,082,000 acres (eighty-four percent) as limited to summer-motorized use and 1.2 million acres (ninety-nine percent) as limited to winter-motorized use. Only the RNAs (3,000 acres) are closed to OHV use. Limited only by weight (1,500 pounds GVWR and less), this alternative would provide for those users seeking cross-country motorized activities. 55,000 acres are undesignated with no limitations in place.

Under this alternative, an increased user-created routes expected throughout the SRMA. An additional 300 miles of user-created routes would be expected over the life of the plan. This increase averages out to the creation of 10 miles of routes per year. These routes would be between 4 feet to over 12 feet wide depending on vegetation and other landscape parameters. Total area impacted could be from 145 acres to less than 436 acres. With improvements to vehicles and increased populations, it is reasonable to assume that route creation would continue or more likely exceed the 10 miles per year over the life of the plan resulting in over 600 miles of user-created routes impacting from 290 to less than 872 acres or less than 1 percent of the Steese National Conservation Area. However, these routes would likely be concentrated in certain areas but would gradually extend further into the Steese National Conservation Area from existing routes. People are willing to travel over 80 miles on user-created travel routes in order to access favorite areas.

Areas of concentration in the South Unit would likely be Upper and Lower Birch Creek Waysides and the Birch Creek River Corridor with a Semi-Primitive RMZ during snow seasons. Additional concentration areas within the Frontcountry Zone from Great Unknown, Fryingpan, Harrison, and Portage creeks (all within the Harrison Creek RMZ) could be expected to occur during all seasons. Within Middlecountry Zones, Volcano, Clums Fork, Harrington Fork, all within the Clumz RMZ could see additional concentrated use with new routes created especially from Harrington Fork area due to increased winter travel and those routes being converted to summer OHV routes.

Areas of concentration in the North Unit would likely be from Bachelor, Preacher, American and Convert Creeks, and Loper Creeks. Access to the Mount Prindle RNA and the Mount Prindle Primitive area would be open to winter activities and could see substantial route development. Winter routes will be used during snowfree seasons by OHVs because they are cleared and easier to travel, with some illegal use occurring during the fall hunting seasons.

It is expected that conflicts between user groups would increase under this alternative between non-motorized users and motorized users. Primitive and Semi-Primitive experiences could be impacted as users expecting solitude and a more primitive experience come in contact with motorized use and visible changes to the natural landscape from cross-country summer and winter motorized use.

Typically, winter routes in the Steese SRMA are more likely to be positioned near valley bottoms where there are more trees, the snow tends to be deeper and less drifting occurs, but the soil structure tends to be highly organic, soft, wet and underlain by permanently frozen ground. Vegetation types tend to be tussock tundra and black spruce and/or white spruce forest within the riparian zone. Whereas, summer routes designed for OHV use are typically developed in the higher elevations, out of the valley bottoms where the soils tend to be drier and shallower, drainable, and more conducive to such uses. user-created access to these higher areas tend to be straight up the hillside from valley bottom to ridge top — it is difficult to side hill on summer OHVs. User-created routes tend to be non-sustainable and it would be extremely difficult to

get equipment south of Birch Creek to perform repairs or reclamation, due to the distance and poor soil conditions.

Disturbance of the tussock tundra by OHVs results in compression of the tundra mat. The compression lessens the insulation, thereby melting the permafrost and causing the compressed area to subside or sink. The subsidence, caused by the compression of the organic layer, then will pool or channel water which causes erosion and a noticeable scar on the landscape for decades. Once water pools and erosion occurs on the route, OHV's will try to avoid these areas and begin route braiding, further impacting the soils and the landscape. Over the life of the plan it can be assumed that over 300 miles of user-created routes would be developed as people try to push further and further into the back country.

There is minimal summer use of OHVs within the Birch Creek WSR corridor, though some illegal activity does occur occasionally. Nearly zero use has occurred in the summer south of the Birch Creek WSR corridor as it has difficult access. Signing, education and law enforcement presence would need to be increased and has not prevented unauthorized use within the corridor by some individuals in the past.

The Fortymile caribou herd has been utilizing the Steese SRMA for summer and winter seasons the past few years. The Steese National Conservation Area (Unit 25C) is part of Zone 4 of the Fortymile Caribou Management Area. The Fortymile caribou herd is highly sought after by both subsistence and non-subsistence hunters. Impacts will vary depending on where the herd is located as caribou migrations are very difficult to predict. Previous experience has shown that wherever the caribou herd is present during both fall and subsistence hunting seasons, there is a lot of hunting pressure. The Pinnell Mountain National Recreation Trail and surrounding highlands as well as Birch Creek WSR are typical caribou habitat, so when the herd is nearby, one could expect hundreds of hunters coming into the Steese SRMA for both the regular fall hunting season and any additional federal subsistence hunts. Birch Creek WSR Corridor is also a very popular moose hunting area.

As other public lands close or restrict use such as limiting the use of airboats and other lands become unavailable to recreational activities due to privatization, use on BLM-managed lands will likely result in greater concentration of users, new uses with undocumented and unknown impacts and conflicts between users for limited resources.

4.5.2.3.3. Alternative B

Effects from Forest and Woodland Products

Effects would be similar to those identified under Alternative A, except personal use of timber, commercial/salvage timber sales, and commercial forest product harvest would not be allowed within the Steese SRMA (inclusive of the Steese National Conservation Area). On all other lands, 45,000 acres, these uses would be considered. Effects would be negligible.

Effects from Lands and Realty

Under Alternative B, relinquishing two of the transportation corridors could limit access to parts of the Steese National Conservation Area for rights-of-way (ROW), recreation, mining and other possible transportation activities. However, rights-of-way (ROW) could still be authorized, even without a designated transportation corridor. ROW could be more dispersed throughout the National Conservation Area, rather than being limited to a corridor. The Montana Creek to

Preacher Creek Corridor and the Great Unknown Creek Corridor would remain, covering 29,000 acres.

The Steese ACEC, Birch Creek WSR Corridor, and RNAs would be a ROW avoidance areas, potentially limiting future transportation routes. Effects would likely be minimal due the anticipated lack of demand for ROW within these areas.

Effects from Recreation

The RSC setting provides a framework for identifying the types of recreation activities that the public might desire and is directly related to the travel and transportation management opportunities available in those areas. The RSC setting for this alternative would maintain twenty percent (87,000 acres in Semi-Primitive and 124,000 acres in Backcountry RMZs) of the Steese Subunit as Semi-Primitive and Backcountry. The remaining eighty percent (1,035,000 acres in Primitive RMZs) would be managed for a Primitive experience. Since RMZs and Travel Management Zones (TMZs) are delineated with the same boundaries under each alternative and were designed to complement one another, impacts from recreation are expected to be minimal.

Federally qualified subsistence users would be allowed summer cross-country travel throughout the subunit with a permit. Effects of this alternative include increased user-created routes expected throughout the SRMA but especially within the RNAs and Birch Creek WSR Corridor, which have been closed to summer OHV use since 1986. An addition of over 300 miles of user-created routes would be expected over the life of the plan. This increase averages out to the creation of 10 miles of routes per year. These routes are between 4 feet to over 12 feet wide depending on vegetation and other landscape parameters. Total area impacted could be from 145 acres to less than 436 acres. With improvements to vehicles and increased populations, it is reasonable to assume that route creation would continue or more likely exceed the 10 miles per year over the life of the plan resulting in over 600 miles of user-created routes impacting from 290 to less than 872 acres or less than 1 percent of the Steese National Conservation Area. However, these routes would likely be concentrated in certain areas but would gradually extend further into the Steese National Conservation Area from existing routes. People are willing to travel over 80 miles on user-created travel routes in order to access favorite areas.

Areas of concentration in the South Unit would likely be Upper and Lower Birch Creek Waysides and the Birch Creek River Corridor with a Semi-Primitive RMZ. Access to the Birch Creek River Corridor during the spring, summer and fall would be new legal access for 7 percent of the surrounding area population eligible for subsistence activities since the corridor has previously been closed to OHVs except during the winter months and it is expected that there will be a substantial increase in OHV routes especially from the river itself with OHVs being transported on motorized boats. Additional concentration areas within the Frontcountry Zone from Great Unknown, Fryingpan, Harrison, and Portage creeks (all within the Harrison Creek RMZ) could be expected to occur. Within Middlecountry Zones, Volcano, Clums Fork, Harrington Fork, all within the Clumz RMZ could see additional concentrated use with new routes created especially from Harrington Fork area due to increased winter travel and those routes being converted to summer OHV routes.

Areas of concentration in the North Unit would likely be from Bachelor, Preacher, American and Convert Creeks, Faith, Sourdough, and Loper Creeks. Access to the Mount Prindle RNA would be year-round for the 7 percent of the area populations eligible for subsistence activities and should see substantial route development. Winter only travel is allowed for the 93 percent of the population adjacent to the planning area since the Mount Prindle area has been closed to all

OHVs. Access to the Mount Prindle Primitive area would be year-round with weight limits for all users and should see a substantial increase in OHV routes since this area has been closed to OHVs except during the winter months. Winter routes will be used during snowfree seasons by OHVs because they are cleared and easier to travel.

It is expected that conflicts between user groups would increase under this alternative, especially between federally qualified subsistence users and non-subsistence users as one group access areas closed to other users. Other conflicts could occur between non-motorized users and motorized users within the Birch Creek WSR and along the Pinnell Mountain National Recreation Trail. Primitive and Semi-Primitive experiences could be impacted as users expecting solitude and a more primitive experience come in contact with motorized use. Under this alternative, it is expected that users wanting a quite non-motorized experience may be displaced out of the subunit entirely.

Effects from Travel Management

Under this alternative, 99.8 percent of the Steese Subunit (100 percent of the Steese National Conservation Area) would be designated as limited to no summer OHV use. Winter motorized use of snowmobiles would be allowed on all lands in the subunit except RNAs (99 percent). All other OHV travel would require a permit. The use of hovercraft, airboats and personal watercraft would not be allowed on within Birch Creek WSR and the Steese National Conservation Area. Impacts related to any access is detailed above.

Effects from Special Designations

Under Alternative B, the Steese ACEC (927,000 acres within the Steese National Conservation Area) would be subject to restrictions to winter motorized use if necessary to protect wildlife habitat.

Big Windy Creek (4,500 acres), within the Steese National Conservation Area, could be added to the NWSR as a “wild” river where no construction of new roads, trails or other provisions for overland motorized travel would be permitted within the river corridor.

4.5.2.3.4. Alternative C

Effects from Forest and Woodland Products

Effects would be similar to those identified under Alternative A, except personal use of timber and commercial timber sales would be allowed on ninety-three percent of the subunit. Only Birch Creek WSR and the RNAs would be closed to these uses. Commercial use of forest products (e.g., berries, bark) would be considered on ninety-nine percent of the subunit, only the RNAs would be closed. These activities would require either temporary winter access or more permanent summer access for both large and small motorized vehicles.

Effects from Lands and Realty

Same as Alternative B, except there would be no ROW avoidance areas.

Effects from Recreation

Similar to Alternative B, the BLM would continue to manage public lands for a variety of recreational activities within all RSC settings with similar effects. The RSC setting for Alternative

C establishes forty-seven percent (including 452,000 acres Middlecountry, 114,000 acres Frontcountry, and 36,000 acres other BLM-managed lands) of the subunit as limited (i.e., 1,000 pounds curb weight and less, existing routes except for game retrieval) to summer-motorized experiences, while fifty-three percent (523,000 acres Semi-Primitive, 154,000 acres Backcountry, and 3,000 acres Primitive) would be limited to winter OHV use only. In contrast, during the winter, 99.8 percent of the subunit would be available to the winter use of snowmobiles, while 0.2 percent (Primitive RMZs) would be closed. Compared to Alternative B, fewer opportunities would exist for recreational users seeking primitive, non-motorized experiences, while more opportunities would be available for recreational activities that involve the use of motorized travel.

Effects from Travel Management

Under this alternative, ninety-nine percent of the subunit would be designated as Limited for OHV use with seasonal and weight restrictions. Less than one percent would be designated as Closed to OHV use. Winter motorized use of snowmobiles would be allowed on ninety-nine percent of the subunit; fifty-three percent would be closed to summer OHV travel. Summer motorized use of OHVs would be limited to existing routes on forty-seven percent of the subunit. All other OHV travel could be authorized by permit. The use of hovercraft, airboats and personal watercraft would not be allowed on within Birch Creek WSR and the Steese National Conservation Area on "wild" river segments above the confluence of Birch Creek and the South Fork of the Yukon Fork of Birch Creek. This alternative offers more opportunity for motorized travel and access than Alternative B, but less than Alternative A.

Effects from Special Designations

Under Alternative C, a smaller Steese ACEC (460,000 acres) would be subject to restrictions to winter motorized use if necessary to protect wildlife habitat. No new rivers would be considered for designation. Effects on travel management would be less than under Alternative B.

4.5.2.3.5. Alternative D

Effects from Forest and Woodland Products

Effects would be similar to those identified under Alternative A. Under Alternative D, personal use of timber and timber salvage sales would be considered throughout the subunit and commercial timber sales would be allowed on ninety-three percent. Commercial use of forest products would be allowed on ninety-nine percent of the subunit, only the RNAs would be closed to this type of use. These activities would require either temporary winter access or more permanent summer access for both large and small motorized vehicles.

Effects from Lands and Realty

Under Alternative D, no transportation corridors would be designated. ROW would be considered throughout the subunit (1,275,000 acres), potentially resulting in additional access.

Effects from Recreation

Similar to Alternative C, the BLM would manage for a variety of recreational activities within all RSC settings. Effects would be similar to those identified under Alternative B. Under Alternative D, the RSC setting establishes sixty percent of the subunit (including 609,000 acres Middlecountry, 124,000 acres Frontcountry, and 36,000 other BLM-managed lands) as limited

(1,500 pounds curb weight and less) to summer-motorized experiences, while forty percent (3,000 acres Primitive, 103,000 acres Semi-Primitive, and 407,000 acres Backcountry) would remain limited to winter OHV use only. In contrast, during the winter months, 99.8 percent of the subunit would be available to the winter use of snowmobiles, while 0.2 percent (3,000 acres Primitive RNA) would remain closed. Thus, while this alternative would offer the least opportunities for recreational users seeking primitive, non-motorized experiences, more opportunities would exist for recreational activities that involve the use of motorized travel, when compared to Alternatives B and C.

Effects from Travel Management

Same as Alternative C, ninety-nine percent of the Steese Subunit would be designated as Limited for OHV use; less than one percent would be designated as Closed to OHV use. Winter motorized use of snowmobiles would be allowed on ninety-nine percent of the subunit; cross-country summer motorized use of OHVs would be allowed on sixty percent. Only Primitive, Semi-Primitive and Backcountry RMZs (forty percent) would be closed to summer OHV use. Other OHV travel would be considered by permit only. The use of hovercraft, airboats and personal watercraft would not be allowed on within Birch Creek WSR and the Steese National Conservation Area on "wild" river segments above the confluence of Birch Creek and the South Fork of the Yukon Fork of Birch Creek.

Effects from Special Designations

Under Alternative D, the Steese ACEC (193,000 acres) would be subject to restrictions to winter motorized use if necessary to protect wildlife habitat. Effects would be less than Alternative C as the ACEC would be smaller.

4.5.2.3.6. Alternative E (Proposed RMP)

In general, Alternative E represents a mix and variety of actions that best resolves issues and concerns in consideration of all values and programs of all the alternatives. This alternative allows the greatest use of OHVs with weight limits and motorized water craft at the expense of non-motorized uses .

Effects from Wilderness Characteristics

Under Alternative E, no lands would be managed to protect wilderness characteristics as a priority over other resource values and multiple use. Wilderness characteristics would be maintained on 1,009,000 acres, or eighty percent of lands having wilderness characteristics, by limiting activities that impact wilderness characteristics of size, naturalness and outstanding opportunities for solitude or primitive and unconfined recreation. OHV use would be allowed on all lands subject to weight limits. The remaining 249,000 acres (twenty percent) would be managed for other resources as priority over protecting wilderness characteristics.

Effects from Forest and Woodland Products

Effects would be similar to those identified under Alternative A. Under Alternative E, personal use of timber, commercial timber salvage sales and commercial use of forest products would be considered throughout the subunit. Commercial timber sales would be allowed on fifty-eight percent of the subunit but not allowed within the Birch Creek WSR Corridor, the RNAs or crucial

caribou and Dall sheep habitat (529,000 acres). These activities would require either temporary winter access or more permanent summer access for both large and small motorized vehicles.

Effects from Lands and Realty

Under Alternative E, no transportation corridors would be designated. ROW would be considered throughout the subunit (1,267,000 acres), potentially resulting in additional access.

Effects from Recreation

Under Alternative E, the BLM would manage for a variety of recreational activities within five different RSC settings within the Steese SRMA. Under this alternative, the RSC setting establishes 3,000 acres as Primitive (less than 1 percent), 537,000 acres as Semi-Primitive (42 percent), 488,000 acres as Backcountry (39 percent), 120,000 acres as Middlecountry (10 percent), 114,000 acres as Frontcountry (9 percent), and 36,000 other BLM-managed lands. The entire subunit would be limited by weight (1,000 pounds curb weight and less) for all OHV use with additional restrictions applied to different user groups.

This alternative would offer the least opportunities for recreational users seeking primitive, non-motorized experiences, more opportunities would exist for recreational activities that involve the use of motorized travel, when compared to Alternatives B, C and D.

Effects from Travel Management

Under Alternative E, 100 percent of the Steese Subunit would be designated as Limited by weight to 1,000 pounds curb weight or less for OHV use. Winter motorized use of snowmobiles would be allowed on 100 percent of the subunit; cross-country summer motorized use of OHVs would be allowed on 84percent while the RNAs and the Birck Creek WSR Corridor would be limited to winter OHV use only. The use of hovercraft, airboats and personal watercraft would be allowed on within Birch Creek WSR and the Steese National Conservation Area on “wild” river segments above the confluence of Birch Creek and the South Fork of the Yukon Fork of Birch Creek. This amends the Birch Creek River Management Plan, December 1983.

Effects of this alternative include increased user-created summer and winter routes throughout the SRMA but especially winter routes within the RNAs and Birch Creek WSR Corridor. An addition of over 300 miles of user-created routes would be expected over the life of the plan within the entire SRMA. This increase averages out to the creation of 10 miles of routes per year. These routes are between 4 feet to over 12 feet wide depending on vegetation and other landscape parameters. Total area impacted could be from 145 acres to less than 436 acres. With improvements to vehicles and increased populations, it is reasonable to assume that route creation would continue or more likely exceed the 10 miles per year over the life of the plan resulting in over 600 miles of user-created routes impacting from 290 to less than 872 acres or less than 1 percent of the Steese National Conservation Area. However, these routes would likely be concentrated in certain areas but would gradually extend further into the Steese National Conservation Area from existing routes. People are willing to travel over 80 miles on user-created travel routes in order to access favorite areas.

It is expected that as improvements are made to OHVs, areas previously inaccessible to summer OHVs would see more use resulting in increased user-created routes. There are limited developed routes in Preacher Creek, Clums, and Wolf Creek RMZs. These zones see winter snowmoblie use but very limited summer use due to difficult access.

As snowmachine use increases with new routes being created yearly for hunting, trapping and recreational activities, these routes are being used during snowfree seasons by OHVs because they are cleared and easier to travel.

Typically, winter routes in the Steese SRMA are more likely to be positioned near valley bottoms where there are more trees, the snow tends to be deeper and less drifting occurs, but the soil structure tends to be highly organic, soft, wet and underlain by permanently frozen ground. Vegetation types tend to be tussock tundra and black spruce and/or white spruce forest within the riparian zone. Whereas, summer routes designed for OHV use are typically developed in the higher elevations, out of the valley bottoms where the soils tend to be drier and shallower, drainable and more conducive to such uses. User-created access to these higher areas tend to be straight up the hillside from valley bottom to ridge top — it is difficult to side hill on summer OHVs. User-created routes tend to be non-sustainable and it would be extremely difficult to get equipment south of Birch Creek to perform repairs or reclamation, due to the distance and poor soil conditions.

Disturbance of the tussock tundra by OHVs results in compression of the tundra mat. The compression lessens the insulation, thereby melting the permafrost and causing the compressed area to subside or sink. The subsidence, caused by the compression of the organic layer, then will pool or channel water which causes erosion and a noticeable scar on the landscape for decades. Once water pools and erosion occurs on the route, OHV's will try to avoid these areas and begin route braiding, further impacting the soils and the landscape. Over the life of the plan it can be assumed that over 300 miles of user-created routes would be developed as people try to push further and further into the back country.

The Fortymile caribou herd has been utilizing the Steese SRMA for summer and winter seasons the past few years. The Steese National Conservation Area (Unit 25C) is part of Zone 4 of the Fortymile Caribou Management Area. The Fortymile caribou herd is highly sought after by both subsistence and non-subsistence hunters. Impacts will vary depending on where the herd is located as caribou migrations are very difficult to predict. Previous experience has shown that wherever the caribou herd is present during both fall and subsistence hunting seasons, there is a lot of hunting pressure. The Pinnell Mountain National Recreation Trail and surrounding highlands as well as Birch Creek WSR are typical caribou habitat, so when the herd is nearby, one could expect hundreds of hunters coming into the Steese SRMA for both the regular fall hunting season and any additional federal subsistence hunts. Birch Creek WSR Corridor is also a very popular moose hunting area.

As other public lands close or restrict use such as limiting the use of airboats and other lands become unavailable to recreational activities due to privatization, use on BLM-managed lands will likely result in greater concentration of users, new uses with undocumented and unknown impacts and conflicts between users for limited resources. Opening Birch Creek WSR to airboats, hovercraft, and motorized river boats will likely seeconflicts with non-motorized users. Illegal summer OHV impacts would spread throughout the Birch Creek, Wolf Creek, Big Windy RNA, and Clums RMZs when the transportation of OHV on motorized watercraft occurs within traditionally closed areas.

Motorized watercraft can carry OHVs which will likely result in illegal OHV travel along the riparian zones for recreational activities during the spring and fall seasons. Motorized access above the traditional common 6N-7N township line will open areas previously inaccessible to OHV use such as the south side of Birch Creek and Big Windy Hot Springs. Motorized use

further upriver from the bridge may result in more upland camps and abandoned property as users travel upriver during higher water events and depart quickly with rapidly decreasing water flows. More abandoned equipment and supplies may occur as motorized boats run aground as they reach the limits of safe travel and users travel upriver beyond their skill levels.

Effects from Wildlife

Under Alternative E, crucial caribou and Dall sheep habitat (457,000 acres) would be subject to restrictions to winter motorized use if necessary to protect wildlife habitat. Effects would be the same as Alternative C.

Under this alternative the Big Windy and Mount Prindle Research Natural Areas would be open to all winter snowmobile use and open to summer qualified federal subsistence users with weight limits.

4.5.2.3.7. Cumulative Impacts

The majority of existing routes in the Steese Subunit are the result of user-created routes that follow historic non recreational routes (such as, mining or administrative access) or were created by OHV users repeatedly driving cross-country. Accordingly, many of the existing routes are not sustainable from a resource management perspective, and can cause significant resource damage including, but not limited to, soil compaction, vegetation deterioration, or poor water quality. If not addressed, these impacts will continue to have an effect on travel and transportation management for years to come.

With increased pressures from growing populations and advances in recreational vehicle technology, the Steese Subunit is anticipated to experience a similar growth in travel-related land use and activity participation. Since OHV use accounts for the majority of travel-related activities in the subunit, it is perceived that the demand for this activity will be of greatest concern during the life of the plan. Given its current rate of user increase (approximately ten percent per year), motorized travel could potentially double within the next 10 years. As this occurs, the need for trails and mechanisms for managing these trails will become necessary.

Other lands in the subunit are managed by federal (NPS and USFWS), state, Native, and private entities. As a result, the rules and regulations governing the use of OHVs may differ slightly, when compared to BLM-managed lands. For instance, the State of Alaska generally restricts OHVs to 1,500 pounds curb weight and allows cross-country travel in most areas as long as use does not cause or contribute to resource degradation. The BLM generally restricts OHVs to 1,00 pounds curb weight and under Alternatives B and C, would limit travel to existing routes and trails. This may lead to some confusion, if riders are unaware that they have crossed the boundary of a different management agency or entity. Consequently, a proliferation of user-created routes could occur along the boundaries of BLM lands.

4.5.3. Special Designations

4.5.3.1. Wild and Scenic Rivers Steese Subunit

Summary of Effects

Under all alternatives, the Birch Creek WSR will continue to be managed to protect the free-flowing characteristics of the river, water quality and Outstandingly Remarkable Values. Outstandingly remarkable values for Birch Creek are scenic, recreation, and fish populations and habitat.

Management actions that protect the naturalness of the landscape such as wilderness characteristics, protection of fish and wildlife habitats, protection of vegetation, and recreation management for more primitive experiences will help protect many of the Outstandingly Remarkable Values of river systems.

Alternative B is the only alternative where river segments are recommended for inclusion to the National Wild and Scenic Rivers System (NWSR). Big Windy Creek is recommended with Outstandingly Remarkable Values of scenic, geologic, and wildlife populations and habitat.

4.5.3.1.1. Alternative A (No Action)

No additional river segments are identified suitable for inclusion to the NWSR. Under this alternative, the BLM would not recommend that Congress designate any river segments. Birch Creek WSR would continue to be managed to protect water quality, free-flowing characteristics and important river values.

4.5.3.1.2. Alternative B

In general, this alternative anticipates a lower level of resource development and is the only alternative where river segments are determined to be suitable for inclusion to the NWSR. The BLM would recommend that Congress designate one segment. This recommendation would influence the Congressional decision and increase the likelihood of permanent legislative protection. Decisions are evaluated for effect on identified Outstandingly Remarkable Values, free-flowing character and water quality.

Through the Wild and Scenic Rivers Inventory (Appendix E, *Wild and Scenic Rivers Inventory*) the BLM has determined which rivers and streams are suitable for inclusion in the NWSR. Within the Steese Subunit, Big Windy Creek was determined to be suitable with a classification of "wild." Outstandingly remarkable values are scenic, geologic and wildlife. Any segments determined to be suitable must be managed for the protection of its Outstandingly Remarkable Values and free-flowing nature until such time as Congress acts upon the determination finding and either designates the river segment in the NWSR or removes it from consideration. If the segment is removed from consideration by Congress, the BLM would manage the segment according to the management provisions of the RMP. The determination of suitable is a policy determination.

Effects from Air and Atmospheric Values

Protection and enhancement of air resources that would continue to promote visually clear skies and maintain good visibility would protect outstandingly remarkable scenic values.

Effects from Cave and Karst Resources

Protection of cave resources located adjacent to or within the river corridor would protect outstandingly remarkable scenic and geologic values.

Effects from Cultural and Paleontological Resources

Surface-disturbing activities (e.g., site excavation) have the potential to directly and indirectly impact water quality, and indirectly impact outstandingly remarkable scenic, geologic and wildlife habitat values.

Effects from Soil, Vegetation, and Water Resources

Management of soil resources, vegetative communities, and watersheds for a properly functioning condition within riparian zones, uplands, wetlands and aquatic areas would directly and indirectly enhance water quality and outstandingly remarkable scenic and wildlife habitat values.

Effects from Visual Resources

"Wild" river segments would be managed as a VRM Class I with the objective to preserve the existing character of the landscape and provide for natural ecological changes. Very limited management activities may occur where the level of change to the characteristic landscape is very low and must not attract attention. This would protect outstandingly remarkable scenic values.

Effects from Wilderness Characteristics

The maintenance of wilderness characteristic would directly protect outstandingly remarkable scenic values, the free-flowing characteristics and water quality.

Effects from Wildland Fire Ecology and Management

Wildland fires have the potential to destroy or harm wildlife habitat and populations, affecting the outstandingly remarkable wildlife values.

Effects from Wildlife

Management of a naturally functioning ecosystem would directly and indirectly protect outstandingly remarkable scenic and wildlife populations and habitat values and enhance water quality.

Effects from Lands and Realty

Land use authorizations, such as leases and rights-of-way, could indirectly and directly impact outstandingly remarkable scenic, geologic and wildlife populations and habitat values, directly impact free-flowing characteristics, and indirectly impact water quality if authorized across or along the river segment.

Effects from Recreation

Big Windy Creek is located within the Primitive Wolf Creek RMZ. Minimal facilities development would occur within this RMZ. Currently, there are a few small groups of recreation users who visit the segment and visitation is expected to remain low due to the remoteness. Visitors to the area may impact outstandingly remarkable geologic and wildlife values by visiting the hot springs. Facilities may directly impact scenic quality and indirectly impact water quality, however they would be designed to blend with the surrounding landscape characteristics and to not adversely affect water quality.

Effects from Travel Management

Unrestricted non-motorized travel could directly impact outstandingly remarkable scenic values and water quality with the development of social travel routes. Restricted motorized travel could directly and indirectly impact water quality and outstandingly remarkable wildlife values by allowing motorized access to remote areas. Motorized use may directly impact outstandingly remarkable scenic values and indirectly impact outstandingly remarkable geologic values with the development of travel routes.

Effects from Special Designations

Designation of 927,000 acres as the Steese ACEC, with restrictions and limitations on resource development, would protect outstandingly remarkable scenic, geologic, and wildlife population and habitat values and indirectly enhance water quality due to limitations and restrictions to development.

Big Windy Creek, totaling 14 miles and 4,500 acres, would be recommended for designation to the NWSR. The designation of this river by Congress would provide for greater protection of overall river values and of outstanding remarkable river values specifically. The amount of protection is dependent on the classification of the river segment. Management of suitable rivers would be coordinated with the State of Alaska.

The management of Big Windy RNA would protect outstandingly remarkable scenic, geologic and wildlife populations and habitat values because of it designation as a right-of-way avoidance area, and prohibitions on mining, off-road vehicles, and camping. These management actions would also directly and indirectly enhance water quality.

Effects from Hazardous Materials

Environmental remediation activities such as the removal of surface or buried wastes from abandoned sites and removal of contaminated soils could directly and indirectly enhance water quality and outstandingly remarkable scenic and wildlife values depending on the location of these activities.

Effects from Subsistence

Harvest of subsistence resources such as timber and other forest products may directly and indirectly impact the outstandingly remarkable scenic and wildlife values if collection of these resources occurs within the river corridor.

4.5.3.1.3. Alternative C

Under Alternative C no additional rivers segments suitable for inclusion to the NWSR have been identified. The BLM would not recommend that Congress designated any additional river segments. Birch Creek would continue to be managed to protect water quality, free-flowing characteristics and identified Outstandingly Remarkable Values of scenic, recreation and fish populations and habitat.

4.5.3.1.4. Alternative D

Same as Alternative C.

4.5.3.1.5. Alternative E (Proposed RMP)

Same as Alternative C.

4.5.3.1.6. Cumulative Impacts

Past, present and reasonably foreseeable actions that are relevant to Wild and Scenic Rivers management include mining, oil and gas development, increases in motorized use on both water and adjacent lands, utility and transportation rights-of-way, recreation use, travel management, and use restrictions to protect wildlife, fisheries and vegetative resources.

Cumulative effects will accrue from BLM management decisions in addition to activities on surrounding lands during and beyond the life of the plan. The land base surrounding Big Windy Creek is BLM. However, the Birch Creek watershed includes state land. State lands are generally subject to resource development activities which may have a direct impact on water quality and other river related values. Development of lands along waterways could have an indirect impact on other rivers by increasing the importance of river related values of free-flowing, water quality, scenic, recreation, geologic, fish and wildlife habitats and populations, cultural and historic values on those other rivers.

Designation and management of ACECs and maintenance of wilderness characteristics, as well as measures to protect other resource values on adjacent federal lands would help protect river values. Proposed and current management in these areas would limit development and help maintain a more natural ecosystem with benefits to water quality and other river related values.

Protection of river related values including outstandingly remarkable scenic, recreation, and fish populations and habitat values along Birch Creek WSR would continue. No rivers on other federal lands in the subunit have been identified as having values of eligibility. Protection of river related values along the proposed addition of Big Windy Creek, with outstandingly remarkable scenic, geologic and wildlife values, would continue if designated by Congress. The BLM could implement other means to protect river values if these segments are not included in the system.

4.5.3.2. Research Natural Areas Steese Subunit

4.5.3.2.1. Alternative A (No Action)

Under this alternative, scenic values would be maintained in Research Natural Areas with the assignment of Visual Resource Management Class II, by maintaining the closure for OHV use, camping, and mineral entry and mineral leasing. The assignment of a Primitive Recreational Opportunity Spectrum Class will also help maintain scenic values by setting management objectives that protect the natural setting characteristics. Scenic values could be impacted by the development of hiking trails within the RNAs.

4.5.3.2.2. Alternative B

Under Alternative B, scenic values would be impacted the same as Alternative A.

4.5.3.2.3. Alternative C

Under Alternative C, scenic values would be maintained in RNAs with the assignment of Visual Resource Management Class II, by maintaining the closure for OHV use, and mineral entry and mineral leasing. The assignment of a Primitive Recreational Opportunity Spectrum Class will also help maintain scenic values by setting management objectives that protect the natural setting characteristics. Scenic values could be impacted by allowing camping and with the development of hiking trails and user-created travel routes from camping locations within the RNAs.

4.5.3.2.4. Alternative D

Under Alternative D, scenic values would be impacted the same as Alternative C.

4.5.3.2.5. Alternative E (Proposed RMP)

Under Alternative E, scenic values would be maintained in RNAs with the assignment of Visual Resource Management Class II, by maintaining the closure for OHV use, and mineral entry and mineral leasing. The assignment of a Primitive Recreational Opportunity Spectrum Class will also help maintain scenic values by setting management objectives that protect the natural setting characteristics. Scenic values could be impacted by allowing camping and with the development of hiking trails, user-created travel routes from camping locations within the RNAs and by allowing cross-country winter OHV use.

4.5.4. Social and Economic

4.5.4.1. Economics Steese Subunit

Summary of Effects

The largest economic effect in the Steese Subunit would be from mining. The proposed revocation of ANCSA 17(d)(1) withdrawals would result in the staking of new mining claims and additional suction dredging, and small- and large-scale placer mine operations in the subunit.

Employment associated with mining activity on BLM-managed lands in the Steese Subunit would be higher than in the Fortymile Subunit, about 36 full-time equivalent direct jobs under Alternative D. The effects would be the least under Alternative A and the greatest under Alternative D (Table 4.12, "Employment and Income Under Action Alternatives").

4.5.4.1.1. Effects Common to All Alternatives

In addition to the effects discussed as common to all subunits in section 4.3.3.1 the following effects would occur in the Steese Subunit.

There are no revenues to the State of Alaska or the federal government that would result from coal, or oil and gas exploration. Similarly, no revenues would result from locatable mineral exploration and mining.

The discussion on effects from locatable minerals in the following sections is based on models developed by Stebbins (2009). See section 4.4.4.1.2 Fortymile Subunit, Effects from Locatable

Minerals for discussion of the Stebbins model, timeline for new claims, life of mines, and a background discussion of types of economic impacts.

4.5.4.1.2. Alternative A (No Action)

Effects would be limited to increase in currently allowed economic activities resulting from population growth.

Effects from Locatable Minerals

Alternative A would not allow new claims, as BLM lands are currently withdrawn from mineral entry. There are, however, existing mining operations on 7,000 acres of valid existing federal mining claims in the Steese Subunit. The following discussion for Alternative A is based on activities likely to occur on these existing claims. Mining activity is predicted to result in large and small-scale placer and suction dredge operations in the subunit.

Suction dredge mining results in the least economic effect of any mining method. Portable and inexpensive equipment is used. The model developed for suction dredge mining in all locations involves a crew of four (4) working 10 hours per day, seven days per week, 125 days per year. Based on one suction dredging operation, the current employment is two workers.

Small-scale placer mining uses a bulldozer, and excavator and a mobile wash plant to excavate and process gold-bearing gravel. In this model, a two-man crew works 12 hours per day, seven days per week, during a 130 day season. The camp includes one support person and a cook for a total of four workers. Current employment is 28 workers at seven operations.

Large-scale placer operations utilize excavation equipment larger than the small-scale model. In this model, two 2-man crews moving material; each work a 10-hour shift, seven days per week, during a 130 day season. Five additional employees, including a supervisor, skilled workers, and laborers; a total of nine workers are included in the model. As there are two current operations, the resulting employment is 18 workers.

Total current mining employment on BLM-managed lands in the subunit would be estimated at 48 part-year workers. Data prepared by the State of Alaska uses full-time equivalents. The full-time equivalent in the Steese Subunit would be approximately 17 workers, based on the Stebbins (2009) models.

Total employment by the Alaska minerals industry in 2012 was 4,366 full-time equivalent jobs (Athey 2013). This indicates less than one percent of the industry employment on BLM-managed lands occurred at Steese operations. The DGGS reported the average monthly wage for mining in Alaska during 2012 at $8,422. Steese operations accounted for 1.7 million dollars in wages, annualized.

4.5.4.1.3. Alternative B

Effects from Fluid Leasable Minerals (oil and gas)

Seismic exploration could occur in the Steese Subunit on high potential oil and gas lands, but is unlikely during the life of the plan. Roadless exploration, in the form of seismic surveys, would occur in the winter after the tundra is frozen. Summer field sampling and reconnaissance would occur in using helicopter support.

Adjacent private land has been undergoing seismic surveys between 2010 and 2013. Initially, 2D seismic is collected, followed by 3D to identify potential reservoirs. The number of line miles shot on BLM lands, including those in this subunit, would be less than 20 miles.

Employment and spending accruing to work occurring on BLM-managed lands would be very low. The table below shows the estimated effect of seismic survey in the Yukon Flats Basin, allowing the reader the perspective of seismic work in the entire region. Jobs created during the seismic surveys include: Superintendent, surveyors, recording crew, and caterers. Professional and technical employment in interpretation of survey findings would also occur outside the planning area.

Table 4.16. Estimated Employment from Seismic Surveys

Estimated employment generated by seismic surveys (Annual Part- or Full-Time Jobs)[a]	Direct Jobs	Indirect and Induced Jobs	Total Jobs
Local Employment	30	3	33
Rest of Alaska	20–44	57	77–101
Total Statewide	**50–74**	**60**	**110–134**

[a]Source: USFWS 2008a

Effects from Locatable Minerals

Under Alternative B, 34,000 acres would be opened to locatable mineral entry in the Steese Subunit and new mining claims could be staked.

Suction dredge mining would occur at the same level as Alternative A and no additional employment would result. Small-scale placer mining would increase by one to a total of eight operations. New employment would be four workers during a 125 day season. No additional large-scale placer operations would open, remaining at two in the subunit. No new employment would result.

Total new mining employment associated with BLM-managed lands in the Steese Subunit under Alternative B would be estimated at four-part year workers. The full-time equivalent in the would be less than two workers, based on the Stebbins (2009) models. The DGGS reported the average monthly wage for mining in Alaska during 2012 at $8,422. New Steese operations would account for $145,970 in wages, annualized.

Indirect and induced employment and income would also result from new mining. These would be higher than under the no-action alternative. See Table 4.12, "Employment and Income Under Action Alternatives" for Steese data and a comparison of all subunits and alternatives.

State of Alaska revenue from Mining License Tax and Corporate Income Tax would also be proportionally higher under this alternative.

4.5.4.1.4. Alternative C

Effects from Fluid Leasable Minerals

Economic effects related to oil and gas would be the same as under Alternative B.

Effects from Locatable Minerals

Under Alternative C, 274,000 acres in the Steese Subunit would be opened to locatable mineral entry and the staking of mining claims.

There would be an estimated nine suction dredging operations, an increase of eight over Alternatives A or B. Resulting in new employment of 16 part-year workers. Small-scale placer mining operations would increase by 11 to a total of 18 operations. New employment would be 44 workers, during a 130-day season. There would be a total of four large-scale placer operations. As there are two current operations, the resulting new employment would be 18 workers, during a 130-day season.

Total new mining employment in the Steese Subunit under Alternative C would be estimated at 66 part-year workers. The full-time equivalent would be approximately 24 workers, based on the Stebbins (2009) models. The DGGS reported the average monthly wage for mining in Alaska during 2010 at $8,345. New Steese operations would account for over $2.4 million in wages, annualized.

Indirect and induced employment and income would also result from new mining. These outputs would be higher for Alternative C than Alternative B or E. See Table 4.12, "Employment and Income Under Action Alternatives" for Steese data and comparison of all subunits and alternatives.

State of Alaska revenue from Mining License Tax and Corporate Income Tax would also be proportionally higher under this alternative and higher than under Alternative B.

4.5.4.1.5. Alternative D

Effects from Fluid Leasable Minerals

Economic effects related to oil and gas would be the same as under Alternatives B and C.

Effects from Locatable Minerals

Under Alternative D, 682,000 acres in the Steese Subunit would be opened to locatable mineral entry and staking of new mining claims.

The number of suction dredge operations would increase to 12, an increase of 11 over Alternatives A, B, or E, and three more than Alternative C. Resulting new employment would be 22 workers, during the 125 day season. Small-scale placer mining operations would increase by 17, to a total of 24 operations. New employment would 68 workers during a 130 day season. The number large-scale placer operations would be the same as Alternative C, a total of four. The resulting new employment from larger placer mines would be 18 workers, for a 130-day season.

Total new mining employment in the Steese Subunit under Alternative D would be estimated at 108 part-year workers. The full-time equivalent in would be approximately 39 workers, based on the Stebbins (2009) models. The DGGS reported the average monthly wage for mining in Alaska during 2012 at $8,422. New Steese operations would account for over $3.9 million in wages, annualized.

Indirect and induced employment and income would also result from new mining. These outputs would be higher for Alternative D than Alternatives B, C, or E. Please refer to Table 4.12, "Employment and Income Under Action Alternatives"for Steese data and a comparison of all subunits and alternatives.

State of Alaska revenue from Mining License Tax and Corporate Income Tax would also be proportionally higher under this alternative and higher than under other alternatives.

4.5.4.1.6. Alternative E (Proposed RMP)

Effects from Fluid Leasable Minerals

Economic effects related to oil and gas would be the same as under other Alternatives.

Effects from Locatable Minerals

Under Alternative E, 30,000 acres in the Steese Subunit would be opened to locatable mineral entry and staking of new mining claims. The economic effect would be the same as under Alternative B.

4.5.4.2. Environmental Justice Steese Subunit

Summary of Effects

Effects to the environmental justice population in this subunit are expected to be low. Increased employment opportunity caused by recreation use, mining, or seismic survey activity could benefit environmental justice populations in communities including Circle and Central.

4.5.4.2.1. Effects Common to All Alternatives

There will be little or no economic effect resulting from BLM decisions on BLM resource management activities; forest products; leasable minerals including Coal, Geothermal, Coal Bed Natural Gas, Non-energy Leasables, and Oil Shale; renewable energy; and lands and realty (see section 4.4.4.2).

Recreation activities would be slightly higher due to population growth in the region. Economic effects to communities slightly higher.

4.5.4.2.2. Alternative A (No Action)

There would be no effects.

4.5.4.2.3. Alternative B

Seismic exploration for oil and gas, and mining locatable minerals may result in additional jobs and income to local residents in the environmental justice population. These effects will be very low. Refer to Table 4.12, "Employment and Income Under Action Alternatives" to see total direct employment and income for all alternatives.

4.5.4.2.4. Alternative C

Seismic exploration for oil and gas, and mining locatable minerals may result in additional jobs and income to local residents in the environmental justice population. These effects will be very low. Please refer to Table 4.12, "Employment and Income Under Action

Alternatives"EmploymentandIncomeActionAltsto see total direct employment and income for all alternatives.

4.5.4.2.5. Alternative D

Seismic exploration for oil and gas, and mining locatable minerals may result in additional jobs and income to local residents in the environmental justice population. These effects will be very low and apply only to the action alternatives. Please refer to Table 4.12, "Employment and Income Under Action Alternatives" to see total direct employment and income for all alternatives.

The number of Special Recreation Permits would be slightly higher under Alternative D than in any other alternative. Environmental justice effects to communities in the area may be positive if employment in guiding or associated activities accrue to local populations.

4.5.4.2.6. Alternative E (Proposed RMP)

Economic Effects would be the same as Alternative B.

4.5.4.3. Social Conditions Steese Subunit

Summary of Effects

Most impacts to individuals and groups are minor to moderate in part because other opportunities exist for the activities within the planning area on nearby State of Alaska or a Native corporation lands. While it is possible for impacts for multiple resources to adversely affect individuals and groups in a cascading fashion, most communities exhibit sufficient resiliency to adapt to the changes. The only community where local concern was expressed about community viability before consideration of impacts was Central, and it was relayed that since the Circle Hot Springs closed, the town has been in decline, and the school is one pupil from closing. The potential lack of this key component of social web is an indicator of impaired resiliency, and the community may have greater difficulty adapting to some impacts.

4.5.4.3.1. Effects Common to All Alternatives

The following programs would have minor net positive or negative effect to social conditions and are not analyzed further: Air, Cave and Karst Resources, Cultural and Paleontological Resources, Fish and Aquatic Species, Soil Resources, Special Status Species, Vegetative Communities, Visual Resources, Water Resources, Wilderness Characteristics, Wildland Fire Ecology and Management, Wildlife, Fluid and Solid Leasable Minerals, Salable Minerals, Recreation, Travel Management, and Special Designations. For further discussion, see Effects Common to All Alternatives in all Subunits.

Effects from Forest and Woodland Products

Few residents live close enough to public land for it to be a convenient source of firewood. One exception is Circle, however this land may be disposed of to consolidate BLM lands and activities. Given the other nearby sources, including recent fire-scorched trees, there is no significant impact to communities in the planning area.

Effects from Land and Realty

Withdrawals have limited mining activity with the planning area. To the extent that lands remain closed to mineral entry, mining will cease to be an aspect of public land use within the planning area. No remnant activities will occur on public land to give context to the various displays of the mining era. Reduced opportunities for participation at a lifestyle or recreational level will reduce individual well-being, and community well-being in Center if opportunities for mining are not available on other lands.

Effects from Locatable Minerals

Communities relying on placer mining, like Central, are less viable as mining activity decreases, unless some other economic activity replaces mining. Mining opportunities also exist on state land in the area.

Effects from Subsistence

Preventing or reducing placer mining may improve subsistence catches of some fish species. This will increase the sense of well-being among populations targeting such species, and will increase food security if other food sources are displaced by wildland fire, climate change, or other factors.

4.5.4.3.2. Alternative A (No Action)

Effects from Land and Realty; Locatable Minerals

Effects of maintaining ANCSA 17(d)(1) withdrawals may be decreased mining activity, eroding the community character and well-being of communities in the subunit, such as Central. The extent of activity will be determined by the mineral potential of the available lands.

4.5.4.3.3. Alternative B

Effects from Land and Realty; Locatable Minerals

Effects of lifting ANCSA 17(d)(1) withdrawals may be a minor increase in mining activity, enhancing the community character and well-being of communities in the subunit, such as Central. The extent of activity will be determined by the mineral potential of the available lands. Since 3 percent of the acreage in the subunit will be available to mining, federally qualified subsistence users, those that value resource protection, some recreationists, and perhaps other groups may experience some decline in quality of life either directly in their activities, or indirectly.

4.5.4.3.4. Alternative C

Effects from Land and Realty; Locatable Minerals

Effects of lifting ANCSA 17(d)(1) withdrawals may be increased mining activity and increased diversity of operations, enhancing the community character and well-being of communities in the subunit, such as Central. The extent of activity will be determined by the mineral potential of the available lands. Increased activity would result in new employment of 66 seasonal workers and over $2 million in personal income for the employees, providing a significant economic infusion to an area with few employment opportunities. That effect may result in an increased well-being and sense of security for those employees and area merchants. The effects may include increased traffic, higher home prices, and other consequences that result in a decreased well-being and quality of life for other members of the community. Since 22 percent of the acreage in the subunit

will be available to mining, some groups may experience a more significant decline in quality of life either directly or indirectly. These include federally qualified subsistence users, those that value resource protection, some recreationists, and perhaps other groups.

4.5.4.3.5. Alternative D

Effects from Land and Realty; Locatable Minerals

Effects of lifting ANCSA 17(d)(1) withdrawals may be increased mining activity and increased diversity of operations, enhancing the community character and well-being of some communities in the subunit, such as Central. The extent of activity will be determined by the mineral potential of the available lands. Increased activity would result in new employment of 108 workers and nearly $4 million in personal income for the employees, providing a significant economic infusion to an area with few employment opportunities. That may result in an increased well-being and sense of security for those employees and area merchants. The effects may include increased traffic, higher home prices, and other consequences that result in a decreased well-being and quality of life for other members of the community. Since 54 percent of the acreage in the subunit will be available to mining, other groups such as federally qualified subsistence users, those that value resource protection, and some recreationists may experience a significant decline in quality of life either directly in their activities, or indirectly.

4.5.4.3.6. Alternative E (Proposed RMP)

Effects from Land and Realty; Locatable Minerals

Effects of lifting ANCSA 17(d)(1) withdrawals may be a minor increase in mining activity, enhancing the community character and well-being of communities in the subunit, such as Central. The extent of activity will be determined by the mineral potential of the available lands. Since 2 percent of the acreage in the subunit will be available to mining, federally qualified subsistence users, those that value resource protection, some recreationists, and perhaps other groups may experience some decline in quality of life either directly in their activities, or indirectly.

4.5.4.4. Subsistence Steese Subunit

Summary of Effects

Primary impacts on subsistence resources and uses would be from decisions on mineral development and travel management. Impacts include user conflicts (displacement of subsistence hunters), displacement of resources, and potential declines in resource availability due to disturbance in critical habitats or during critical times (e.g., calving periods). Alternatives A and E allow the most latitude for summer use of OHV in the Steese Subunit (1,083,000 acres open to summer cross-country use and 142,000 acres closed to summer OHV use). For OHV purposes the period considered as summer is May 1 – October 14 (section 2.7.2.1.2.6). Interim travel management would be in effect in Alternative E until the Travel Management Plan would be developed within five years after signing of the Steese ROD. Alternative D, which allows the most mineral development, would have the highest negative impacts on subsistence. Alternative B, which limits use of OHV the most, designates transportation corridors and right-of-way avoidance areas, would confer the highest levels of protection to subsistence resources and uses.

In Alternative B – D, where permits for summer use of OHV would be required, qualified residents participating in federal subsistence opportunities would need a permit for summer OHV use. Areas where the permit would apply are Primitive, Semi-Primitive and Backcountry Recreation Management Zones. The permit requirement would be considered a "reasonable regulation" under ANILCA Title VIII Section 811(b).

Recreation in the Steese Subunit is concentrated along the Birch Creek WSR and Pinnell Mountain Trail and throughout the subunit during hunting seasons. Impacts to subsistence resources and uses from recreation management would be the result of travel management prescriptions and are discussed under travel management.

Alternatives B–D include designation of the Steese ACEC to protect caribou calving and post-calving habitat and Dall sheep habitat. Although the size of the ACEC varies among alternatives, the additional protection of these habitats would benefit subsistence resources. Management prescriptions for the ACECs under alternatives B–D are the same and discussed in sections 2.8.2.1.3.1 (Alternative B), 2.8.2.2.3.1 (Alternative C), and 2.8.2.3.3.1 (Alternative D).

In Alternative E crucial caribou and Dall sheep habitat is recognized and is the same size and with same management decisions as the ACEC in Alternative C. Management prescriptions for the area of crucial caribou and Dall sheep habitat would:

- Limit activities within one mile of identified ungulate mineral licks from May 10 - August 31;
- Allow summer motorized vehicle use on approved routes where compatible with protection of caribou and Dall sheep habitat;
- Require a permit for cross-country summer motorized vehicle use;
- Monitor winter motorized use and restrict such use if impacting sheep distribution;
- Close to leasable and locatable minerals
- Require a *Caribou and Dall Sheep Impact Assessment and Mitigation Plan*, for surface disturbing or intensive activities, unless the AO officer determines that potential impacts are very low;
- Do not allow permanent roads (subject to ANILCA Title XI);
- Roads may be closed during caribou calving and post-calving and Dall sheep lambing periods;
- Minimize footprints of facilities and require collocation of facilities and access; and
- Establish minimum flight level above ground level for permitted use of aircraft.

Many resource decisions, such as those for soil, water, air, wildlife, Special Status Species, special designations, and fish and aquatic resources, would benefit subsistence resources (see 4.3.4.5 Impacts Common to All Subunits Subsistence.)

Little or no subsistence fishing occurs on the BLM-managed lands in the Steese Subunit. In general, land use activities permitted in the area, such as development of transportation corridors and mineral deposits, would affect water quality at downstream locations and fish spawning or rearing areas, indirectly impacting subsistence fisheries harvested off BLM-managed lands. Stipulations to mitigate impacts to water quality and fish spawning and rearing areas would be

attached to land use permits. Locatable mineral development opportunities vary among the alternatives and would be expected to contribute to indirect and cumulative impacts on fisheries resources. Few rights-of-way applications, other than those from the BLM, have been received over the past three decades and it is anticipated that few would be requested occur over the life of the plan.

Black and brown bear, caribou, moose, sheep, furbearers, ptarmigan, grouse, and small game are recognized by the Federal Subsistence Management Program as subsistence wildlife resources in the Steese Subunit. Lifetime use of these resources by federally qualified subsistence users is documented by Caulfield (1979, 198 3). Birch Creek residents indicated a lifetime use of trapping and hunting furbearers within the Steese National Conservation Area in the headwaters of Preacher Creek and moose and black bear hunting takes place on both mouths of Birch Creek from the Yukon River to the Steese Highway crossing. Salmon fishing takes place on the Yukon River and fishing for whitefish, sheefish and pike occurs along Upper and Lower Mouth Birch Creek. Grayling fishing occurs along Birch Creek to its crossing by the Steese Highway. Muskrat and waterfowl hunting areas stretch from Birch Creek village downriver to the Yukon. Oral history accounts and archeological findings documented by Caulfield (1983) indicate that bands of the Birch Creek people, Dendu Gwich'in, lived in the foothills of the White Mountains using primarily caribou and sheep. In a study to document subsistence land use patterns, Caulfield et al. (1983) recorded place names for Birch Creek and other communities. Two locations on the north boundary of the Steese National Conservation Area were described, including Dinjik vadzaih tthal or moose and caribou fence on Birch Creek. Preliminary data on subsistence land use for Birch Creek village from studies conducted by the Council of Athabaskan Tribal Governments in 2005 and 2007 show that traditional use areas for Birch Creek are completely within the boundaries of the Yukon Flats Refuge (CATG unpublished 2015).

Fishing for salmon occurs adjacent to and below the current village of Circle (Caulfield 1979). Areas used to hunt moose and bear are accessed by riverboat along the Yukon River, upriver as far as the Kandik River and down river as far as Birch Creek. Hunting for caribou historically occurred around Medicine Lake and along the Steese Highway near Central. During public comment meetings for the Draft RMP/Draft EIS in Circle (April 2012) residents attending the meeting indicated that they do not use the Steese National Conservation Area for harvest of subsistence resources. Lands surrounding Circle are a checker board of village corporation and State and villages-selected lands. Selected lands around Circle are low priority and will likely revert to BLM management. Residents of Circle also use these lands around the village for harvest of wildlife and small game (Caulfield 1979). Residents of Fort Yukon also report harvest of subsistence mammal species in the Steese Subunit on lands around Circle (Sumida and Alexander 1985).

The village of Beaver is near the boundary of this subunit and within the Yukon Flats NWR. Subsistence land use patterns for the community have been documented by Sumida (1989) and by CATG (2015). Subsistence resource use by Beaver was not identified for any BLM-managed lands in the subunit.

Residents of the Central area are contemporary users of caribou in the south unit of the Steese National Conservation Area.

Little or no use of subsistence wildlife resources has been documented by other qualified users largely due to studies of subsistence land use being centered on local communities, often center of specific years, and lifetime use. Additionally, patterns of use are changing. Based

on registration permit and harvest ticket reports residents of other communities designated as rural by the Federal Subsistence Board participate in harvest activities in the subunit, including Tok, Anderson, Nenana, Delta Junction, Kodiak, Petersburg, Fort Yukon, Haines, Adak, Nome, Gustavus, Barrow, Fort Greely, Manley Hot Springs and Glennallen.

Some land use decisions under the alternatives would impact vegetative communities and directly and indirectly impact subsistence fish, wildlife and vegetative resources harvested on and off BLM-managed lands. These are discussed under the alternatives below and in the effects on fish and aquatic resources, wildlife and vegetation sections of this chapter. Forest resources may also be impacted subsistence uses; however, little subsistence use of wood or forest products occurs on BLM-managed lands in this subunit.

Subsistence fish and wildlife resource availability and opportunity have declined or shifted in many areas across the planning area. For example, salmon resources important for subsistence use have declined in the Yukon River over the past several decades. Increased dependence on other subsistence resources, such as moose and caribou, has become more important and would be expected to continue to increase in the Steese, as well as Fortymile and White Mountains Subunits, over the life of the plan. No significant restriction on subsistence uses from changing hunting patterns by all users would be expected. If issues were to occur from this situation, subsistence users would seek redress through the Federal Subsistence Board to change regulation, Customary and Traditional use determinations, and as appropriate apply the ANILCA Section 804 process (section 3.5.3.2.).

Measures to mitigate the impacts of permitted land use actions on subsistence use would be attached as stipulations to authorizing documents. Permitted land use actions would include timber harvest, mining, rights-of-way, and other actions. Based on the evaluation that follows, no significant restrictions to subsistence resources or uses would occur from decisions in Alternatives A, B, C, and E. Impacts to subsistence resources and uses from Alternative D could be significant. Alternative D would allow development of locatable minerals in portions of the current White Mountains caribou calving and postcalving habitat, historic Fortymile calving and postcalving habitat, and current migration habitat, and Dall sheep mineral lick areas and movement corridors. Alternative D also provides the least amount of protection to streams, some of which are classified as anadromous, and could impact downstream fish habitat, depending on the level of interest in developing locatable minerals (Table 2.28).

4.5.4.4.1. Effects Common to All Alternatives

Effects from Forest and Woodland Products

Decisions for the management of forest and woodland products vary widely over the five alternatives. Alternative A would best protects subsistence resources and uses as no commercial use would be permitted in the Steese National Conservation Area. Alternative C and D would have the greatest impact from commercial timber and salvage harvest.

Commercial use of timber varies among the alternative from no commercial use in Alternative A to commercial timber sales on most BLM-managed land in the subunit (Alternatives C and D). Prohibitions on commercial use would benefit most subsistence resources. Commercial timber salvage sales would be allowed on all BLM-managed lands in the Steese Subunit in Alternatives C-E.

Saw timber within the area is not considered marketable due to the remote location of stands of suitable trees; however, harvest of timber for local biomass projects could occur over the life of the plan particularly after fire or where lands managed by BLM are within an accessible distance from communities. Over time it would be expected that local communities would harvest timber for biomass projects farther from villages, including in BLM-managed lands. Direct impacts on subsistence use from commercial timber harvest or timber salvage sales would be expected to be negligible but indirect impacts could occur if abundance or availability of wildlife and other subsistence resources would be reduced. Reductions in availability or abundance would not be expected from these management prescriptions.

Personal use of timber ranges from no use within the SRMA to allowed on all BLM-managed land in the subunit. Residents of Central and the surrounding area are the primary federally qualified subsistence users of timber, logs and firewood adjacent to the SRMA. Residents harvest most firewood off BLM lands within old fire boundaries around Central, primarily along the highway northeast of the community (Pers. comm. Glanz 2009). Subsistence use of timber resources would be available through free-use permits on undesignated recreation lands, including lands surrounding Circle that have been selected but not conveyed.

Ethnographic studies indicate that little subsistence use of forest and woodland products occurs on BLM-managed lands in the subunit other than berry picking. Requests for free-use permits for personal use have been rare and no requests for free-use permits for subsistence harvest have been documented over the past 25 years. Therefore direct impacts on subsistence use of forest and woodland products would be expected to be low.

Based on this analysis of use, decisions on timber regardless of alternative would not impact subsistence resource or uses because applications for these uses would be few and likely for relatively small areas. Any application for commercial or other use would require thorough analysis and an ANILCA Section 810 evaluation and finding.

Effects from Solid Leasable minerals

No impacts would occur to subsistence uses or resources from exploration or development of coal or related activities in the Steese Subunit under any alternative. No coal development will occur in the subunit because a decision for coal leasing is deferred under this plan. An amendment to the RMP would be required before coal leasing could be authorized.

Effects from Salable Minerals

Although the lands open to salable minerals varies by alternative, demand would not be expected to vary. Impacts to subsistence would be minimized through permit stipulations. Few mineral sales have been authorized in the past and few would be anticipated in the future as ample sand and gravel is available on state lands. Under the action alternatives, SOPs would apply and include reclamation and other best management practices. Impacts to subsistence uses and resources would be minimal under all alternatives.

4.5.4.4.2. Alternative A (No Action)

Under the No Action Alternative present land management practices and levels of resource used would continue in accordance with existing laws, regulations, and policy. Land use activities would continue to be analyzed through the NEPA process and include an ANILCA Section 810(a)

evaluation and finding. Through these processes, appropriate stipulations would be developed to mitigate any impacts identified.

Effects from Lands and Realty

State lands within the boundaries of the Steese National Conservation Area have been identified for acquisition through exchange under this alternative. No adverse impacts to subsistence uses or resources would be expected from this action. Management of subsistence resources and uses would become more consistent as land status is simplified. Consolidation of lands would reduce confusion over which regulations apply to which lands.

Four transportation corridors are identified in the Steese National Conservation Area. Rights-of-way would be constrained to these corridors if possible. Only one improvement has been made in the transportation corridors since signing of the existing ROD (BLM 1986a). Consolidation of rights-of-way would benefit subsistence resources and uses by protecting wildlife and fish habitat and vegetative communities and reducing disturbance to wildlife. No impacts would be expected from lands and realty prescriptions in this Alternative.

Effects from Leasable Minerals

All lands would be withdrawn from fluid and solid leasable minerals and there are no existing leases. No impacts to subsistence resources or uses from leasing minerals would occur under this alternative.

Effects from Locatable Minerals

All lands are withdrawn from mineral entry. Activity would continue to be limited to valid existing claims that predate the withdrawals. An environmental assessment would be completed for each plan of operation. Stipulations would be attached to new authorizations and operators must comply with BLM reclamation standards, which minimize the impacts on subsistence resources through stabilizing stream channels and rehabilitation of fish and wildlife habitat.

Effects from Travel Management

Under Alternative A, most BLM lands would be open to cross-country use of OHV 1,500 pounds and less GVWR without a permit. For vehicles greater than 1,500 pounds GVWR used off valid rights-of-way, a permit could be authorized for access to inholdings or with an authorized Plan of Operations. No summer OHV use would be allowed in Birch Creek and the Primitive management units (142,000 acres). The Primitive management units (Map 48), would be open to winter cross-country use by snowmobile 1,500 pounds GVWR or less. Motorboats would be allowed in the Birch Creek WSR, however no airboat or hovercraft use would be allowed in the Steese National Conservation Area. All non-motorized uses would be allowed and aircraft use would be unrestricted. The RNAs (3,000 acres) would be closed to all motorized use.

User pioneered trails would be more likely to occur where cross-country OHV use would be allowed. User pioneered trails cause degradation of soils and vegetation, resulting in rutting, erosion and reduced water quality. Cross-country use would also have direct impacts on resource abundance, distribution and location, especially during periods of concentrated use of OHV, such as late summer and early fall hunting seasons (section 4.5.1.7. Wildlife). Summer cross-country use would allow hunters into areas where wildlife would be concentrated. Based on registration permit returns where hunters indicated the means of travel, during 2010–2011, a minimum of 67 percent or 923 of 1,359 caribou hunters in the Steese Subunit used OHV to hunt. It is estimated

that the participation is similar for moose hunting, however isolating data for the Steese National Conservation Area is difficult since data are for Game Management Unit 25C, which includes the White Mountains NRA, the hunt is by harvest ticket and harvest ticket return is very low (Gasway et al. 1992,).

Impacts to subsistence resources and uses could become significant over the life of the plan if other use (particularly hunting) increases as projected (see also Chapter 4 Recreation). Subsistence hunters avoid areas while and where others are present and attribute noise and activity associated with hunting, particularly of caribou, as turning game away from harvest areas (Caulfield 1983). Rural hunters frequently have testified at the Eastern Interior RAC meetings that the influx of non-local hunters and the impact of that hunting pressure force local hunters to move farther away and hunt in new places (EIRAC 2014). Relief from these conflicts would be independent of the RMP and sought through the Federal Subsistence Board process. The process would apply through regulation of seasons and bag limits on federal public land, Customary and Traditional use determinations and as appropriate through the ANILCA Section 804 provisions.

4.5.4.4.3. Alternative B

Effects from Lands and Realty

Acquisition of lands within the Steese National Conservation Area, consolidation of scattered parcels around Circle, and disposal of lands identified for disposal will simplify land status and benefit management of subsistence resources and uses. No adverse impacts are expected from these actions.

Two transportation corridors are identified in Alternative B. The Steese ACEC, Mount Prindle RNA and Birch Creek WSR Corridor would be right-of-way avoidance areas, except where transportation corridors cross these areas. No adverse impacts are expected to subsistence resources or uses from these decisions.

Land tenure decisions, particularly consolidation of scattered parcels of BLM-managed lands around Circle, would benefit subsistence users by simplifying land status and interpretation of which hunting regulations apply to the lands.

Effects from Leasable Minerals

Approximately nine percent of BLM lands within the Steese Subunit would be open to all leasable minerals under Alternative B. Nominations for lease sales would be analyzed through the NEPA process. Seismic exploration could occur on high potential oil and gas lands during the life of the plan (Map 87). Geophysical exploration would require removal of trees from 10–20 miles of straight line transects, each 14 feet wide. The impact to subsistence resources would be minimal and to the extent possible, mitigated through the authorization of the action.

Effects from Locatable Minerals

Only nine percent of BLM lands would be open to locatable minerals. The locatable mineral potential is low for open areas (Maps 87 and 26). As in Alternative A, an environmental assessment and ANILCA Section 810 evaluation and finding would be completed for each operation. SOPs would include reclamation standards and other best management practices. Impacts to subsistence uses and resources would be minimal.

Effects from Travel Management

Under Alternative B, RNAs (3,000 acres) would be closed to the use of all OHVs. Travel management prescriptions on the remaining lands would be limited to cross-country winter use of snowmobiles 1,000 curb weight and less (no summer use of OHV). Aircraft would be generally unrestricted. Use of any other OHV would require a permit, including use for subsistence purposes. Limits on use of OHV would in general protect subsistence resources and habitats and would be considered a benefit.

Use of OHV by subsistence harvesters would require a permit in RNAs and for summer use in all other areas, and would be considered a reasonable regulation (ANILCA Section 810(b)). In areas where access is limited for motorized vehicles, federally qualified subsistence users, subject to reasonable regulation and with a free permit, can use OHV or snowmobiles or for subsistence purposes as allowed under ANILCA Section 811 (section 2.6.3.7 Travel Management).

Obtaining a free use permit for motorized access on BLM-managed lands where access would be limited would not be a significant burden on subsistence users. Assumptions for the analysis of impacts to federally qualified subsistence hunters from the process of getting an access permit are in section 4.2.1.5 of this chapter. The permits would be readily available. They would be in addition to the licensing and permitting requirements for all residents who harvest resources in the Steese Subunit, including hunting, trapping and fishing licenses, registration permits for hunting caribou, and harvest tickets for other hunts or game species. In cases where a federally qualified subsistence user would be a designated hunter for another federally qualified subsistence user, a federal subsistence designated hunter permit would also be required. Licenses, permits and harvest tickets must be carried in the field when harvesting fish and wildlife resources, including the OHV permit.

The subsistence priority in these areas would be further protected since enforcement would be possible based on possession of a permit. Managers would be able to gain understanding of use through the number of permits issues and impacts of the use in areas that have been closed to summer OHV for the past three decades. Knowledge of use would enhance protection of sensitive subsistence resources and habitats important to those resources.

Areas currently or subsequently closed by an administrative action because soil and vegetation characteristics would not sustain OHV use or due to excessive damage from OHV use would also be closed to summer use by federally qualified subsistence users.

4.5.4.4.4. Alternative C

Effects from Lands and Realty

Alternative C differs from Alternative B in that no right-of-way avoidance areas would be identified. Impacts to subsistence would be expected to be minimized through permit stipulations. Effects from changes in land tenure would be the same as Alternative B.

Effects from Leasable Minerals

Approximately twenty percent of BLM-managed lands would be open to all leasable minerals under Alternative C. Although a larger area would be open to leasable minerals, effects would essentially be the same as Alternative B. Nominations for lease sales would be analyzed through new NEPA documentation and ANILCA Section 810(a) evaluation and finding.

Some high potential areas occur in the Preacher Creek area of the North Steese National Conservation Area Unit. Seismic exploration could occur on these high potential oil and gas lands. Geophysical exploration would require removal of trees from 10–20 miles of straight line transects, each 14 feet wide. The impact to subsistence resources and uses would be minimal and to the extent possible, mitigated through the authorization of the action. No fluid mineral leasing, exploratory drilling or development would be expected to occur during the life of the plan.

Effects from Locatable Minerals

Approximately twenty percent of BLM lands would be open to locatable minerals under Alternative C. The mineral potential is high for most of the open areas (Maps 87 and 28). Demand for locatable minerals is expected to be high (approximately 15 new small-scale placer mines anticipated). Operations would be subject to NEPA analysis and would include reclamation plans, SOPs, stipulations, and other best management practices. Reclamation standards would require rehabilitation of fish and wildlife habitat. Impacts from this level of new mining would not significantly restrict subsistence uses and resources.

Effects from Travel Management

Alternative C differs from B in the location and size of the RMZs and that off-route travel for game retrieval would be allowed in some RMZs. Cross-country winter use of snowmobiles 1,000 curb weight and less would be allowed in all but the RNAs (3,000 acres).

Primitive, Semi-Primitive and Backcountry RMZs within the Steese National Conservation Area and Birch Creek would allow no summer OHV use (680,000 acres). Summer use of OHV 1,000 pounds curb weight and less would be limited to existing trails in the undesignated recreation area and Middlecountry and Frontcountry RMZs, except for retrieval of game, which is allowed off-trail (566,000 acres). Larger OHVs, up to 10,000 pounds curb weight would be allowed on existing roads only. A permit or approved Plan of Operations would be required for all other use.

Limits on OHV and other motorized uses, such as restrictions on summer use or to existing trails, would be decisions to protect areas from use that cannot be sustained due to conditions such as fragile soils, vegetation, sensitive wildlife habitat, and wetlands. Any use in these areas would cause long-term damage (greater than five years). Limits on use of OHV would in general protect subsistence resources and habitats and would be considered a benefit. Provisions allowing game retrieval off trails could increase participation in federal and state hunts and impact availability of wildlife resources. For example, as opportunities to harvest caribou shift west due to changes in seasonal herd distribution and movements, it would be anticipated that participation by all hunters would shift to these road and trail accessible areas. Provisions that allow for off-trail game retrieval could be add incentive. Where this could impact subsistence use, relief would be with the Federal Subsistence Board through changes to seasons and bag limits, Customary and Traditional use designations, and as appropriate the ANILCA Section 804 process.

Where permits are required, use of OHV by subsistence harvesters would also require a permit and would be considered a reasonable regulation. In areas where limits on summer and/or winter OHV use would be applied, federally qualified subsistence users, subject to reasonable regulation and with a permit, can use snowmobiles, motorboats, or other means of surface transportation for subsistence purposes as allowed under ANILCA Section 811 (see section 2.5).

Impacts to federally qualified subsistence users from obtaining a free use permit for motorized access on BLM-managed lands where access would be limited for casual users would not be a

significant burden. Impacts are analyzed in the Travel Management section 4.5.4.4.3 Alternative B.

Further analysis of impacts from travel management, such as impacts on wildlife resource abundance, distribution and location, are discussed in Wildlife section 4.5.1.7.

4.5.4.4.5. Alternative D

Impacts to subsistence resources and uses from Alternative D could be significant. Alternative D would allow development of locatable minerals in portions of the current White Mountains caribou calving and postcalving habitat, historic Fortymile calving and postcalving habitat, and current migration habitat, and Dall sheep mineral lick areas and movement corridors. Alternative D also provides the least amount of protection to streams, some of which are classified as anadromous, and could impact downstream fish habitat, depending on the level of interest in developing locatable minerals.

Effects from Lands and Realty

Alternative D is the same as C in that there are no designated transportation corridors or right-of-way avoidance areas. Impacts to subsistence uses would be minimized through permit stipulations. Effects from changes in land tenure would be the same as Alternative B.

Effects from Leasable Minerals

Approximately fifty-four percent of BLM lands would be open to all leasable minerals under Alternative D. Impacts would be essentially the same as Alternative C.

Effects from Locatable Minerals

Approximately fifty-four percent of BLM lands would be open to locatable minerals under Alternative D. The mineral potential is medium to high for most of the open areas (Maps 87 and 30). Demand for locatable minerals would be expected to be high.

Impacts to important subsistence wildlife resources in the subunit, primarily White Mountains and Fortymile caribou, include changes in migration patterns and loss of habitat through fragmentation (roads) or direct disturbance (section 4.5.1.7 Wildlife). Mining of new as well as existing claims would impact fisheries within the subunit and downstream beyond the life of the plan (section 4.5.1.2). Impacts to subsistence uses and resources from locatable minerals could be significant, depending on interest in new developments. Operations would be subject to NEPA analysis and ANILCA Section 810(a) evaluation and finding. Authorizations for mining would require reclamation plans that comply with 43 CFR 3809 standards for fish and wildlife habitat rehabilitation. SOPs and stipulations to help minimize impacts to subsistence use and resources would be attached to authorizations.

Effects from Travel Management

This alternative differs from Alternatives B and C in the location and size of the RMZs (Map 51) and that cross-country summer use of OHV 1,000 curb weight and less would be allowed in the undesignated recreation area and Middlecountry and Frontcountry RMZs (733,000 acres). Although Alternative D would allow for the greatest latitude in OHV use by subsistence and other users, it would also have the highest potential for conflicts among resource uses. Impacts to subsistence users would occur from their avoidance of areas used by recreational hunters.

Subsistence hunters also perceive that other hunters cause game animals to turn away from their hunting areas, such as caribou during late summer-early fall migrations. The full discussion of displacement of subsistence users is in Effects from Travel Management under section 4.5.4.4.2 Alternative A (No Action).

User pioneered trails would occur where cross-country OHV use is allowed. User pioneered trails cause degradation of soils and vegetation, resulting in rutting, erosion and reduced water quality. Cross-country use would also have direct impacts on resource abundance, distribution, movement, and location, especially during periods of concentrated use of OHV, such as late summer and early fall hunting seasons. Impacts to subsistence resources and uses could become significant over the life of the plan if recreational use (including hunting) increases as projected (section 4.5.2.2.6 Recreation, Cumulative Impacts).

Impacts to subsistence uses could be felt on and off federal lands if increased access to resources resulted in a reduction of abundance of wildlife (harvest), reduction in availability (change in distribution and location), or a limitation on access (physical or legal barriers). For example, as opportunities to harvest caribou shift across the state, participation in general hunts accessible by road, trails and cross-country OHV could receive higher participation. This could occur especially where less restrictive methods for hunting exist (registration permit vs drawing). Hunts in these areas close early, often within a day or two of opening and before caribou are accessible to rural communities. Redress to maintaining a priority for subsistence uses under ANILCA Title VIII would be through the federal subsistence processes and the Federal Subsistence Board.

4.5.4.4.6. Alternative E (Proposed RMP)

Major differences between Alternative C (Draft RMP Preferred Alternative) and Alternative E (Proposed RMP) include adopting decisions from Alternative B for Riparian Conservation Areas that would increase protection for streams, closing the Steese National Conservation Area and RCAs to locatable and leasable minerals, and adopting interim management while travel management plans are developed within five years of signing the Record of Decision. Effects on subsistence resources and uses of other decisions for Alternative E would be the same as discussed under common to all.

Land tenure and land use authorizations would be the same as Alternative C.

Effects from Leasable and Locatable Minerals

All of the Steese National Conservation Area and the ten RCAs would be closed to leasable and locatable minerals. Impacts would be the same as Alternative A.

Effects from Travel Management

Interim Travel Management for Alternative E would be the same as for Alternative A (No Action) except a new weight and width limitation on snowmobiles and summer OHV would be implemented, airboats and hovercraft would be allowed within the Steese National Conservation Area, and snowmobiles will be allowed in the RNAs. Within five years of signing the Record of Decision a travel management plan would be completed. The plan could vary substantially from the interim management. NEPA analysis of impacts from snowmobiles in the RNAs and airboats and hovercraft could result in limits on these uses.

A 1,000 pound curb weight and 50 inches width limitation on snowmobiles would replace the 1,500 pound GVWR limitation, and a 1,000 pound curb weight and 50 inches width limitation on summer OHVs would replace the 1,500 pound GVWR limitation. In Alternative A and E 142,000 acres, including Birch Creek WSR, would be limited to no summer use. Federally qualified rural residents would also observe this limit on summer OHV use. Interim management in Alternative E differs from Alternative C in that RMZs open to summer OHV would not be limited to designated trails and the area open would be almost twice the area open in Alternative C.

Although limitation of OHV to designated trails (Alternative B and C) would reduce the benefit of cross-country access for federally qualified subsistence users, it would also protect fish and wildlife habitat and important subsistence resources by limiting access by all users. Under Alternative E, impacts on subsistence resources from cross-country use would be expected to increase as described in the assumptions for analysis as population trends are projected to increase and OHV technology continues to advance.

Rural hunters frequently have testified at the Eastern Interior RAC meetings that the influx of non-local hunters and the impact of that hunting pressure force local hunters to move farther away and hunt in new places (EIRAC 2014). Travel management in Alternative E, like Alternative A, could perpetuate the displacement of local hunters and result in higher costs to federal subsistence hunters in lost opportunity and in obtaining wild game. Although impacts would occur they would not be expected to significantly restrict subsistence use or resource abundance or availability on BLM-managed lands in the Steese Subunit. Physical or legal barriers to access would not be expected. Maintaining a priority for subsistence uses under ANILCA Title VIII would be through the federal subsistence processes and the Federal Subsistence Board.

The prohibition on airboats and hovercraft in the non-navigable segments of Birch Creek WSR would be removed. Both means of travel allow for access in very low water conditions thereby allow entry into areas where no motorized watercraft have been able to previously travel. Few subsistence users have access to hovercraft or airboats therefore most use would be from casual users.

The Steese National Conservation Area and Birch WSR have been closed to hovercraft and airboats since the signing of the Steese RMP in 1986. No use of hovercraft and airboats in these designated areas prior to that has been documented; however, it is estimated that this type of use would increase over the life of the RMP. An assumption for analysis of this method of access is that up to 20 percent of users would engage in use of airboats and hovercraft. Recreational use would increase over the life of the plan and closures on use of airboats for harvest or transport of moose in other areas, such as Minto Flats, could result in displacement of hunters into the Steese National Conservation Area under Alternative E, increasing competition with subsistence users for wildlife resources.

Over the life of the plan, impacts from airboats and possibly hovercraft could restrict subsistence use. Impacts could include localized and short-term alteration of wildlife availability, distribution, and movements throughout the state hunting seasons. Members of the public testified to the Alaska Board of Game that “airboat use by moose hunters interferes with traditional spot and stalk and still-hunting techniques used by subsistence moose hunters” (Interior Alaska Airboat Assoc. v. State, Board of Game (3/2/01) sp-5369; on line at: http://www.touchngo.com/sp/html/sp-5369.htm). Relief from user conflicts would be thorough the Federal Subsistence Board process.

User pioneered trails would be more likely to occur where cross-country OHV use would be allowed. User pioneered trails cause degradation of soils and vegetation, resulting in rutting, erosion and reduced water quality. Cross-country use would also have direct impacts on resource abundance, distribution and location, especially during periods of concentrated use of OHV, such as late summer and early fall hunting seasons. Summer cross-country use would allow hunters into areas where wildlife would be concentrated. Based on registration permit returns where hunters indicated the means of travel, during 2010–2011, a minimum of 67 percent or 923 of 1,359 caribou hunters in the Steese Subunit used OHV to hunt. It is estimated that the participation would be similar for moose hunting, however isolating data for the Steese National Conservation Area is difficult since data are for Game Management Unit 25C, which includes the White Mountains NRA. Additionally, moose hunting in the subunit is by harvest ticket, and harvest ticket return rates are low (Gasway et al. 1992).

Impacts from interim travel management to subsistence resources would be short-term (5 years) while the Travel Management Plan for the Steese Subunit is being completed. New NEPA analysis and an ANILCA Section 810(a) evaluation and finding will be conducted for the Travel Management Plan.

4.5.4.4.7. Cumulative Effects

Past, present and reasonably foreseeable actions on all lands in the subunit are considered with those proposed in the RMP for cumulative effects analysis.

Use of the Steese Subunit has increased substantially since the Steese National Conservation Area was designated in 1980. Decisions on travel management would influence the cumulative case in terms of this use. An estimated 300 miles of user pioneered OHV routes have been created since the signing of the Steese National Conservation Area ROD in 1986 (section 4.5.2.2.5 Recreation, Alternative E). Demand by all users for resources important for subsistence would be anticipated to continue to increasing over the life of the plan as population of the state increases and as technological advancements in motorized equipment continue to occur. Major concerns about impacts to subsistence resources, such as avoidance of OHV by wildlife and effective loss of habitat are discusses in section 4.3.1.12 Effects from Travel Management (page 611–614).

Management of user conflicts relative to subsistence uses would be outside of the RMP process. Maintaining a priority for subsistence uses under ANILCA Title VIII would be through the federal subsistence processes and the Federal Subsistence Board in such cases.

Development off BLM-managed lands, such as mines on state lands within the Fortymile caribou herd calving/postcalving area and migration corridors, would impact subsistence opportunity in the Steese Subunit if caribou population abundance, availability or movements would be altered as a result of this and similar activities.

The cumulative case when considered with decisions on resource extraction in Alternative D could result in a reasonably foreseeable and significant restriction to subsistence uses within the subunit if significant development activity occurs within migration, calving or other important habitats of wildlife. Further analysis is in Appendix J, *ANILCA Section 810 Analysis* section J.2.2.5 Steese Cumulative Case.

4.6. Impacts Specific to the Upper Black River Subunit

4.6.1. Resources

4.6.1.1. Cultural and Paleontological Resources Upper Black River Subunit

Summary of Effects

See section 4.3.1.3 Effects Common to All Alternatives, Impacts Common to All Subunits.

4.6.1.1.1. Effects Common to All Alternatives

In addition to those resources, resources uses, and programs listed as having no potential effects to cultural and paleontological resources in section 4.3.1.3, the following programs would also have no effects under all alternatives in the Upper Black River Subunit: Locatable Minerals and Recreation.

In terms of locatable minerals, all lands are presently withdrawn, and there are no existing mining claims. As a result, there are presently no effects to cultural and paleontological resources. In Alternative B, the entire subunit, or 2,360,000 acres, would remain closed. In Alternative C and Alternative D, the entire 2,360,000 acres in the subunit would be opened to mineral entry. In Alternative E, 1,813,000 acres would be closed, and all other areas (547,000 acres) would be open. Typically, locatable mineral mining would have the potential to directly and adversely impact cultural and paleontological resources through not only the mining itself and the construction of new access roads, but also indirectly by opening up new, previously isolated areas to other public land users. However, assumptions for locatable minerals for all alternatives in the subunit indicate that no mining activity would occur during the life of the plan. This equates to no acres of disturbed ground and no new access roads. In sum, locatable mineral mining would not impact cultural and paleontological resources in the Upper Black River Subunit over the life of the plan.

The subunit is extremely remote, and ongoing recreational uses of BLM-managed lands consist primarily of subsistence or casual recreational use. There are no plans to change this present situation in any of the alternatives. Therefore, there would be no potential impacts to cultural and paleontological resources from the recreation program in this subunit.

4.6.1.1.2. Alternative A (No Action)

Effects From Travel Management

There are no OHV designations in place and the use of motorized vehicles, mechanized equipment, water craft, and aircraft is unrestricted. With no restrictions on the size, location, and seasonality of equipment used in this subunit, the potential for adversely effecting cultural and paleontological resources exists.

4.6.1.1.3. Alternative B

Effects From Travel Management

Cross-country winter use (October 15 through April 30) of snowmobiles 50 inches or less in width and weighing 1,000 pounds curb weight and less would be allowed throughout the entire subunit. Cross-country summer use (May 1 through October 14) of vehicles 64 inches or less in width and weighing 1,500 pounds curb weight and less would be allowed only outside of the Salmon Fork ACEC (621,000 acres). Within the ACEC, no summer OHV use would be allowed.

With advances in recreational vehicle technology, the Upper Black River Subunit could experience an increased level of land use and activity participation related to OHVs and access for subsistence uses. However, this increase would most likely be limited due to the features of topography, soils, vegetation, permafrost, lack of any defined trails, and overall remoteness of the area. There would likely be less direct adverse effects to cultural and paleontological resources in Alternative B relative to Alternative A. The potential for direct effects to cultural resources exists in Alternative B, as OHV use in the area would likely concentrate on higher, better drained areas. Archaeological surveys throughout the subunit indicate a predominance of prehistoric archaeological sites in just such areas that would be favored by overland OHV users. There would be no likely impact to paleontological resources by this alterative.

4.6.1.1.4. Alternative C

Effects From Travel Management

Summer and winter use of OHVs would be the same as Alternative B except there would be no Salmon Fork ACEC summer restrictions in Alternative C. As a result, while the nature of the impacts to cultural and paleontological resources would be the same as Alternative B, their likelihood of occurring would be greater because there is more land opened up to their use in this Alternative C.

4.6.1.1.5. Alternative D

Effects From Travel Management

Same as Alternative C.

4.6.1.1.6. Alternative E (Proposed RMP)

Effects from Travel Managemen

Same as Alternative C.

4.6.1.2. Fish and Aquatic Species Upper Black River Subunit

Summary of Effects

Fish and aquatic species would be primarily affected by surface-disturbing activities which alter stream channels, remove or damage riparian vegetation, or result in soil erosion and sedimentation to fish and aquatic habitat. The level of impact would depends on the success and adequacy of protective measures. Few surface-disturbing activities are expected in this subunit under any alternative due to the lack of access and limited mineral potential. However, the Salmon Fork Black River contains very high fishery resources, meets the importance and relevance criteria as an ACEC for fishery values, and is open to locatable minerals under Alternatives C

and D. Designation of the Salmon Fork ACEC under Alternatives B, C, D, and E would provide additional protection of fish habitat.

Table 4.17. Stream Miles and Acres Open to Locatable Mineral Entry by Alternative, Upper Black River Subunit

UPPER BLACK RIVER SUBUNIT	ALTERNATIVES				
(BLM-managed lands)	**A**	**B**	**C**	**D**	**E**
Stream miles	4,144	4,144	4,144	4,144	4,144
Stream miles open to locatables (proposed)	0	0	4,144	4,144	916
Stream miles open to locatables (proposed) plus miles within current valid federal claims	0	0	4,144	4,144	916
Stream miles within RCAs in areas open to locatables (proposed)	N/A	0	560 (14%)	360 (9%)	3
Stream miles outside RCAs in areas open to locatables (proposed)	N/A	0	3,500 (86%)	3,800 (91%)	916 (22%)
Acres open to locatables (proposed)	0	0	2.4 million	2.4 million	547,000
Acres open to locatables (proposed) plus miles within current valid federal claims	0	0	2.4 million	2.4 million	547,000
Anticipated stream gravel disturbance by suction dredging during life of plan measured in cubic yards	0	0	0	0	0
Potential impacts to fish and aquatic habitat (1-4, 4= greatest)	**1**	**1**	**3**	**4**	**2**

4.6.1.2.1. Alternative A (No Action)

Effects from Leasable Minerals

The entire subunit is currently withdrawn from mineral leasing through PLOs issued under ANCSA 17(d)(1). There are no existing federal mineral leases. Under this alternative, impacts to fisheries and aquatic resources would be non-existent.

Effects from Locatable Minerals

The entire subunit is currently withdrawn from locatable mineral entry through PLOs issued under ANCSA 17(d)(1). There are no existing federal mining claims. Under this alternative, impacts to fisheries and aquatic resources would be non-existent.

Effects from Recreation

There is no existing land use plan for the Upper Black River Subunit. The subunit does not have a recreational management area designation, which includes managing in a custodial manner and providing for visitor health and safety, reducing user conflicts, visitor satisfaction, and preventing resource damage. There are no OHV designations in place and the use of motorized vehicles and mechanized equipment, motorized water craft, and aircraft is unrestricted. The subunit is extremely remote and ongoing uses of BLM-managed lands consist primarily of subsistence or casual recreational use. There are no known impacts to fish and aquatic habitat from recreation in this subunit. Given the remote location and low number of people living in or adjacent to

this subunit the impacts would likely be minor or nonexistent. Recreation will be managed the same for Alternatives A, B, C, D, and E and therefore the potential impacts to fish and aquatic habitat for all Alternatives would be the same.

Effects from Travel Management

There are no OHV designations in place and the use of motorized vehicles and mechanized equipment, motorized water craft, and aircraft is unrestricted. Impacts from OHVs would likely be minimal given the remote location, limited use, and limited number of "summer trails" within the subunit. Most travel within the subunit is by boat, snowmobile, or aircraft, which generally has little impact on fish and aquatic habitat.

4.6.1.2.2. Alternative B

Effects from Leasable Minerals

The effects would be the same as in Alternative A

Effects from Locatable Minerals

The effects would be the same as in Alternative A.

Effects from Recreation

The effects would be the same as in Alternative A.

Effects from Travel Management

This alternative allows cross-country use of OHVs weighing 1,500 pounds curb weight year round, except in the Salmon Fork ACEC. Impacts from OHVs would likely be minimal given the remote location and limited use and limited number of "summer trails" within the subunit. Most travel within the subunit is by boat, snowmobile, or aircraft which generally has little impact on fish and aquatic habitat. Alternative B would provide more protection to fish and aquatic habitat than Alternatives A, C, D, or E.

Effects from Special Designations

Under Alternative B, 621,000 acres within the Salmon Fork watershed would be designated as the Salmon Fork ACEC. The Salmon Fork Black River contains high-value fishery resources and is the main reason for the ACEC designation. The ACEC would remain closed to locatable minerals, leasable minerals, and salable minerals. Fish and aquatic habitats benefit in areas closed to mineral entry, because the habitat generally remains intact.

The Salmon Fork Black River (52 miles) would be recommended as suitable for designation in the National Wild and Scenic Rivers System. The river corridor would be closed to mineral leasing and location. Fish and aquatic habitats benefit in areas closed to mineral entry, because the habitat generally remains intact. Alternative B would provide the greatest protection to fish and aquatic habitat, as compared to Alternatives A, C, D, and E.

4.6.1.2.3. Alternative C

Effects from Leasable Minerals

The Salmon Fork Black River ACEC (621,000 acres) would be closed to oil and gas leasing while the remainder of the subunit would be open. Leasing would not occur without further NEPA analysis. Interest from industry is expected to be limited due to the lack of BLM-managed lands in high potential areas. Seismic exploration would be allowed during winter months after the tundra is frozen. If seismic exploration does occur, it would likely occur in high potential areas, but is unlikely during the life of the plan. Given those assumptions, impacts to fisheries and aquatic habitat would be minor to non-existent.

Potential threats to overwintering fish from seismic surveys in the planning area would primarily stem from: 1) stress associated with acoustic energy pulses transmitted into the ground directly over overwintering pools, and 2) physical damage to overwintering habitat caused by seismic vehicles. Large overwintering pools might allow fish to flee the immediate area of intense stress where fish occupying small pools might not have that option. Depending on proximity, adult fish could suffer no more than temporary discomfort where intense acoustical pulses could be lethal to juveniles. Given that overwintering habitat represents a small percentage of the planning area, it is unlikely that seismic transmissions would occur directly over overwintering sites with any degree of regularity. Furthermore, seismic crews could avoid known overwintering areas. Overall, any affects to overwintering fish caused by winter seismic surveys would be localized and would likely to have little effect on fish populations within the planning area.

Effects from Locatable Minerals

Alternative C is substantially different from Alternatives A and B because in Alternative C the entire subunit (2.4 million acres) and 4,144 miles of stream would be open to locatable mineral entry. This includes 560 miles of stream (fourteen percent) within RCAs on the Salmon Fork Black and Kandik Rivers and over 1,000 miles within the Salmon Fork Black River ACEC. Protection of fish and aquatic habitat in eighty-six percent of the stream miles would rely on the current regulations, reclamation requirements and SOPs outlined in this plan, and mitigation measures developed during project-specific NEPA analysis. Mineral potential within the subunit is considered low with no foreseeable development for locatable minerals.

The proposed Salmon Fork Black River ACEC was nominated by the public for various resource values including fisheries. BLM evaluated the ACEC for fishery values and determined it met both the relevance and importance criteria. The maintenance of these high-value fishery resources would rely upon the higher level of reclamation previously described (Chapter 2, Fish and Aquatic Species) for RCAs and ACECs. As previously mentioned, placer mining has resulted in unavoidable short- and long-term adverse impacts to fish and aquatic resources in the past and therefore would likely have similar results within the proposed ACEC.

If development did occur, based on the amount of stream miles and acres open to potential disturbance, impacts to fish and aquatic resources may be considered moderate and short-term (5 to 10 years) within the RCAs and ACEC and moderate and long-term (10 to 20 years) outside of RCAs and the ACEC. Potential impacts may result in decreased levels of fish populations and habitat at the local level. Alternative C would provide less protection to fish and aquatic habitat than Alternatives A, B, and E, but more protection than Alternative D.

Effects from Recreation

The effects would be the same as in Alternative A.

Effects from Travel Management

This alternative allows the cross-country use of OHVs weighing 1,500 pounds curb weight and less year round within the entire subunit, including the Salmon Fork ACEC. Impacts from OHVs would likely be minimal given the remote location, limited use, and limited number of "summer trails" within the subunit. The Salmon Fork ACEC designation is largely due to the high-value fishery resources found there. Although the area is very remote and OHV use is expected to minimal, cross-country travel could result in localized, adverse impacts to this high-value fishery. Alternative C would provide more protection to fish and aquatic habitat than Alternative A and D, but less than Alternative B and E.

Effects from Special Designations

Alternative C would designate 621,000 acres as the Salmon Fork ACEC. In this Alternative, the ACEC would be open to locatables. The travel management and minerals decisions in the ACEC are also less restrictive than in Alternative B and E providing less protection to fish and aquatic habitat. Fish and aquatic habitat benefit from this alternative, but to a much lesser degree than in Alternative A, B, or E because of the increased potential for surface disturbing activities within or adjacent to streams.

4.6.1.2.4. Alternative D

Effects from Fluid Leasable Minerals

Impacts to fish and aquatic habitat would be similar to those in Alternative C, but Alternative D would have fewer acres subject to minor constraints. Alternative D would have the greatest potential impacts to fish and aquatic resources.

Effects from Locatable Minerals

The effects are the same as Alternative C, with the exception that Alternative D has 200 fewer stream miles within RCAs. This is simply because there are fewer RCAs in Alternative D, the number of stream miles open to locatables are the same as Alternative C.

Impacts to fish and aquatic habitat would be the greatest in Alternative D, because there are 200 more miles of stream (fish and aquatic habitat) that would not benefit from the higher reclamation standards required in RCAs and ACECs.

Effects from Recreation

The effects are the same as Alternative A.

Effects from Travel Management

The effects are the same as Alternative C.

Effects from Special Designations

The minerals decisions in the Salmon Fork ACEC (621,000 acres) are even less restrictive than in Alternative C, providing less protection to fish and aquatic habitat. In this alternative the ACEC would be open to salable minerals and mineral leasing subject to minor constraints. High-value fish and aquatic habitats within the proposed ACEC would rely on the higher reclamation standards for ACECs. Alternative D has the greatest potential to adversely effect Fish and aquatic habitat when compared to all other Alternatives.

4.6.1.2.5. Alternative E (Proposed RMP)

Effects from Fluid Leasable Minerals

Impacts to fish and aquatic habitat would be similar to, but less than those discussed in Alternative C. All RCAs would be closed to oil and gas leasing. Only 547,000 acres outside of RCAs would be open. Alternative E would have fewer potential impacts than Alternative D and C, but more than Alternative A and B. Impacts to fish and aquatic resources are anticipated to be minimal and localized under this alternative.

Effects from Locatable Minerals

This alternative is substantially different than Alternatives C and D in that the amount of acres recommended open to locatable minerals would only be 547,000 acres, compared to 2.3 million acres in Alternatives C and D. Watersheds with high value fish and aquatic resources would likely remain in there natural condition during the life of the plan. If mining did occur in areas open to locatable minerals and adjacent to waterbodies, the impacts to fish and aquatic resources would like likely be moderate and long term (10–20 years). This alternative provides substantially more protection to the high value fish and aquatic resources in the Black River drainage than Alternatives C and D.

Effects from Recreation

The effects would be the same as in Alternative A.

Effects from Travel Management

The effects are the same as Alternative C.

Effects from Special Designations

The Salmon Fork ACEC would contain 623,000 acres and it would be closed to locatable mineral entry and mineral leasing. OHV use within the ACEC may be limited (such as seasonal restrictions) if that type of use results in adverse impacts to the high value resources for which the area was designated. Alternative E provides more protection than Alternative C and D because the ACEC would be closed to mining. Impacts to fish and aquatic resources would be similar to Alternatives A and B because the area would be closed to mining.

4.6.1.3. Invasive Species Upper Black River Subunit

Summary of Effects

The Upper Black River Subunit is extremely remote. Current uses of BLM lands consist primarily of subsistence and casual recreation use. Impacts and prevention of non-native invasive species (invasive species) being introduced and spread in the planning area were discussed in section 4.3.1.5 of this chapter and measures include outreach and education of applicants and recreational and other users. EDRR and inventory and monitoring will further halt the introduction and spread of invasive species.

Prevention of the introduction of invasive plants is the focus of invasive species management in the Upper Black River Subunit. Natural and human caused disturbances create favorable conditions for non-native invasive plants (invasive plants) to become established when seed is

introduced. Invasive plants can thrive in marginal habitats, such as compacted and dry soils or where canopy cover has been removed. Potential impacts to invasive species management in the Upper Black River Subunit are expected to be minimal because the area is remote and few activities conducive to introduction and spread of invasive species are expected to occur over the life of the plan.

4.6.1.3.1. Effects Common to All Alternatives

Effects from Forest and Woodland Products

Although management decisions for harvest of timber and forest products varies slightly by alternative in the Upper Black River Subunit, impacts to invasive species management are expected to be minimal under all alternatives. Personal use of timber or forest products would most likely be from residents of the subunit, which reduces the potential for invasive species to be introduced. Some alternatives would close portions of the subunit to commercial timber sales, which would further protect subsistence resources and uses.

Demand for commercial forest products and timber would be expected to be minimal because of the remoteness of the area and lack of access to markets. Interest in biomass harvest by local residents, primarily the Chalkyitsik area, may shift the economics of timber harvest and over the life of the plan result in permitted uses. Impacts to invasive species management from this level of harvest would be low and mitigated through permit stipulations, including EDRR.

Effects from Lands and Realty

Most lands and realty actions result in ground disturbance, which increases the potential for invasive plants to become established. Vehicles and equipment used for construction and maintenance in rights-of-way or site development can import invasive species, including seeds and all developmental stages of invertebrate pests, to the disturbed area. The potential for introduction and spread of invasive species from these actions, if they occurred, would be expected to be significant. Impacts would be mitigated to the extent possible through permit stipulations and education and outreach efforts directed at applicants. However, there are no roads on lands managed by BLM and few applications for land use authorizations are anticipated under any alternative. Very little likelihood of invasive species becoming established from Lands and Realty actions would occur. Impacts to invasive species management would be low and mitigated through permit stipulations, including EDRR responsibilities by permittees.

Effects from Salable Minerals

The primary impacts from salable minerals are introduction of plants from contaminated equipment or movement of seeds in contaminated gravel. Although management decisions for salable minerals vary slightly by alternative, impacts to invasive plants management are expected to be minimal under all alternatives. Alternative B would close the Salmon Fork ACEC to salable minerals. This closure would have no effect because no demand for salable minerals is anticipated over the life of the plan, regardless of alternative. In the highly unlikely event that an application for a mineral sale was received and approved, stipulations attached to the permit would include reclamation and other best management practices to minimize impacts from invasive plants. Monitoring and EDRR efforts would be costly but would further reduce the potential for invasive plants to become established. As discussed in section 4.3.1.5 Impacts Common to All Subunits, a weed-free gravel certification program is being developed in Alaska, further reducing the risks of introduction of non-native invasive plants from salable minerals.

Effects from Recreation

Recreation on BLM lands in the subunit would be managed as not designated under all alternatives. Recreation within an area without a special designation for recreation is managed as generally unstructured, with no identifiable market demand for development of infrastructure. Recreation use in the area is considered casual and expected to remain so over the life of the plan. Recreation management on all BLM lands promotes "Leave No Trace" and "Tread Lightly" use practices, which enhance the prevention of invasive species introduction from recreational activities. No impacts to invasive species management would be expected from recreational use in the area.

Effects from Travel Management

General impacts from Travel Management are discussed in section 4.3.1.5.1. Alternatives for travel management include a range of limits on OHV weight restrictions and cross-country summer use. Permits would be required for any OHV over 1,500 pounds curb weight. Limitations on OHV use would help prevent the introduction of invasive species and aid EDRR efforts by concentrating use and reducing disturbance to native vegetation. Permitting use would provide opportunities to educated users on the threats to habitats from invasive species and prevention measures they can take (use and site-specific mitigation).

Use of motorized boats would be unrestricted. Boats and other watercraft may harbor invasive species that may be dislodged and spread to new areas. EDRR, outreach and education would help prevent the introduction of invasive species from motorized boats.

Aircraft use would be unrestricted with provisions to minimize clearing for landing areas. Formal improvements of airstrips would be by permit only. Invasive species, particularly plant seeds and aquatic invertebrates, could be transported by aircraft from infestations at urban airstrips or float ponds and introduced in remote areas, such as on gravel bars, benches and ponds. Outreach and education targeting recreational users, including pilots, would help reduce introduction of invasive species. Some use of aircraft would be expected, mostly during state hunting and fishing seasons.

OHV and most other travel would be expected to be local and mostly related to subsistence use activities.

4.6.1.3.2. Alternative A (No Action)

Under the No Action Alternative, present land management practices and levels of resource used would continue in accordance with existing laws, regulations, and policy. Land use activities would continue to be analyzed through the NEPA process. Through these processes, appropriate stipulations would be developed to mitigate any impacts to invasive species that would be identified.

OHV use is unrestricted in the subunit. No recreation management, RNA, ACEC, or WSR designations exist. The subunit is extremely remote and few to no land use activities occur that create disturbance to vegetative communities.

Effects from Lands and Realty

There would be no effects to invasive species management from changes in land tenure, as no lands are identified for disposal or acquisition.

Most lands and realty actions result in ground disturbance, which increases the potential for invasive plants to become established. Vehicles and equipment used for construction and maintenance in rights-of-way or site development can import invasive species to the disturbed area. The potential for introduction and spread of invasive species from these actions, if they occurred, would be expected to be significant. Impacts would be mitigated to the extent possible through permit stipulations and education and outreach efforts directed at applicants. Under Alternative A, land use authorizations would be considered throughout the subunit. Few requests for land use authorizations would be anticipated, since no right-of-way permits have been requested in the past and the area would remain withdrawn to leasable and locatable minerals.

Effects from Leasable and Locatable Minerals

The entire subunit is withdrawn from mineral entry and leasing. There are no existing mining claims or leases, thus there would be no impacts from leasable or locatable minerals.

4.6.1.3.3. Alternative B

Effects from Lands and Realty

Under Alternative B, private inholdings in the Salmon Fork ACEC could be acquired from willing sellers. Parcels intermingled with Native village lands around Circle would be considered for acquisition or disposal, including exchange. Consolidation of scattered parcels would simplify management of invasive species. No adverse impacts would be expected from these actions.

The Salmon Fork ACEC would be a right-of-way avoidance area. This would reduce or eliminate ground disturbance and fragmentation of habitat from construction and maintenance activities. Requests for rights-of-way would be considered at the project level, allowing for mitigation of impacts to invasive species management. Monitoring for invasive plants, which would be of most concern for realty actions, and EDRR efforts may also be employed to mitigate impacts. However, few requests for rights-of-way would be expected due to the remoteness of the ACEC and the lack of roads in the subunit. Little or no adverse impacts would be anticipated from these decisions.

Effects from Leasable and Locatable Minerals

Same as Alternative A.

4.6.1.3.4. Alternative C

Effects from Lands and Realty

Effects from land tenure decisions would be the same as Alternative B.

No right-of-way avoidance areas would be designated under Alternative C, resulting in a slightly higher potential for impacts than in Alternative B. Requests for rights-of-way would be considered at the project level, allowing for mitigation of impacts to invasive plants in particular. Few requests for ROW authorizations would be expected. Little or no adverse impacts to invasive plants from these decisions are anticipated. Monitoring for invasive plants and EDRR efforts may be employed to mitigate impacts. Effects from land use authorizations would be similar to Alternative A.

Effects from Leasable and Locatable Minerals

All lands managed by BLM in the Upper Black River subunit would be open to locatable minerals under Alternative C, including the 621,000 acres of the Salmon Fork ACEC. Mining operations would be analyzed on a project-specific basis. Notices and Plans of Operation would require a reclamation plan that would attain the performance standards required by the BLM mining regulations (42 CFR 3809) and guidance in the BLM Surface Management Handbook (H-3809–1). Requirements would include rehabilitation of fish and wildlife habitat. BLM Alaska policy (IM-BLM-AK-2015–004) would require reclamation of streams to level three functionality. Permit and Notice stipulations would include other reclamation standards and other best management practices to minimize impacts from invasive species. Any operation with disturbance under 4.4 acres would be a Notice level operation unless they occur in the ACEC, in which case a Plan of Operations would be required under 43 CFR 3809.10. Monitoring and EDRR efforts could be costly, but would further reduce the potential for invasive plants to become established. The locatable mineral potential in the subunit is low and few locatable mineral exploration or development would be anticipated.

Suction dredging could occur with a notice level operation however the reasonably foreseeable development scenario prediction is that no suction dredge operations or casual-use level suction dredging will occur in the Upper Black River planning unit.

The ACEC would be closed to leasable minerals, consistent with maintaining wilderness characteristics. The remaining 1,739,000 acres would be open. No lease sales are anticipated in the remaining area. In the unlikely event that an area was nominated for a lease sale, the effects would be analyzed under a new NEPA document. Seismic exploration could occur on high potential oil and gas lands near Circle (Map 87). Geophysical exploration would require removal of trees in 14 foot wide straight line transects for 10–20 miles. Exploration will be limited to winter with requirements on snow and ground frost depths, which will protect vegetation. Compaction of vegetation and soils and removal of canopy cover to conduct exploration may result in conditions favorable to invasive plants becoming established if seed is introduced. Invasive plants are more likely to be introduced in the Circle area than other parts of the subunit because these lands are less remote and have high potential for oil and gas. Impacts to invasive species management would be minimal and to the extent possible mitigated through the permitting process.

4.6.1.3.5. Alternative D

Effects from Lands and Realty

Effects from land tenure decisions would be the same as Alternative B. Effects from land use authorizations would be the same as Alternative C.

Effects from Leasable and Locatable Minerals

All BLM lands would be open to leasable minerals under Alternative D, some subject to minor constraints. Although this alternative opens the Salmon Fork ACEC to leasable minerals, due to the low oil and gas potential, lack of access, and remoteness of the area no exploration or development is anticipated. Impacts would essentially be the same as Alternative C.

All BLM lands would be open to locatable minerals under Alternative D. Impacts would essentially be the same as Alternative C.

4.6.1.3.6. Alternative E (Proposed RMP)

Alternative E differs from Alternative C in that the Salmon Fork ACEC would be larger (623,000 acres), 28 watersheds would be managed as Riparian Conservation Areas (RCAs), and the ACEC, RCAs, and Black River watershed would be recommended closed to locatable and leasable minerals (1,813,000 acres).

Impacts from Locatable and Leasable Minerals

The recommended closure of 1,813,000 acres to locatable and leasable minerals would reduce the risk of introduction of nonnative invasive species in the subunit. The primary activities in the subunit would be subsistence and recreational activities, which would occur mostly by motorized boat.

Impacts from other resource and resource use decisions in Alternative E would be the same as Alternative C and common to all.

4.6.1.3.7. Cumulative Effects

The effects of past, present and reasonably foreseeable future actions in the Upper Black River Subunit are not likely to cumulatively impact invasive species introduction and spread in the subunit. The remoteness of the area, lack of overland access, and costs of developing resources, other than those that would be used by local residents in or adjacent to the subunit, would render it unlikely that locatable, leasable, or salable mineral or commercial forest sales would occur. Rights-of-way development would be driven by resource development. No proposed exploration, development, access, or other rights-of-way actions are currently under consideration on BLM lands in the subunit. No new proposals would be expected, with the possible exception seismic exploration for oil and gas.

With increased pressures from growing populations and advances in recreational vehicle technology, the Upper Black River Subunit could experience growth in recreation related land use and activity. If this occurs, the need for additional trails and mechanisms for managing these trails could become necessary. However, growth of OHV use would be limited as the subunit is inaccessible from existing roads and highways, is located north and east of the Yukon River, consists of terrain that is generally not suitable for summer OHV use, and is bordered by National Park Service lands on the south and National Wildlife Refuge lands on the west and north. The Yukon River is a barrier to summer access by OHV and use of OHV on Yukon-Charley Rivers National Preserve and Yukon Flats NWR is limited.

4.6.1.4. Soil and Water Resources Upper Black River Subunit

Summary of Effects

The Upper Black River subunit is generally very remote and infrequently visited. Due to its remoteness (high transportation cost) and low mineral potential, little resource development or motorized vehicle use is predicted. As a result, few broad-scale impacts are anticipated in any alternative during the life of the plan. Nonetheless, mining claims carry development rights which could have unpredictable long-term effects on soil and water resources. In Alternative E, the Salmon Fork ACEC and 28 RCAs will remain closed to locatable and leasable mineral

development (nearly half of the subunit). This will prevent potential impacts to soil and water resources in these areas. Approximately 547,000 acres would be open to locatable mineral entry.

4.6.1.4.1. Alternative A (No Action)

Effects from Locatable Minerals

The Upper Black Subunit is closed to locatable mineral entry and there are no existing federal mining claims. There would be no effects from locatable minerals.

Effects from Recreation

There are no Recreation Management designations for the Black River Subunit. The subunit is extremely remote and ongoing uses of BLM lands consist primarily of subsistence or casual recreational use. Past impacts to soil and water resources have been low and future impacts are expected to be minimal under Alternative A.

Effects from Travel Management

There are no OHV area designations in place and the use of motorized vehicles, mechanized equipment, water craft, and aircraft is unrestricted. Alternative A could result in future detrimental impacts to soil resources and watersheds from proliferation of user-created trails, subsequent soil erosion, and increased siltation in streams. However, because of the remote location and lack of access, impacts to soils and water resources are expected to be minimal.

4.6.1.4.2. Alternative B

Effects from Locatable Minerals

Same as Alternative A.

Effects from Recreation

There are no designated recreation management zones or areas for the Black River subunit.

Effects from Travel Management

Seasonal travel restrictions and OHV weight restrictions would reduce the amount of surface disturbance to soil and water resources.

4.6.1.4.3. Alternative C

Effects from Locatable Minerals

The Salmon Fork ACEC (621,000 acres) would be open to locatable mineral entry and the remainder of the subunit, 1,740,000 acres would be open to mineral entry. However no mining is anticipated during the life of the plan due to the low mineral potential and lack of access.

Potential impacts to soil and water resources from locatable minerals management would be greater under Alternative C than Alternatives A and B because new areas would be opened to mineral entry and development. Placer mine operations have the potential to adversely impact soil resources and water quality through erosion, unintended discharge of settling ponds,

and subsequent increased downstream turbidity. Depending on the methods used and size of operation, mining operations could impact the natural water quality and flow characteristics of selected river segments. Disturbance to soil and water resources from a particular mining operation would be mitigated through SOPs and the NEPA process.

Effects from Recreation

Same as Alternative B.

Effects from Travel Management

Same as Alternative B.

4.6.1.4.4. Alternative D

Effects from Locatable Minerals

Under Alternative D, the entire Upper Black River Subunit (2,361,000 acres) would be open to locatable mineral entry. The potential for adverse impacts to soil and water resources would be greater than under Alternatives A, B, but the same as Alternative C and more than Alternative E. However, little if any, locatable mineral activity is anticipated due to the lack of access and the low mineral potential. Disturbance to soil and water resources from a particular mining operation would be mitigated through SOPs and the NEPA process.

Effects from Recreation

Same as Alternative B.

Effects from Travel Management

Same as Alternative B.

4.6.1.4.5. Alternative E (Proposed RMP)

Alternative E is intended to provide a mix of land management actions that best satisfies issues and concerns in consideration of all values and programs and adopts a blend of actions that would balance moderate development with protection of the environment.

Effects from Locatable Minerals

Under Alternative E approximately 547,000 acres, encompassing about 916 stream miles, would be open to locatable mineral entry and associated surface-disturbing activities. The impacts from the extraction of locatable minerals would vary depending on the methods used, the size of operation and the number of mines. It is anticipated that little if any mining or exploration will take place during the life of this plan due to lack of access and low mineral values. However, the area has also had little exploration activity and potential may be underestimated.

Alternative E differs from Alternatives C and D in that the proposed Salmon Fork ACEC, RCAs, and the Black River watershed would be closed to mineral entry and the amount of acres open would be only 547,000 acres compared to 2.3 million acres in Alternatives C and D. Soil and water resources within the ACEC, RCAs, and Black River watershed would remain in natural condition during the life of the plan

Effects from Recreation and Travel Management

There are no designated recreation management zones or areas for the Black River subunit. Under Alternative E all OHVs would be limited to 1,000 pounds curb weight and summer OHV use would not be allowed within the Salmon Fork ACEC. Little recreational and vehicular use is expected hence impacts to soil and water resources are anticipated to be very low. New restrictions can be developed if resource impacts grow due to changing environmental conditions. The subunit is most accessible in winter by snowmobiles, with the much of the accessible lands occurring east of Circle. Impacts on soil and water resources from a small number of federally qualified subsistence users, winter trappers, and occasional summer recreationists are negligible.

With advances in recreational vehicle technology, the Upper Black River Subunit could experience an increased level of land use and activity participation related to OHVs and access for subsistence uses. However, this increase would most likely be limited due to the features of topography, soils, vegetation, permafrost, lack of any defined trails, and overall remoteness of the area.

4.6.1.5. Visual Resources Upper Black River Subunit

Summary of Effects

VRM Classes outline the level of change that could occur within that class. Identifying an area as a specific management class does not guarantee that change will take place. The discussion below identifies the number of acres that may retain or lose visual quality due to management in a specific VRM Class; however, the potential for every acre to lose visual quality due to management in a specific VRM Class is extremely low. The analysis logically assumes that areas designated as VRM Class III and IV would permit more surface-disturbing impacts and potentially have greater adverse impacts on visual resources and scenic quality than those areas designated as VRM Class I and II.

In addition to those impacts discussed as common to all subunits under section 4.3.1.9, the following impacts may occur in the Upper Black River Subunit. For the visual resource inventory see Appendix D, *Visual Resource Inventory*.

Alternatives — VRM Management Class Designations		**VISUAL RESOURCES INVENTORY CLASS DESIGNATION**							
		VRI Class I		**VRI Class II**		**VRI Class III**		**VRI Class IV**	
		0	**0%**	**1,477,000**	**63%**	**447,000**	**19%**	**435,000**	**18%**
Alternative A	Acres	There is no current land use plan, thus VRM Classes have not been assigned to any lands under Alternative A.							
Alternative B	Acres	Acres	%	Acres	%	Acres	%	Acres	%
VRM I									
VRM II	2,361,000			1,478,000	63	448,000	19	435,000	18
VRM III									
VRM IV									
Total	**2,361,000**			**1,478,000**	**63**	**448,000**	**19**	**435,000**	**18**
Alternative C	Acres	Acres	%	Acres	%	Acres	%	Acres	%
VRM I									
VRM II	623,000			549,000	23	51,000	2	23,000	1
VRM III									
VRM IV	1,738,000			929,000	39	397,000	17	413,000	17
Total	**2,361,000**			**1,478,000**	**63**	**448,000**	**19**	**435,000**	**18**
Alternative D	Acres	Acres	%	Acres	%	Acres	%	Acres	%
VRM I									

Alternatives — VRM Management Class Designations		VISUAL RESOURCES INVENTORY CLASS DESIGNATION							
		VRI Class I		VRI Class II		VRI Class III		VRI Class IV	
		0	0%	1,477,000	63%	447,000	19%	435,000	18%
VRM II									
VRM III									
VRM IV	2,361,000			1,478,000	63	448,000	19	435,000	18
Total	**2,361,000**			**1,478,000**	**63**	**448,000**	**19**	**435,000**	**18**
Alternative E	Acres	Acres	%	Acres	%	Acres	%	Acres	%
VRM I									
VRM II				803,000	34	236,000	10	92,000	4
VRM III									
VRM IV				674,000	29	212,000	9	343,000	15
Total	**2,360,000**			**1,477,000**	**63**	**448,000**	**19**	**435,000**	**18**

4.6.1.5.1. Effects Common to All Alternatives

Effects from Cave and Karst Resources

Management of significant caves according to federal laws and regulations, and to prevent resource damage would will help maintain visual resources at the current level of development under all alternatives.

Effects from Salable Minerals

The impacts from the extraction of salable minerals would vary depending on the methods used, the size of operation and the number of mines. Although the acreage open to salable minerals would vary from 1,740,000 acres to 2,161,000 acres depending on the alternative, mineral material sales are not anticipated in the Black River Subunit during the life of the plan due to its remoteness and lack of roads. Thus no impacts are anticipated under any alternative.

4.6.1.5.2. Alternative A (No Action)

Under Alternative A, visual resources would be managed on a project-specific basis as no visual resource management classes have been established. Visual resources would be protected through the use of management class inventory objectives and the visual contrast rating process.

Effects from Visual Resources

This subunit has never been covered by a land use plan. No VRM Classes have ever been assigned, thus the entire subunit would remain unclassified.

Effects from Forest and Woodland Products

Under Alternative A, permits for all types of forest product or timber harvest would be considered throughout the subunit (2,361,000 acres). The size and scope of impacts would depend on the size of the area and harvest techniques used. Given the remote nature, lack of access, and lack of commercially valuable timber, few if any, requests for commercial use of forest products or timber are anticipated. No permits have been issued for this area in the past. The types of impacts that could occur if harvest were permitted, are discussed in section 4.3.1.9 Impacts Common to All Subunits.

Effects from Lands and Realty

Under Alternative A, permits for land use authorizations would be considered throughout the subunit. The size and scope of impacts would depend on the type of authorization. Given the remote nature and lack of access to the subunit, few if any, requests for land use authorizations are anticipated during the life of the plan. The types of impacts that could occur if such uses are permitted, are discussed in section 4.3.1.9 Impacts Common to All Subunits.

Effects from Leasable and Locatable Minerals

The entire subunit (2,361,000 acres) is closed to locatable mineral entry and mineral leasing, subject to valid existing rights. There are no existing mining claims. Under Alternative A, the subunit would remain closed, protecting visual resources by limiting surface disturbance activities associated with mining.

Effects from Travel Management

There are no OHV designations in place and OHV use is unrestricted on 2,361,000 acres. Impacts to visual resources from various types of travel are described in section 4.3.1.9 Impacts Common to All Subunits. The level of impact would be dependent on the types and levels of use. Given the lack of roads and trails in the subunit, current OHV use is likely very limited, consisting of primarily aircraft, boats, and snowmobiles.

4.6.1.5.3. Alternative B

In general, Alternative B anticipates the lowest level of resource development and adopts VRM classes that would be the most restrictive to development. Additional impacts beyond those discussed as common to all subunits under section 4.3.1.9 are discussed below.

Effects from Fish and Aquatic Species

There are 28 Riparian Conservation Areas (RCAs) identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 624,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

No lands were identified as VRI Class I lands. Of VRI Class II lands within RCAs, one-hundred percent or 351,000 acres would be managed as Class II. Of VRI Class III lands within RCAs (212,000 acres) one-hundred percent would be managed as Class II lands resulting in preservation of the existing visual character of these lands. Of VRI Class IV lands within RCAs one-hundred percent (61,000 acres) would be managed as Class II lands resulting in preservation of the existing visual character of these lands.

Effects from Visual Resources

No lands were inventoried as VRI Class I acres under any alternative. Under Alternative B, of VRI Class II lands (sixty-three percent), one-hundred percent (1,478,000 acres) would be managed as VRM Class II allowing a low level of change. These lands have either a B or C rating for scenic quality, a medium sensitivity and occur in all three distance zones.

Of VRI Class III lands (nineteen percent), one-hundred percent (448,000 acres) would be managed as VRM Class II allowing a low level of change to the landscape. These lands have a B or C rating for scenic quality, a medium sensitivity and occur in all three distance zones.

Of VRI Class IV lands (eighteen percent), one-hundred percent (435,000 acres) will be managed as VRM Class II lands allowing a low level of change to the landscape. These lands have a B or C rating for scenic quality, have medium sensitivity and occur in all three distance zones.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities regardless of VRM Class can contribute significantly in reducing impacts to visual resources.

Effects from Wilderness Characteristics

Visual characteristics are related to the criteria used to determine the presence of wilderness characteristics which includes naturalness. Management decisions to preserve wilderness characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining natural vegetation and landform. Under Alternative B, wilderness characteristics would be maintained on one-hundred percent of the lands with wilderness characteristics (2,357,000 acres) limiting activities that impact the appearance of naturalness.

No lands with wilderness characteristics were identified as VRI Class I lands. Of VRI Class II lands with wilderness characteristics, one-hundred percent or 1,478,000 acres would be managed as Class II. Of VRI Class III lands with wilderness characteristics (448,000 acres) one-hundred percent would be managed as Class II resulting in preservation of the existing visual character of these lands. Of VRI Class IV lands with wilderness characteristics one-hundred percent (431,000 acres) would be managed as Class II lands resulting in preservation of the existing visual character of these lands.

Effects from Forest and Woodland Products

Under Alternative B, personal use of timber and commercial use of forest products would be considered throughout the subunit (2,361,000 acres). The size and scope of impacts would depend on the size of the area and harvest techniques used.

No commercial or salvage timber sales would be allowed. Temporary camps and various impacts from different harvest techniques would not impact 2,361,000 acres. These closures would help protect visual resources. However, given the lack of access and low timber values in the subunit, few if any, commercial sales are anticipated.

Effects from Lands and Realty

Under Alternative B, the entire subunit, is identified for retention by the BLM; private inholdings would be considered for acquisition to consolidate land ownership patterns. These decisions would help protect visual resources on these lands.

Within the Salmon Fork ACEC, rights-of-way (ROW) would generally not occur if other suitable locations are available. This would protect visual resources by not allowing clearance of vegetation and construction of structures associated with different kinds of ROW. A natural landscape in line, form, color and texture would be maintained on 621,000 acres. Given the remote location of the subunit, few if any, ROW are anticipated. Other types of land use authorizations would be considered throughout the subunit and impacts would be the same as Alternative A.

Effects from Leasable and Locatable Minerals

Same as Alternative A, the subunit would be closed to these types of uses, protecting visual resources by limiting surface-disturbing activities.

Effects from Travel Management

The restriction of motorized use to OHVs 50 inches or less in width and weighing 1,000 pounds curb weight and less without permit for winter travel, and 64 inches or less and 1,500 pounds curb weight or less for summer travel within the entire subunit helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape even with cross-country travel allowed. The lighter weight vehicles tend to be smaller and narrower, thus impacting vegetation on a smaller footprint or scale. Weight restricted travel impacts 2,361,000 acres. Impacts to visual resources by open cross-country travel are described under section 4.3.1.9 Impacts Common to All Subunits.

The closure of the Salmon Fork ACEC to summer OHV use will prevent surface disturbance to vegetation and soils from the use of motorized vehicles, thus protecting the visual resources of the natural landscape on 621,000 acres. The use of larger motorized vehicles within the Upper Black River Subunit could be authorized by permit. The impacts larger vehicles would vary depending on the size of vehicle, season of travel, and the number of passes made. Impacts would be similar to those described for cross-country travel under section 4.3.1.9 Impacts Common to All Subunits except on a larger scale. Although much of the subunit would be open to cross-country motorized use, the lack of trails and remote nature of the subunit would limit the level of use.

Effects from Special Designations

Under Alternative B, 621,000 acres would be designated as the Salmon Fork ACEC to manage limestone habitats and steep south facing slopes and bluffs for rare flora, and to protect Bald Eagle nesting habitat, salmon habitat, and caribou habitat. Management decisions to protect fish and wildlife habitat in the ACEC would help preserve the visual character of the area.

No lands were identified as VRI Class I lands. Of VRI Class II lands in the ACEC, one-hundred percent or 549,000 acres would be managed as Class II. Of VRI Class III lands (51,000 acres) one-hundred percent would be managed as Class II lands resulting in the preservation of the existing visual character of these lands. Of VRI Class IV lands one-hundred percent (20,000 acres) would be managed as Class II lands resulting in the preservation of the existing character of these lands.

Approximately 15,500 acres associated with the Salmon Fork of the Black River would be maintained as a natural landscape under the eligibility as a “wild” river. “Wild” rivers are essentially primitive and undeveloped. Management decisions to preserve these characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining natural vegetation and landform.

4.6.1.5.4. Alternative C

Additional impacts beyond those discussed as common to all subunits in section 4.3.1.9 are discussed below.

Effects from Fish and Aquatic Species

There are 13 RCAs identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 205,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

No lands were identified as VRI Class I lands. Of VRI Class II lands within RCAs, forty-nine percent or 100,000 acres would be managed as Class II while fifty-one percent or 105,000 acres would be managed as Class IV lands allowing visual changes to the natural landscape to occur. Of VRI Class III lands within RCAs, ninety-six percent or 37,000 acres would be managed as Class II lands resulting in preservation of the existing visual character of these lands while four percent or 2,000 acres would be managed as Class IV lands allowing visual changes to the natural landscape to occur. Of VRI Class IV lands within RCAs ninety-five percent (1,000 acres) would be managed as Class II lands resulting in preservation of the existing visual character of these lands while five percent (48 acres) would be managed as Class IV lands.

Effects from Visual Resources

No lands were identified as VRI Class I lands. Of VRI Class II lands (sixty-three percent), approximately twenty–three percent (549,000) would be managed as VRM Class II allowing a low level of change. Approximately thirty–nine percent (929,000 acres) would be managed as VRM Class IV potentially resulting in a high level of change to landscape characteristics. These lands have an A rating for scenic quality, a medium sensitivity, and occur in all three distance zones.

Of VRI Class III lands (nineteen percent), two percent (51,000 acres) would be managed as VRM Class II allowing a low level of change, while seventeen percent (397,000) would be managed as VRM Class IV potentially resulting in a high level of change to landscape characteristics. These lands have a B rating for scenic quality, a medium sensitivity, and occur in the Foreground-Middleground distance zone.

Of VRI Class IV lands (eighteen percent), approximately one percent (23,000 acres) would be managed as VRM Class III potentially resulting in only partial retention of landscape characteristics, while seventeen percent (413,000 acres) would be managed as VRM Class IV potentially resulting in a high level of change to landscape characteristics. These lands have either a B or C rating for scenic quality, a medium sensitivity, and occur in all three distance zones.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities regardless of VRM Class can contribute significantly in reducing impacts to visual resources.

Effects from Wilderness Characteristics

Visual characteristics are related to the criteria used to determine the presence of wilderness characteristics which includes naturalness. Management decisions to preserve wilderness characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining natural vegetation and landform. Under Alternative C, wilderness characteristics would be maintained on twenty-six percent of the lands with wilderness characteristics (621,000 acres) limiting activities that impact the appearance of naturalness.

No lands were identified as VRI Class I lands. Of VRI Class II lands with wilderness characteristics, one-hundred percent or 549,000 acres would be managed as Class II. Of VRI

Class III lands with wilderness characteristics (51,000 acres) one-hundred percent would be managed as Class II resulting in preservation of the existing visual character of these lands. Of VRI Class IV lands with wilderness characteristics one-hundred percent (20,000 acres) would be managed as Class II lands resulting in preservation of the existing visual character of these lands.

Effects from Forest and Woodland Products

Impacts from personal use of timber and commercial use of forest products would be the same as Alternative B. Additionally, timber salvage sales would be allowed throughout the subunit and commercial timber sales would be allowed except in the Salmon Fork ACEC (621,000 acres). This closures would help protect visual resources. Temporary camps and various impacts from different harvest techniques could impact areas open to harvest. However, few if any, commercial sales are anticipated.

Effects from Land and Realty

Effects from land tenure decisions would be the same as Alternative B. Regarding land use authorizations, the entire subunit (2,361,000 acres) would be available for ROW permits with possible clearance of vegetation and structures associated with different kinds of ROW activities, and result in contrast with the natural landscape in line, form, color and texture as described in section 4.3.1.9.

Effects from Leasable Minerals

Under Alternative C, the seventy-four percent of the subunit would be open to mineral leasing. Minor constraints, such as seasonal restrictions, would apply to 737,000 acres, including lands around Circle, and the Salmon Fork ACEC would be closed (621,000 acres). Minor constraints would protect visual resources by limiting surface-disturbing activities at least seasonally. Impacts to visual resources by exploration, development and production of solid leasable minerals on the remaining 1,625,000 acres would depend on the scale of the activity. Impacts would be unlikely, as no development or exploration of solid leasable minerals is anticipated due to the low potential for these minerals and lack of access.

Seismic exploration could occur on high oil and gas potential lands near Circle. Changes to line, form, color, and texture may occur due to clearing of seismic lines. However, no development of fluid leasable minerals is anticipated during the life of the plan.

Effects from Locatable Minerals

Under Alternative C, the entire subunit would be open to locatable mineral entry and associated surface-disturbing activities. The impacts from the extraction of locatable minerals would vary depending on the methods used, the size of operation and the number of mines. It is anticipated that mining will not take place during the life of this plan due to lack of access and low mineral values. Thus impacts are not anticipated.

Effects from Travel Management

Effects from travel management would be the same as Alternative B except in the Salmon Fork ACEC. Under this alternative, the Salmon Fork ACEC would be open to summer motorized use of OHVs 64 inches in width or less and weighing 1,500 pounds curb weight or less. This would result in the potential impacts to visual resources on 2,361,000 acres similar to those described in section 4.3.1.9 Impacts Common to All Subunits.

Effects from Special Designations

Same as Alternative B, the Salmon Fork ACEC would be designated. However, under Alternative C, the ACEC would be open to salable and leasable minerals. Cross-country use of vehicles weighing 1,500 pounds curb weight and less during summer and 1,000 pounds curb weight during winter would be allowed year round and it would not be a ROW avoidance area.

4.6.1.5.5. Alternative D

In general, Alternative D anticipates the greatest amount of resource development and adopts the least restrictive VRM classes, allowing for major development while protecting visual resource in certain areas. Impacts beyond those discussed as common to all subunits in section 4.3.1.9 are discussed below.

Effects from Fish and Aquatic Species

There are five RCAs identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 205,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

No lands were identified as VRI Class I lands. Of VRI Class II lands within RCAs, one-hundred percent or 123,000 acres would be managed as Class IV allowing a visible level of change to the landscape. Of VRI Class III lands within RCAs (34,000 acres) one-hundred percent would be managed as Class IV lands allowing a visible level of change to the landscape. Of VRI Class IV lands within RCAs one-hundred percent (1,000 acres) would be managed as Class IV lands.

Effects from Visual Resources

Of VRI Class II lands (sixty-three percent), one-hundred percent (1,478,000 acres) would be managed as VRM Class IV. Of VRI Class III (nineteen percent, 448,000 acres) and Class IV lands (eighteen percent and 435,000 acres), one-hundred percent would also be managed as VRM Class IV, potentially resulting in a high level of change to landscape characteristics throughout the subunit. These lands have either a B or C rating for scenic quality, a medium sensitivity, and occur in all three distance zones.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities regardless of VRM Class can contribute significantly in reducing impacts to visual resources.

Effects from Wilderness Characteristics

Under Alternative D, wilderness characteristics would not be actively maintained on any lands. Visual resources would not be protected by management for wilderness characteristics.

Effects from Forest and Woodland Products

Impacts would be the same as under Alternative C, except commercial sales would be allowed in the Salmon Fork ACEC. Impacts to visual resources from commercial sales could potentially occur anywhere in the subunit (2,361,000 acres). The size and scope of impacts would depend on the size of the area and harvest techniques used. Impacts are discussed in section 4.3.1.9

Impacts Common to All Subunits. Given the lack of access and low timber values in the subunit, few if any, commercial sales are anticipated.

Effects from Land and Realty

Effects from land tenure and land use authorizations would be the same as Alternative C.

Effects from Leasable Minerals

Effects would essentially be the same as Alternative C, although minor constraints would apply to 16,000 fewer acres under Alternative D.

Effects from Locatable Minerals

Same as Alternative C.

Effects from Travel Management

Same as Alternative C.

Effects from Special Designations

Same as Alternative B, the Salmon Fork ACEC would be designated. Management of the ACEC would be similar to Alternative C.

No lands were identified as VRI Class I lands. Of VRI Class II lands within the ACEC, one-hundred percent or 549,000 acres would be managed as Class IV allowing visual changes to the natural landscape to occur. Of VRI Class III lands within the ACEC (51,000 acres) one-hundred percent would be managed as Class IV lands allowing visual changes to the natural landscape to occur. Of VRI Class IV lands within the ACEC one-hundred percent (20,000 acres) would be managed as Class IV lands.

Same as Alternative C, no rivers would be recommended suitable for inclusion to the NWSR.

4.6.1.5.6. Alternative E (Proposed RMP)

In general, Alternative E represents a mix and variety of actions that best resolves issues and concerns in consideration of all values and programs and adopts more of a blend of VRM classes that would allow major development while protecting visual resources in certain areas. It has the second highest percentage of VRM Class II lands of all Alternatives. Class II allows a low level of change to the characteristic landscape where management activities may be seen but not attract the attention of the casual observer.

Effects from Fish and Aquatic Species

Same as Alternative B, 28 Riparian Conservation Areas (RCAs) are identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 624,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

No lands were identified as VRI Class I lands. Of VRI Class II lands, one-hundred percent or 351,000 acres would be managed as Class II. Of VRI Class III lands (212,000 acres) one-hundred

percent would be managed as Class II lands resulting in preservation of the existing visual character of these lands. Of VRI Class IV lands one-hundred percent (61,000 acres) would be managed as Class II lands resulting in preservation of the existing visual character of these lands.

Effects from Visual Resources

No lands were identified as VRI Class I lands. Of VRI Class II lands (sixty-three percent), approximately thirty-four percent (803,000 acres) would be managed as VRM Class II allowing a low level of change. Approximately twenty-nine percent (674,000 acres) would be managed as VRM Class IV potentially resulting in a high level of change to landscape characteristics. These lands have an A rating for scenic quality, a medium sensitivity, and occur in all three distance zones.

Of VRI Class III lands (nineteen percent), ten percent (236,000 acres) would be managed as VRM Class II allowing a low level of change, while nine percent (212,000) would be managed as VRM Class IV potentially resulting in a high level of change to landscape characteristics. These lands have a B rating for scenic quality, a medium sensitivity, and occur in the Foreground-Middleground distance zone.

Of VRI Class IV lands (eighteen percent), four percent (92,000 acres) would be managed as VRM Class II allowing a low level of change. Approximately fifteen percent (343,000 acres) would be managed as VRM Class IV potentially resulting in a high level of change to landscape characteristics. These lands have either a B or C rating for scenic quality, a medium sensitivity, and occur in all three distance zones.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities regardless of VRM Class can contribute significantly in reducing impacts to visual resources.

In summary, 1,131,000 acres will be managed as VRM Class II, and 1,229,000 acres will be managed as VRM Class IV. No lands (acres) will be managed as VRM Class I or VRM Class III.

Effects from Wilderness Characteristics

Under Alternative E, no lands would be managed to protect wilderness characteristics as a priority over other resource values and multiple use. Wilderness characteristics would be maintained on 1,114,000 acres, by limiting activities that impact wilderness characteristics of size, naturalness and outstanding opportunities for solitude or primitive and unconfined recreation.

No lands were identified as VRI Class I lands. Of VRI Class II lands where wilderness characteristics would be maintained, one hundred percent or 343,000 acres would be managed as Class II lands. Of VRI Class III lands (nineteen percent) where wilderness characteristics would be maintained, one hundred percent (235,000 acres) would be managed as VRM Class II allowing a low level of change. These lands have either a B or C rating for scenic quality, a medium sensitivity, and occur in all three distance zones. Of VRI Class IV lands (eighteen percent) where wilderness characteristics would be maintained, one hundred percent (92,000 acres) would be managed as VRM Class II allowing a low level of change. These lands have either a B or C rating for scenic quality, a medium sensitivity, and occur in all three distance zones.

Effects from Forest and Woodland Products

Under Alternative E, personal use of timber and forest products, commercial use of forest products, and commercial timber salvage would be allowed on all BLM-managed lands (2,360,000 acres) with impacts the same as Alternative C.

Impacts from commercial timber sales (large and small) would be considered on all BLM–managed lands except the Salmon Fork ACEC. These acres (623,000 acres) would be protected from impacts associated with commercial timber sales the same a Alternative C.

Effects from Land and Realty

Effects from land tenure and land use authorizations would be the same as Alternative C.

Effects from Fluid Leasable Minerals

Under Alternative E, 1,813,000 would be closed to fluid leasable minerals, protecting visual resources in these areas (Maps 69 and 40). Closed areas include the Salmon Fork ACEC, RCAs, and the Black River watershed.

Approximately 547,000 acres would be open to fluid mineral leasing subject to Standard Lease Terms, Fluid Mineral Leasing Stipulation and Standard Operating Procedures. No development of fluid minerals is anticipated over the life of the plan. Seismic exploration could occur in open areas. Impacts such as creation of green trails and the removal of vegetation in straight lines causing changes to color, line and texture, could occur. Although a smaller area would be open, impacts from seismic exploration would be the same as Alternative B.

Effects from Solid Leasable Minerals

Under Alternative E, the areas described as closed to fluid mineral leasing above, would also be closed to solid leasable minerals. These actions would protect visual resources. Approximately 547,000 acres would be open to solid mineral leasing. However, no solid mineral exploration or leasing is anticipated during the life of the plan, limited the potential for impacts.

Effects from Locatable Minerals

Closure of 1,813,000 acres to locatable minerals, would protect visual resources in these areas (Map 43). Closed areas include the Salmon Fork ACEC, RCAs, and the Black River watershed. This would protect visual resources by not allowing surface-disturbing activities associated with mineral development.

Approximately 547,000 acres would be open to locatable mineral entry and associated surface-disturbing activities. The impacts from the extraction of locatable minerals would vary depending on the methods used, the size of operation and the number of mines. It is anticipated that mining will not take place during the life of this plan due to lack of access and low mineral values. Thus impacts are not anticipated.

Effects from Salable Minerals

Same as Alternative C.

Effects from Travel Management

Same as Alternative C.

Effects from Special Designations

Under Alternative E, the Salmon Fork ACEC would be designated. The 623,000 acres ACEC would be closed to fluid and solid leasable minerals, and locatable minerals but open to salable minerals.

No lands were identified as VRI Class I lands. Of lands within the ACEC with a VRI Class II, one-hundred percent or 549,000 acres would be managed as Class II, lands with a VRI Class III (51,000 acres), one-hundred percent would be managed as Class II lands while lands with a VRI of Class IV, one-hundred percent (23,000 acres) would be managed as Class II lands.

Same as Alternative C, no rivers would be recommended suitable for inclusion to the NWSR.

4.6.1.6. Wilderness Characteristics Upper Black River Subunit

Summary of Effects

There are 2,357,000 acres identified within the Upper Black River Subunit as having wilderness characteristics of size, naturalness, and the opportunity for solitude or a primitive unconfined type of recreation experience. Managing lands for wilderness characteristics would limit many surface-disturbing activities. See section 4.3.1.10 Impacts Common to All Subunits for impacts to wilderness characteristics. Alternative B would protect the most acres for wilderness characteristics while Alternative A would not identify any acres as having wilderness characteristics. Alternative C provides a balance between protection and resource use while Alternative D provides for resource development and protects the least amount of land for wilderness characteristics. Alternative E emphasizes other multiple uses while applying management restrictions to reduce impacts to wilderness characteristics.

4.6.1.6.1. Alternative A (No Action)

No lands are managed for wilderness characteristics under this Alternative. Of the 2,357,000 acres identified as having wilderness characteristic, none would be directly managed to protect those values. Other actions and management strategies, and the remote nature of the area may help protect those values indirectly. The entire subunit is currently closed to locatable and leasable minerals.

4.6.1.6.2. Alternative B

Of the 2,357,000 acres identified as having wilderness characteristic, one-hundred percent, would be directly managed to protect those values. The entire subunit would be closed to locatable and leasable mineral entry. Additionally, these lands are very remote and difficult to access. Activities that would negatively affect wilderness characteristics are not expected to occur over large acreages.

4.6.1.6.3. Alternative C

Of the 2,357,000 acres identified as having wilderness characteristic, 621,000 acres (twenty-six percent), would be directly managed to protect those values. These areas include the Salmon Fork ACEC and thirteen RCAs. Other actions and management strategies may help protect wilderness values indirectly on the remaining 1,740,000 acres. Leasable mineral exploration or development

would possible on 1,740,000 acres; while the entire 2,357,000 acres would be open to locatable minerals, the reasonably foreseeable development scenario does not suggest any development during the life of the plan. It would take several years to modify existing withdrawals. Mineral potential is very low and mining would be unlikely. Oil and gas leasing is not anticipated although a very limited amount of seismic exploration could occur in the southern part of the subunit. Even if all development is realized it would affect much less than one percent of all available acres. If mining-related exploration occurred, naturalness would be impacted within the view shed of the development until the site was reclaimed to the extent that it appeared natural looking see section 4.3.1.10 Impacts Common to All Subunits. Additionally, these lands are very remote and difficult to access. Activities that would negatively affect wilderness characteristics are not expected to occur over large acreages.

4.6.1.6.4. Alternative D

Of the 2,357,000 acres identified as having wilderness characteristic, 0 acres, would be directly managed to protect those values. As in Alternative C, other actions and management strategies may help protect wilderness values in the subunit. Mineral exploration or development would be possible in the entire subunit however the reasonably foreseeable development scenario does not suggest a any development during the life of the plan. It would take several years to modify existing withdrawals. Mineral potential is very low and mining would be unlikely. Even if all development is realized it would affect less than one percent of all available acres. If mining-related exploration occurred, naturalness would be impacted within the view shed of the development until the site was reclaimed to the extent that it appeared natural looking see section 4.3.1.10 Impacts Common to All Subunits. Additionally, these lands are very remote and difficult to access. Activities that would negatively affect wilderness characteristics are not expected to occur over large acreages.

4.6.1.6.5. Alternative E (Proposed RMP)

Of the 2,356,000 acres identified as having wilderness characteristics, those characteristics would be maintained on 1,114,000 acres by limiting activities that impact size, naturalness and opportunities for solitude or primitive and unconfined recreation. Mineral exploration or development would be possible on 547,000 acres, however the reasonably foreseeable development scenario does not suggest a any development during the life of the plan. It would take several years to modify existing withdrawals. Mineral potential is very low and mining would be unlikely. Even if all development is realized it would affect less than one percent of all available acres. If mining-related exploration occurred, naturalness would be impacted within the view shed of the development until the site was reclaimed to the extent that it appeared natural looking see section 4.3.1.10 Impacts Common to All Subunits. Additionally, these lands are very remote and difficult to access. Activities that would negatively affect wilderness characteristics are not expected to occur over large acreages.

4.6.1.7. Wildlife Upper Black River Subunit

Summary of Effects

The Upper Black River subunit is generally very remote and infrequently visited. Little is known of wildlife resources in the area and so impacts are difficult to predict. Due to its remoteness (high transportation cost) and mineral potential considered generally low, little resource development or

motorized vehicle use is predicted, even in alternatives which open nearly the entire area to such uses. As a result, few broad-scale impacts are anticipated in any alternative during the life of the plan. However,local impacts may occur and mineral resources may be more abundant than predicted and/or the development of resources on private lands may make development on BLM lands more economic. Mining claims carry development rights which could have unpredictable long-term effects on wildlife resources. Designation of the ACEC and closing it to locatable minerals (in Alternatives B and E) will protect wildlife resources in a large portion of the area where subsistence use is most prevalent. In Alternative E, the Salmon Fork ACEC, RCAs, and the Black River watershed will remain closed to locatable and leasable mineral development (77 percent of the subunit). This will prevent potential impacts to wildlife habitats in these areas, which includes the majority of known bald eagle nesting habitat.

4.6.1.7.1. Effects Common to All Alternatives

4.6.1.7.2. Alternative A (No Action)

Effects from Leasable and Locatable Minerals

There will be little to no effects from mining. The entire unit is withdrawn from mineral leasing, location, and entry. There are no existing leases or existing mining claims. Exploration activities are unlikely.

Effects from Recreation and Travel Management

The area is managed in custodial manner, no recreation management areas are identified. Use of motorized vehicles is unrestricted; however, the area is generally very remote and little motorized use occurs. The subunit is most accessible in winter by snowmobiles; the most accessible portion are lands occurring east of Circle. Impacts from a small number of federally qualified subsistence users, winter trappers, and occasional summer recreationists are very small. Motorized boats are permitted (as in all alternatives) and summer cross-country OHV use is allowed throughout the subunit. Large OHVs are permitted, which could cause localized impacts to habitat, but otherwise, impacts are anticipated to be low, due to the low level of existing and expected motorized use. OHV use may occur in the area east of the Yukon River from Circle through use of old seismic exploration trails. OHVs transported up to the Salmon Fork via riverboat could possibly be used in that area, but such use is likely to be uncommon. Area- or season-specific closures could be implemented to protect resources at risk of impact.

4.6.1.7.3. Alternative B

Effects from Leasable and Locatable Minerals

Same as A. The entire subunit remains closed to mineral entry and leasing.

Effects from Recreation and Travel Management

Similar to Alternative A, but OHVs would be limited to 1,000 pounds curb weight and summer OHV use would not be allowed within the Salmon Fork ACEC. Little recreational and vehicular use is expected and so impacts are expected to be very low. New restrictions can be developed if resource impacts develop or become expected.

Effects of Special Designations

Under Alternative B, the Salmon Fork Black River drainage is designated as the Salmon Fork ACEC (Map 69) and is closed to locatable mineral entry, leasable minerals, and salable minerals. It will be retained in federal management and be a right-of-way avoidance area. This will serve to maintain the Salmon Fork area in its current primitive condition with primary land uses being subsistence hunting and trapping. The entire subunit is closed to commercial timber sales. Although winter snowmobiles would be allowed, remoteness would limit the number and intensity of use. The ACEC designation would maintain habitat for Porcupine caribou, bald eagle, and other wildlife, including those used for subsistence. The allowance of motorized boats on the Salmon Fork is a continuation of the current situation. Although motorized activity may affect nesting eagles or other raptors, the level of use is very low and impacts should be minor.

The Salmon Fork is recommended as suitable as a WSR. Until a non-designation decision would be made by Congress, management would preserve ORVs, including a far northern nesting population of bald eagles (at the Arctic Circle). Management as a WSR would benefit this and other wildlife resource values.

4.6.1.7.4. Alternative C

Effects from Locatable and Leasable Minerals

The entire subunit is open to locatable minerals. Only the Salmon Fork ACEC (621,000 acres) would be closed to leasable minerals. The leasable mineral potential is generally considered to be low (except on lands near Circle), and the area is mostly very remote. Seismic oil and gas exploration is predicted to be unlikely, but could potentially occur on lands with high oil and gas potential (those near Circle). The locatable mineral potential is also considered to be low and no mining operations are predicted for the life of the plan. However, the area has also had little exploration activity and potential may be underestimated. Some exploration will likely occur.

Riparian conservation areas (section 2.9.2.1.1.3 Fish and Aquatic Species) are designated in only two drainages (the tributaries and mainstem of the Kandik river and Salmon Fork, Map 12). In these areas, RCAs will reduce potential impacts of locatable mineral development (particularly placer mining) on riparian and aquatic habitats by improving reclamation.

Little is known of wildlife resources in this subunit, limiting our ability to predict impacts. Dall sheep are thought to occur only sporadically in a few areas along the Canada border. Other than seasonal restrictions on aircraft activity in SOPs (Appendix A), there are no specific protections for Dall sheep. Caribou of the Porcupine Herd occur in the area during winter and exploration or production could potentially create local displacement and some fragmentation of habitat. Given the limited exploration and development of locatable and leasable minerals expected, impacts to wildlife are expected to be correspondingly limited, and mostly local in extent. If mining roads or trails remain un-connected to a highway system, impacts would be lower than those in more accessible areas.

Effects from Recreation and Travel Management

Effects would be similar to Alternative B with the exception that because summer use OHV is allowed in the Salmon Fork ACEC, potential for effects relative to Alternative B may increase slightly.

Effects from Special Designations

The Salmon Fork ACEC would be closed to salable and leasable minerals, but open to locatable minerals. Stream reclamation standards of RCAs would also apply to the entire ACEC, reducing impact potential slightly to moderately.

No rivers would be recommended as suitable for designation. Impacts to nesting bald eagles under this alternative are expected to be low, but disturbance or changes in water quality could occur if substantial mining activity occurs on the Salmon Fork or tributaries.

4.6.1.7.5. Alternative D

Effects from Locatable and Leasable Minerals

As in Alternative C, the entire subunit is open to locatable and leasable minerals, including the Salmon Fork ACEC. A few tributaries of the Salmon Fork and Kandik rivers which were designated as RCAs in Alternative C are not designated in this alternative (Map 13). Impacts will be similar to those identified in Alternative C, except that fewer RCAs are designated. Impacts will depend on actual levels of exploration, development, and claim staking.

Effects from Recreation and Travel Management

Same as Alternative C.

Effects from Special Designations

The Salmon Fork ACEC (621,000 acres) would be open to locatable mineral entry and it would be open to mineral leasing with minor constraints. In this alternative ACEC management intent remains the same, but management decisions differ little from the rest of the subunit, except that leasing will be subject to minor constraints.

No rivers would be recommended as suitable for designation, as in Alternative C. However, there may be some potential for impacts to nesting bald eagles and other wildlife under this alternative, because mining claims may be established and mineral leasing may occur.

4.6.1.7.6. Alternative E (Proposed RMP)

Effects from Locatable and Leasable Minerals

The Salmon Fork ACEC, RCAs, and the Black River watershed (77 percent of the subunit) are closed to locatable and leasable minerals, while the rest of the subunit is opened. The leasable mineral potential is generally considered to be low (except on lands near Circle), and the area is mostly very remote. Seismic oil and gas exploration is predicted to be unlikely, but could potentially occur on lands with high oil and gas potential (those near Circle). The locatable mineral potential is also considered to be low and no mining operations are predicted for the life of the plan in the RFD scenario. However, the area has also had little exploration activity and potential may be underestimated. Some exploration may occur.

Riparian conservation areas (section 2.7.2.1.1.3 Fish and Aquatic Species) are designated in 22 drainages outside of the ACEC (Map 12). This expanded set of RCAs (relative to Alternative C) will be closed to locatable and leasable minerals in Alternative E and so will reduce potential

impacts of locatable mineral development (particularly placer mining) on riparian and aquatic habitats.

Little is known of wildlife resources in this subunit, limiting our ability to predict impacts. Dall sheep are thought to occur only sporadically or in low density in a few areas in the Keele Range and to the south near the Canada border. There are no specific protections for Dall sheep. Caribou of the Porcupine Herd occur in the area during winter and exploration or production could potentially create local displacement and some fragmentation of habitat. The subunit is reported by local residents to support moose populations in Yukon Flats and include important moose calving habitat, but we have no data on moose movements in the area. Localized, small-scale projects would not likely measurably impact subunit moose population. Given that 77 percent of the subunit would remain closed, and the limited exploration and development of locatable and leasable minerals expected, impacts to wildlife are expected to be correspondingly limited, and mostly local in extent. If mining roads or trails remain unconnected to the Alaska highway system, impacts would be lower than those in more accessible portions of the planning area.

Effects from Recreation and Travel Management

Effects would be similar to Alternative B with the exception that because summer use OHV is allowed in the Salmon Fork ACEC, potential for effects relative to Alternative B may increase slightly.

Effects from Special Designations

The Salmon Fork ACEC would be closed to leasable and locatable minerals. The stream reclamation standards applicable to RCAs would also apply to the entire ACEC, reducing impact potential slightly to moderately.

No rivers would be recommended as suitable for designation.

4.6.1.7.7. Cumulative Impacts

Although lands in this subunit are considered generally of low potential for mineral development, several large blocks of land have been conveyed to Native corporations, indicating substantial mineral potential. Mineral development on those lands could effect wildlife resources on adjacent BLM lands, especially if road access were developed. The portion of the subunit which will be opened to staking of mining claims will vary from 100 percent in alternatives C and D to 23 percent in E. Staked claims may have effects beginning well beyond the life of the plan. See also section 4.3.1.12.6 Cumulative Effects, Wildlife.

4.6.2. Resource Uses

4.6.2.1. Locatable Minerals Upper Black River Subunit

Summary of Effects

The Upper Black River Subunit has low known locatable mineral potential and activity would be limited, despite the large acreage available under some alternatives. Alternatives A and B would not open up any lands to mineral entry. Alternatives E, C, and D would open from 547,000 acres to 2.36 million acres.

4.6.2.1.1. Effects Common to All Alternatives

State- and Native-selected lands will remain segregated from mineral entry and location until final land title has been established. New mining operations on withdrawn lands will require a validity exam prior to approval of a Plan of Operation. All active mining operations will be required to submit a plan of operation if the 1,000 ton bulk sample is exceeded (3809.11(b)). Mining operations using cyanide in the processing of amenable ores will require a Plan of Operations. Mining claim surface occupancy is guaranteed but must remain reasonably incident to the current levels of mining activity. Bonding is required of all mining operations other than those grandfathered. Reclamation of surface disturbance is required. Undue and unnecessary degradation will remain the standard for mining operations on BLM lands. The right of reasonable access across BLM lands to unpatented federal mining claims is assured. Cultural resources encountered during surface-disturbing activities are subject to the Antiquities Act. Economic impacts of mining decisions are analyzed in section 4.6.4.1 Economics Upper Black River Subunit.

4.6.2.1.2. Alternative A (No Action)

Under Alternative A, the ANCSA 17(d)(1) withdrawals would not be revoked and there are no existing federal claims. This alternative would offer no process to address these closures.

4.6.2.1.3. Alternative B

Under Alternative B, the entire subunit would remain closed to locatable mineral entry. This alternative would offer no process to address these closures.

4.6.2.1.4. Alternative C

Under Alternative C, 2,361,000 acres would be available to locatable mineral entry. The drainages in this subunit have low potential for mining. Existing data does not support anything beyond low potential within the subunit. Exploration efforts to date have found the geology in this area is not conducive to locatable minerals. Mining activity is not considered reasonably foreseeable in the life of the RMP. The effects of opening the subunit to mining would be minimal.

4.6.2.1.5. Alternative D

Same as Alternative C.

4.6.2.1.6. Alternative E (Proposed RMP)

Under Alternative E, 547,000 acres would be available to locatable mineral entry. 1,813,000 acres in Salmon Fork ACEC, RCAs, and Black River watershed not available. As in other alternatives, mineral potential is low and mining activity is not considered reasonably foreseeable. The effects of opening 23 percent of the subunit to mining would be minimal.

4.6.2.1.7. Cumulative Impacts

Closures and lack of infrastructure within the subunit may affect exploration of locatable minerals given the low resource potential as known from existing data. Impacts to locatable minerals that are individually minor may cumulatively reduce exploration and production of commodities from public lands. Factors that affect mineral extraction and prospecting include, but are not limited to, such things as permitting and permitting delays, regulatory policy, public perception and concerns, travel management, transportation, mitigation measures, proximity to sensitive areas (such as ACECs), low commodity prices, taxes, and housing and other necessities for workers. The BLM has no control over many of these factors. Most of these factors result in additional costs and/or permitting delays that can individually or cumulatively add additional costs to projects.

Lack of access to public land could reduce the amount of mineral exploration and development that may occur. If mineral resources were discovered in other ownerships, they may not be developed if the adjacent public lands are withdrawn from mineral entry, because development may not be economically feasible if the deposit crosses ownerships and only a portion is available for development.

Alternatives A and B are the most restrictive to mineral development and would perpetuate the closure of more than 2 million acres to the staking of new mining claims. . The entire subunit is closed with emphasis placed on other resources.

Alternatives C and D would increase the number of acres open to staking of mining claims in the region by more than 2 million acres. Likewise Alternative E would increase the number of acres by 547,000 acres.

4.6.2.2. Recreation Upper Black River Subunit

Summary of Effects

Effects on recreation management from the proposed alternatives would result in a wide range of possible outcomes. Proper resource management, including site-specific measures to protect healthy, functioning watersheds, riparian areas, and associated fish and wildlife habitats, would result in short- and long-term, beneficial impacts to fish and game related recreation use.

Special designations and management applied to these areas, including ACECs and WSRs, would further protect the region, potentially increasing wildlife numbers that benefit wildlife viewing, hunting, and fishing opportunities. Proposed management in ACECs and WSRs would encourage recreation activities of a more non-motorized, Semi-Primitive nature. As the size and scope of these special designations increase, opportunities for non-motorized forms of recreation would also increase. Negative effects from these designations would also arise, if additional restrictions were placed on OHV use and other recreational activities.

All lands (2,361,00 acres) in the Upper Black River Subunit under all action alternates, would be managed for custodial actions only, addressing visitor health and safety, user conflict, and resource protection issues. Land, water, and snow based activities would continue to remain the focus in this area, providing access for the commonly conducted activities of hunting, fishing, trapping, and gathering of edible plants and berries.

Alternative C best meets the goal of providing for multiple recreation use, while sustaining the recreation-resource base and other sensitive resource values of the region. Alternative B

emphasizes less motorized recreation use in a more primitive setting, while Alternatives A, C, D and E offer slightly more motorized recreation opportunities.

4.6.2.2.1. Effects Common to All Alternatives

Effects from Forest and Woodland Products

Under all alternatives, the effects of forest and woodland products harvest would result in minimal impacts to recreation management. Current levels of firewood collection, commercial harvests, and forest products gathering would continue to be sustained without significant resource damage. However, if significant sales occurred, due to bark beetle infestations or from commercial timber harvests, recreational users would see increased trails, potential dislocation of wildlife, and alteration of scenic viewsheds. Although the areas open to commercial uses vary between alternatives, the low demand and lack of timber resource would limit these uses in all alternatives.

Effects from Recreation

Under all alternatives, recreation management would continue to provide for custodial actions only, through minimal facilities, structures, and regulations, except when deemed necessary to address visitor health and safety, user conflicts, and resource protection issues. Together, these actions would directly affect recreation management by ensuring that land- and water-based recreation opportunities continue to exist in the Upper Black River Subunit. No recreation setting character settings would apply.

Special Recreation Permits would continue to be issued as appropriate, allowing managers to provide for safe and enjoyable recreation opportunities at fair and allowable levels. This would minimize user conflicts while ensuring that recreation activity levels do not negatively impact the recreation-resource base and other sensitive resource values of the region.

Effects from Travel Management

Under all alternatives, all forms of non-motorized use would be allowed, providing users with opportunities for float-boating and hiking. Motorboat and aircraft use would also be unrestricted. Winter use (October 15 through April 30) of snowmobiles of 1,000 pounds curb weight and less would be allowed, providing users with winter access for subsistence, traditional, and recreational activities.

4.6.2.2.2. Alternative A (No Action)

Effects from Visual Resources

No visual management classes have been established under Alternative A. Impacts to visual resources would be evaluated and mitigated as proposals for development or permits are received.

Effects from Locatable Minerals

There would be no effects from locatable minerals as the entire subunit is withdrawn from mineral entry and there are no existing mining claims.

Effects from Travel Management

Alternative A provides the most motorized public access of any of the alternatives, as OHV use would remain generally unrestricted due to the lack of travel management decisions. Allowing this level of continued OHV use would not address future resource and user conflict issues and could result in emergency closures to protect the recreation-resource base and other sensitive resource values of the region. These actions could also result in long-term, detrimental impacts to scenic viewsheds that enhance the quality of recreational experiences for other recreation users. Thus, while this alternative would offer the most opportunities for recreational activities that involve the use of motorized travel, including hunting and OHV riding; fewer opportunities would exists for recreational users seeking a primitive, non-motorized type of experience. These effects would likely be minimal due to the lack of access and low levels of motorized use likely to occur in the subunit.

4.6.2.2.3. Alternative B

Effects from Visual Resources

Under Alternative B, the entire Upper Black River Subunit would be managed as a VRM Class II. This decision would have long-term, beneficial impacts on recreational activities that include scenic qualities as part of the experience. Minor effects may result if restrictions are placed on OHV use, in areas that possess a moderate level of recreation demand. Currently, there are no areas of moderate demand in the subunit due to its remote location and lack of access.

Effects from Wilderness Characteristics

Under Alternative B, almost the entire subunit (2,357,000 acres) would be managed for the maintenance of wilderness characteristics. This would provide additional opportunity for those individuals seeking a primitive and unconfined recreation experience and would ensure that the opportunity remains available for future recreation users.

Effects from Minerals

Under Alternative B, the entire subunit would be closed to locatable mineral entry and fluid leasable minerals, and there would be no effects. The Salmon Fork ACEC (621,000 acres) would be closed to salable minerals while reminder of the subunit (2,360,000 acres) would be open to salable minerals which could result in increased access for recreational activities.

Effects from Travel Management

Under all action alternatives, travel management decisions would provide for a range of motorized and non-motorized recreation experiences, while protecting resource values and minimizing user conflicts. This comprehensive approach to travel management would allow the BLM to sustain recreation opportunities and experiences, visitor access and safety, and natural resources of the subunit.

Under Alternative B, travel within the Black River Subunit would be limited to the summer-use of OHVs 64 inches or less in width and weighing 1,500 pounds curb weight and less outside of the Salmon Fork ACEC, no summer OHV use within the ACEC, and the winter use of snowmobiles of 1,000 pounds curb weight and less and 50 inches or less in width throughout the entire subunit. All other forms of OHV use would require a permit or approved plan of operation. These management actions, while promoting the effects of special designations through restricting summer-access to the Salmon Fork ACEC, would negatively impact those users who utilize

OHVs for accessing remote areas, and by those retrieving game. These effects would likely be minimal due to the lack of access and low levels of motorized use likely to occur in the subunit.

Effects from Special Designations

Under Alternative B, 621,000 acres would be designated as the Salmon Fork ACEC. This ACEC designation would help maintain or protect fish and wildlife habitat, potentially increasing fish and wildlife numbers, with beneficial impacts on fishing, wildlife viewing and hunting. Negative effects of ACEC designation could also result, if additional restrictions are placed on recreational activities (such as seasonal restrictions on OHV use) to reduce impacts on the recreation/resource base and other sensitive resource values of the region.

The Salmon Fork of the Black River would be recommended suitable for designation as “wild” under the Wild and Scenic Rivers Act. If designated by Congress, the effect of the inclusion of this river into the National Wild and Scenic Rivers System would ensure the protection and potential enhancement of the outstandingly remarkable wildlife values for which the river was identified, providing beneficial experiences for those individuals seeking wildlife and "wild" river related recreational opportunities.

4.6.2.2.4. Alternative C

Effects from Visual Resources

Effects would be the same as discussed under Alternative B for the Salmon Fork ACEC which would continue to be managed as VRM Class II with an objective to retain the existing character of the landscape. All remaining BLM-managed lands (1,740,000 acres) within the subunit would be assigned VRM Class IV where the objective is to allow for management activities which could create major modifications to the existing character of the landscape. However, every attempt would be made to minimize the impact of these activities though careful location, minimal disturbance and repeating the basic elements. There would be less protection for recreational activities that include scenic quality or naturalness as part of the experience.

Effects from Wilderness Characteristics

Under Alternative C, the Salmon Fork ACEC (621,000 acres) would be managed for the maintenance of wilderness characteristics. This would provide additional opportunity for those individuals seeking a primitive and unconfined recreation experience and would ensure that the opportunity remains available for future recreation users.

Effects from Minerals

Under Alternative C, 621,000 acres in the Salmon Fork ACEC (thirty-seven percent of BLM lands) would be open to locatable mineral entry, while the remaining 1,740,000 acres would be closed. However, no mineral exploration or development is anticipated due to the lack of access and low mineral values of the area. In the unlikely case that claims were staked in the subunit, the development of necessary infrastructure for mineral activities could compromise the experiences of those recreation users whose expectations include a high degree of solitude and tranquility, within a naturally-appearing landscape. Adverse impacts on recreation users could also arise from intrusive noise and altered viewsheds produced by mining equipment and OHVs that are used in mining operations.

Closing the Salmon Fork ACEC (621,000 acres) to fluid leasable minerals and solid leasable minerals would protect recreation resources and naturalness by not allowing surface-disturbing activities related to mineral development. All other BLM lands would be open to fluid leasable minerals and solid leasable minerals impacting recreation activities by development activities enhancing access but also causing surface disturbance in otherwise natural areas on 104,000 acres.

All BLM-managed lands would be open to salable minerals and would impact recreation activities by development activities enhancing access but also causing surface disturbance in otherwise natural areas.

Effects from Travel Management

Effects would be similar to Alternative B except more area would be made available for recreational activities that involve the summer-use of motorized travel. Under this alternative summer use of OHVs 64 inches or less in width and weighing 1,500 pounds curb weight and less would be allowed in the Salmon Fork ACEC, providing beneficial access and experiences for those individuals seeking motorized hunting opportunities. This would provide a direct benefit to recreational hunters who could use OHV's to retrieve legally harvested big-game within the ACEC. This effect would likely be minimal, due to the low levels of motorized use likely to occur in the ACEC.

Effects from Special Designations

Under Alternative C, 621,000 acres would be designated as the Salmon Fork ACEC. Effects would be the similar to those discussed under Alternative B, except the summer use of OHVs weighing 1,500 pounds curb weight and less would be allowed in the ACEC, providing some opportunity for additional access and experiences for those individuals seeking motorized recreational experiences. Given the lack of access to the subunit and the remote location of the ACEC, this effect would likely be minimal.

4.6.2.2.5. Alternative D

Effects from Visual Resources

Under Alternative D, the entire subunit would be assigned a VRM Class IV. Compared to Alternatives B and C, this would result in less protection of important viewsheds for recreation activities that include scenic quality or naturalness as part of the experience. In contrast, fewer restrictions would be placed on OHV use in areas that possess increasing recreation demand.

Effects from Wilderness Characteristics

No lands within the subunit would be specifically identified for maintenance of wilderness characteristics. However, the remote nature of the subunit and low level of activity likely to occur would likely result in maintenance of wilderness characteristics on most of the subunit.

Effects from Minerals

Under Alternative D, the entire subunit (2,361,000 acres) would be open to locatable mineral entry. Although additional lands would be opened to entry, effects would essentially be the same as Alternative C. The entire subunit would be open to fluid and solid leasable minerals subject to Standard Lease Terms, however, 623,000 acres would also be subject to minor constraints, protecting some recreation values.

All BLM-managed lands would be open to salable minerals and would impact recreation activities by development activities enhancing access but also causing surface disturbance in otherwise natural areas.

Effects from Travel Management

Same as Alternative C.

Effects from Special Designations

Same as Alternative C.

4.6.2.2.6. Alternative E (Proposed RMP)

Effects from Visual Resources

Effects would be the similar to those discussed under Alternative B. The Salmon Fork ACEC, and the riparian conservation areas would be managed as VRM Class II with an objective to retain the existing character of the landscape (1,131,000 acres). All remaining BLM-managed lands (1,229,000 acres, fifty-two percent) within the subunit would be assigned VRM Class IV where the objective is to allow for management activities which could create major modifications to the existing character of the landscape. However, every attempt would be made to minimize the impact of these activities though careful location, minimal disturbance and repeating the basic elements. Cross-country OHV use would be allowed on all lands subject to weight limits. By allowing these activities there would be less protection for recreational activities that include scenic quality or naturalness as part of the experience.

Effects from Wilderness Characteristics

Under Alternative E, no lands within the subunit would be managed to protect wilderness characteristics as a priority over other resource values and multiple use. Wilderness characteristics would be maintained on 1,114,000 acres, or forty-seven percent of the lands having wilderness characteristics, by limiting activities that impact wilderness characteristics of size, naturalness and outstanding opportunities for solitude or primitive and unconfined recreation. The remaining 1,246,000 acres or fifty-three percent of the lands having wilderness characteristic would be managed for other resources as priority over protecting wilderness characteristics. However, the remote nature of the subunit and low level of activity likely to occur would likely result in maintenance of wilderness characteristics on most of the subunit.

Effects from Minerals

Under Alternative E, 1,813,000 acres in the Salmon Fork ACEC, RCAs, and Black River watershed (77 percent of BLM lands) would be closed to locatable mineral entry, while the remaining 547,000 acres would be open. However, no mineral exploration or development is anticipated due to the lack of access and low mineral values of the area. In the unlikely case that claims were staked in the subunit, the development of necessary infrastructure for mineral activities could compromise the experiences of those recreation users whose expectations include a high degree of solitude and tranquility, within a naturally-appearing landscape. Adverse impacts on recreation users could also arise from intrusive noise and altered viewsheds produced by mining equipment and OHVs that are used in mining operations.

Closing 1,813,000 acres to fluid and solid leasable minerals would protect recreation resources and naturalness by not allowing surface-disturbing activities related to mineral development. All other BLM lands (547,000 acres) would be open to fluid and solid leasable minerals potentially impacting recreation activities by development activities enhancing access, but also causing surface disturbance in otherwise natural areas.

All BLM-managed lands would be open to salable minerals and could potentially impact recreation activities by development activities enhancing access but also causing surface disturbance in otherwise natural areas.

Effects from Travel Management

Same as Alternative C.

Effects from Special Designations

Same as Alternative C except that the ACEC would be closed to locatable mineral entry and mineral leasing under Alternative E.

4.6.2.2.7. Cumulative Impacts

The effects of past, present and future actions, including the demand for recreational use, changes to the landscape as a result of surface-disturbing activities, and area closures or restrictions for resource protection, could affect recreation management in the Upper Black River Subunit.

Surface-disturbances resulting from forestry and mineral activities could cumulatively affect recreational users if activities were concentrated in recreated areas and if activities overlapped in duration. Effects to recreation as a result of these cumulative effects may include the potential dislocation of wildlife for hunting and viewing purposes, and/or the alteration of scenic viewsheds.

Special designations, including ACECs and WSRs, would further protect the Upper Black River Subunit, by preserving wildlife numbers that benefit wildlife viewing, hunting, and fishing opportunities. As the size and scope of these areas increase, opportunities for land- and water-based recreation uses that incorporate scenic viewsheds as part of the experience would also increase. However, in areas that require special management attention, to prevent irreparable damage to historic, cultural and scenic values, the need for additional restrictions could limit OHV use and other recreational activities.

Implementing any of the alternatives would not contribute to a significant change to recreational opportunities on public lands.

4.6.2.3. Travel Management Upper Black River Subunit

Summary of Effects

Effects on travel management from the proposed alternatives would result in a narrow range of possible outcomes. Site-specific measures to protect and preserve sensitive resource values could result in restrictions or emergency closures, but are unlikely. Seismic exploration could affect travel management through the initiation of a limited transportation network.

Alternative A would provide the greatest range of motorized opportunities due to the lack of OHV designations. Alternative B would provide the least range of motorized recreation experiences.

Alternatives C, D, and E would provide the same range of opportunities. However, there would be little difference between the alternatives due to the lack of access and the distance from population centers. Recreational users seeking a motorized experience are more likely to recreate in areas closer to Fairbanks.

Table 4.18. Comparison of OHV Designations by Alternative: Upper Black River Subunit

Area Designation	Alternative				
	A (acres)	B (acres)	C (acres)	D (acres)	E (acres)
Undesignated	2,361,000	0	0	0	0
Limited: no summer OHV use	0	621,000	0	0	0
Limited: summer OHV use 1,500 pounds curb weight and less	0	1,740,000	2,361,000	2,361,000	2,360,000
Limited: Winter OHV use 1,000 pounds curb weight and less	0	2,361,000	2,361,000	2,361,000	2,360,000

4.6.2.3.1. Effects Common to All Alternatives

Effects from Forest and Woodland Products

Under all alternatives, the effects of forest and woodland products harvest would result in minimal impacts to travel management. Current levels of firewood collection, commercial harvests, and forest products gathering would continue to be sustained without significant resource damage. However, if significant sales occur there could be an increase in roads and trails developed in the subunit. Although the areas open to commercial uses vary between alternatives, the low demand and lcak of timber resource would limit these uses in all alternatives.

Effects from Locatable Minerals

Mineral development through suction dredging or placer mining activities has the potential to affect travel and transportation management by expanding the travel network. However, no locatable mineral activity is anticipated under any alternative due to the lack of mineral potential and access. Therefore, no effects would occur.

Effects from Recreation Management

Recreation management would be the same in all alternatives and effects on Travel Management would be minimal. The Upper Black River Subunit is managed as undesignated BLM-managed lands. The management approach would be custodial in nature, meaning resource allocations of capitol and manpower would be minimal and to protect identified sensitive and valuable resources as directed by federal guidance and policy. Where recreation activities associated with Travel Management cause resource damage, an assessment will determine whether the area should be closed to the surface-disturbing activities or a sustainable route developed to protect sensitive or valuable resources. Currently, recreational use of the area is very low and this is expected to remain the case over the life of the plan.

4.6.2.3.2. Alternative A (No Action)

Effects from Leasable Minerals

There would be no effect to Travel Management because the entire subunit is withdrawn from the mineral leasing laws. No leasing or exploration would occur.

Effects from Travel Management

Under Alternative A, there are no OHV designations and motorized use is unrestricted. There are no travel management decisions in place, so there would be no effect.

4.6.2.3.3. Alternative B

Effects from Leasable Minerals

Under Alternative B, the entire subunit would remain closed to leasable and locatable minerals. Effects would be the same as Alternative A.

Effects from Travel Management

Under Alternative B, the subunit would be under a limited OHV designation. This designation would include a limitation of 50 inches or less and 1,000 pounds curb weight and less for winter OHV use and 64 inches or less and 1,500 pounds curb weight and less for summer OHV use. Also summer OHV use would not be allowed in the Salmon Fork ACEC (621,000 acres). Use of aircraft and motorized boats would be unrestricted. The effect of these limitations would be minimal as the subunit is generally inaccessible except by boat, aircraft, or snowmobile. If user-created routes occur and result in resource damage, sustainable trail construction or area closures could occur.

Effects from Special Designations

Under Alternative B, the Salmon Fork ACEC (621,000 acres) would be designated. The ACEC would be closed to summer OHV use. Summer use of OHVs by federally qualified subsistence users could be authorized by permit, but is not anticipated. Most subsistence access is by boat or snowmobile. Management of the ACEC for protection of fish and wildlife values could effect travel and transportation management if additional restrictions were placed on OHV use. However, impacts to travel are expected to be negligible, as the ACEC is remote and difficult to access, and the most likely forms of motorized access (boat, snowmobile, or aircraft) are not restricted.

The Salmon Fork of the Black River would be recommended suitable for designation as “wild” under the WSR Act. The river would be managed to preserve its outstandingly remarkable wildlife values. This could conceivably result in some future limitations on motorized travel in the river corridor. These impacts would be minor because the area is so remote and difficult to access, visitation would be low and the types of motorized vehicles used in the corridor would likely be limited to boats and snowmobiles.

4.6.2.3.4. Alternative C

Effects from Leasable Minerals

Under Alternative C, the Salmon Fork ACEC (621,000 acres) would closed to leasable minerals. The rest of the subunit would be open. Seismic exploration could occur on high potential oil and gas areas near Circle (Map 87) but no leasing or development is anticipated. If seismic exploration

occurred and woody vegetation was cleared along seismic trails, these routes could be used as the beginning of a route network of winter trails, potentially increasing access into the southern part of the subunit. These effects would be minimal, as at most 20 miles of seismic route is anticipated.

Effects from Travel Management

Effects would be the same as Alternative B, except summer OHV use of 64 inches or less and 1,500 pounds curb weight and less would be allowed in the Salmon Fork ACEC.

Effects from Special Designations

Effects would be the same as Alternative B except summer OHV use would be allowed in the Salmon Fork ACEC. There would be no effect on Travel Management from WSRs because no rivers would be recommended as suitable for designation under the WSR Act.

4.6.2.3.5. Alternative D

Effects from Leasable Minerals

Same as Alternative C.

Effects from Travel Management

Same as Alternative C.

Effects from Special Designations

Same as Alternative C.

4.6.2.3.6. Alternative E (Proposed RMP)

Effects from Visual Resources

Under Alternative E, classification of the Salmon Fork ACEC and riparian conservation areas (1,114,000 acres) as VRM Class II would require any trail development to be designed using materials that blend with the surrounding landscape and resemble landscape characteristics of line, form, color and texture with minor changes allowed to landform and vegetation.

Effects from Leasable Minerals

Under Alternative E, 1,813,000 acres in the Salmon Fork ACEC and riparian conservation areas (77 percent of BLM-managed lands) would be closed to fluid and solid leasable minerals, while the remaining 547,000 acres or 23 percent would be open. Seismic exploration could occur on high potential oil and gas areas near Circle (Map 87) but no leasing or development is anticipated. If seismic exploration occurred and woody vegetation was cleared along seismic trails, these routes could be used as the beginning of a route network of winter trails, potentially increasing access into the southern part of the subunit. These effects would be minimal, as at most 20 miles of seismic route is anticipated.

Effects from Travel Management

Under Alternative E, all cross-country travel would be limited by weight and width for the entire subunit. Summer use would be limited to 64 inches or less in width and weighing 1,500

pounds curb weight or less without a permit. Winter use would be limited to 50 inches or less in width and weighing 1,000 pounds curb weight or less without a permit. Aircraft use would be unrestricted with minimal clearing of landing areas. Construction or formal improvement of landing areas would be by permit only.

Effects from Special Designations

Effects would be the same as Alternative B except summer OHV use would be allowed in the Salmon Fork ACEC. There would be no effect on Travel Management from WSRs because no rivers would be recommended as suitable for designation under the WSR Act.

4.6.2.3.7. Cumulative Impacts

With increased pressures from growing populations and advances in recreational vehicle technology, the Upper Black River Subunit may experience growth in travel-related land use and activity participation. If this occurs, the need for additional trails and mechanisms for managing these trails will become necessary. However, growth of OHV use would be limited as the subunit is inaccessible from existing roads and highways, is located north and east of the Yukon River, consists of terrain that is generally not suitable for summer OHV use, and is bordered by National Park Service lands on the south and National Wildlife Refuge lands on the north. The Yukon River is a barrier to summer access by OHVs, and use of OHVs on Yukon-Charley Rivers National Preserve and Yukon Flats NWR are limited.

Additional cumulative impacts are discussed in section 4.3.2.7 Travel Management, Impacts Common to All Subunits.

4.6.3. Special Designations

4.6.3.1. Wild and Scenic Rivers Upper Black River Subunit

Summary of Effects

There are currently no rivers designated within the National Wild and Scenic River System (NWSR) within the Upper Black River Subunit. Alternative B is the only alternative where river segments are recommended for inclusion to the NWSR. The Salmon Fork of the Black River is recommended suitable for designation as “wild” with outstandingly remarkable wildlife population and habitat values.

Management actions that protect the naturalness of the landscape such as wilderness characteristics, protection of fish and wildlife habitats, protection of vegetation, and recreation management that manages for more primitive experiences will help protect many of the Outstandingly Remarkable Values of river systems.

4.6.3.1.1. Alternative A (No Action)

Under Alternative A, no river segments are identified as suitable for inclusion to the NWSR. The BLM would not recommend that Congress designate any river segments.

4.6.3.1.2. Alternative B

In general, Alternative B anticipates a low level of resource development and is the only alternative where river segments are determined to be suitable for inclusion to the NWSR. The BLM would recommend that Congress designate one river segment. This recommendation would influence the Congressional decision and increase the likelihood of permanent legislative protection. Decisions are evaluated for effect on identified Outstandingly Remarkable Values, free-flowing character and water quality.

Through the Wild and Scenic Rivers Inventory (Appendix E, *Wild and Scenic Rivers Inventory*) the BLM has determined which rivers and streams are suitable for inclusion in the NWSR. The Salmon Fork in the Upper Black River Subunit was determined to be suitable with a classification of "wild" and outstandingly remarkable wildlife values. Any segment determined to be suitable must be managed for the protection of its Outstandingly Remarkable Values and free-flowing nature until such time as Congress acts upon the determination finding and either designates the river segment or removes it from consideration. If the segment is removed from consideration by Congress, the BLM would manage the segment according to the management provisions of the RMP. The determination of suitable is a policy determination.

Effects from Cultural and Paleontological Resources

Surface-disturbing activities (e.g., site excavation) have the potential to directly and indirectly impact water quality.

Effects from Fish and Aquatic Species

The identification of the three watersheds on the Salmon Fork of the Black River as Riparian Conservation Areas (Map 11) may have indirect impacts to water quality.

Effects from Soil, Vegetation, and Water Resources

Management of soil resources, vegetative communities, and watersheds for a properly functioning condition within riparian zones, uplands, wetlands and aquatic areas would directly and indirectly enhance water quality.

Effects from Visual Resources

"Wild" river segments would be managed as a VRM Class I with the objective to preserve the existing character of the landscape and provide for natural ecological changes. Very limited management activities may occur where the level of change to the characteristic landscape is very low and must not attract attention.

Effects from Wilderness Characteristics

The maintenance of wilderness characteristics would indirectly protect the free-flowing characteristics and water quality.

Effects from Wildland Fire Ecology and Management

Wildland fires have the potential to destroy or harm habitat and populations of outstandingly remarkable wildlife values.

Effects from Wildlife

Management of a naturally functioning ecosystem would directly and indirectly protect outstandingly remarkable wildlife population and habitat values and water quality.

Effects from Lands and Realty

Consolidation of land ownership could indirectly enhance water quality by acquisition of lands adjacent to the headwaters of the river segment. Land use authorizations, such as leases and rights-of-way, could directly and indirectly impact outstandingly remarkable wildlife population values, directly impact free-flowing characteristics and indirectly impact water quality if authorized across or along the river segments. Closing 2,361,000 acres to locatable minerals would directly protect water quality, free-flowing characteristics and naturalness of the river segment.

Effects from Travel Management

Unrestricted non-motorized travel could directly impact water quality with the development of social travel routes. Unrestricted aircraft landings could indirectly impact water quality and outstandingly remarkable wildlife population values by allowing motorized access to remote areas.

Unrestricted winter motorized overland travel by OHVs weighing 1,500 pounds curb weight and less could indirectly impact water quality and outstandingly remarkable wildlife population values by allowing motorized access to remote areas. Closing the corridor to summer OHV use could indirectly enhance water quality and outstandingly remarkable wildlife population values by restricting motorized access to remote areas.

Effects from Special Designations

Designation and management of 621,000 acres within the Salmon Fork watershed as the Salmon Fork ACEC would protect outstandingly remarkable wildlife population and habitat values and indirectly enhance water quality due to limitations and restrictions on development.

The Salmon Fork of the Black River, totaling 52 miles and approximately 15,000 acres would be recommended for designation to the NWSR. The designation of this river by Congress would provide for greater protection of overall river values and of outstanding remarkable river values specifically. The amount of protection is dependent on the classification of the river segment. Management of suitable rivers would be coordinated with the State of Alaska.

Effects from Hazardous Materials

Environmental remediation activities such as the removal of surface or buried wastes from abandoned sites and removal of contaminated soils could enhance directly and indirectly water quality and outstandingly remarkable wildlife population values depending on the location of these activities.

Effects from Subsistence

Harvest of subsistence resources such as timber and other forest products may impact directly and indirectly the outstandingly remarkable wildlife population values if collection of these resources occurs at within the river corridor.

4.6.3.1.3. Alternative C

Same as Alternative A.

4.6.3.1.4. Alternative D

Same as Alternative A.

4.6.3.1.5. Alternative E (Proposed RMP)

Same as Alternative A.

4.6.3.1.6. Cumulative Impacts

Past, present and reasonably foreseeable actions that are relevant to Wild and Scenic Rivers management include oil and gas exploration, increases in motorized use on both water and adjacent lands, utility and transportation rights-of-way, recreation use, travel management, and use restriction to protect wildlife, fisheries and vegetative resources.

Cumulative effects will accrue from BLM management decisions in addition to activities on surrounding lands during and beyond the life of the plan. Much of the surrounding land base is other federal lands; however, there are Native corporation lands within the watershed and the headwaters is in Canada. Development of lands along waterways could have an indirect impact on other rivers by increasing the importance of river related values of free-flowing, water quality, scenic, recreation, geologic, fish and wildlife habitats and populations, cultural and historic on those other rivers.

Designation and management of the Salmon Fork ACEC and maintenance of wilderness characteristics, as well as measures to protect other resource values on adjacent federal lands would help protect river values. Proposed and current management in these areas would limit development and help maintain a more natural ecosystem with benefits to water quality and other river related values.

There are no existing components of the NWSR in the Upper Black River Subunit. Protection of river related values along eligible rivers in the subunit, the Yukon, Kandik, and Nation rivers, managed by the National Park Service, would continue until a decision is made by Congress to not add them to the NWSR. Protection of river related values along the proposed addition of the Salmon Fork of the Black River, with outstandingly remarkable wildlife values, would continue if designated by Congress. The BLM and other agencies could implement other means to protect river values if these segments are not included in the system.

4.6.4. Social and Economic

4.6.4.1. Economics Upper Black River Subunit

Summary of Effects

The economic effect in the Black River Subunit would be low. The primary effect would be from seismic exploration under Alternatives C and D.

4.6.4.1.1. Effects Common to All Alternatives

In addition to the effects discussed as common to all subunits in section 4.3.3.1 the following effects would occur in the Upper Black River Subunit.

The BLM assumes no locatable mineral mining or associated economic effects would occur in the Upper Black River Subunit during the life of the plan. Recreation use is expected to grow slowly with increased population in the region. Economic effects would be correspondingly low for all alternatives.

4.6.4.1.2. Alternative A (No Action)

Under Alternative A, economic effects would be limited to increase in currently allowed economic activities resulting from population growth. Since all BLM lands are currently are withdrawn from locatable mineral entry and leasing, there would be no economic effect from mining.

4.6.4.1.3. Alternative B

Under Alternative B, the entire Upper Black River Subunit would remain closed to locatable minerals and mineral leasing. There would be no economic effect, same as Alternative A.

4.6.4.1.4. Alternative C

Under Alternative C, one-hundred percent of the Upper Black River Subunit would be open to locatable minerals and seventy-four percent would be open to mineral leasing. Although, the entire subunit would be opened to locatable minerals, no mining activity is anticipated due to the lack of mineral potential and lack of access. Therefore, economic effects would be low.

Seismic exploration for oil and gas could occur on high occurrence potential oil and gas lands, but is unlikely during the life of the plan. Roadless exploration, in the form of seismic surveys, would occur in the winter after the tundra is frozen. Summer field sampling and reconnaissance would occur in using helicopter support.

Non-BLM lands in the Yukon Flats Basin could have approximately 130 to 212 2D or 3D line miles shot every five years. Initially, 2D seismic would be collected, followed by 3D to identify potential reservoirs. The number of line miles shot on BLM lands, including those in this subunit, would be less than 20 miles.

Jobs created during the seismic surveys could include: Superintendent, surveyors, recording crew, and caterers. Professional and technical employment in interpretation of survey findings would also occur outside the planning area. However, it is unlikely that additional jobs would result from exploration on BLM lands. The resulting additional taxes would be slight. SeeTable 4.16, "Estimated Employment from Seismic Surveys" .

4.6.4.1.5. Alternative D

The effects from locatable minerals would be the same as Alternative C. The opening of additional acreage to mineral leasing would have no additional economic effect over Alternative C due to

the low oil and gas potential. The effects from seismic exploration for oil and gas would be the same as Alternative C.

4.6.4.1.6. Alternative E (Proposed RMP)

Although fewer acres would be opened to locatable minerals, the effects would be the same as Alternative C. The opening of acreage to mineral leasing would have no additional economic effect over Alternative C due to the low oil and gas potential. The effects from seismic exploration for oil and gas would be the same as Alternative C.

4.6.4.2. Environmental Justice Upper Black River Subunit

Summary of Effects

Effects to Environmental Justice populations in the Black River Subunit would be low under all Alternatives. Under Alternatives B, C, D, and E increases in recreation use could add income for the local population in villages of Beaver, Birch Creek, Chalkyitsik, Circle, Stevens Village, and Fort Yukon. If seismic survey activity occurred under Alternatives C, D, or E, there would be little effect on Environmental Justice populations.

4.6.4.2.1. Effects Common to All Alternatives

The BLM assumes no locatable mineral mining or associated economic effects would occur in the Upper Black River Subunit during the life of the RMP. Increases in recreation use could add income for the local Environmental Justice populations, if residents provide guiding or interpretive services.

4.6.4.2.2. Alternative A (No Action)

There would be no effects to the Environmental Justice population under Alternative A.

4.6.4.2.3. Alternative B

Under Alternative B, commercial outfitting or guiding permits issued by the BLM are expected to remain near the current level. Effects to the Environmental Justice population would be correspondingly low.

4.6.4.2.4. Alternative C

Under Alternative C, seismic exploration for oil and gas could occur, but is unlikely during the life of the plan. Therefore little effect on the Environmental Justice population would be anticipated. See Table 4.16, "Estimated Employment from Seismic Surveys" Estimated Employment Generated by Seismic Surveys for discussion of jobs resulting from work on BLM-managed lands. Effects from recreation would be the same as Alternative B.

4.6.4.2.5. Alternative D

Under Alternative D, environmental justice effects related to oil and gas and recreation would be essentially the same as Alternative C.

4.6.4.2.6. Alternative E (Proposed RMP)

Under Alternative E, environmental justice effects related to oil and gas and recreation would be essentially the same as Alternative C.

4.6.4.3. Social Conditions Upper Black River Subunit

Summary of Effects

Most impacts to individuals and groups are minor to moderate in part because other opportunities exist for the activities within the planning area and on nearby lands managed by the State of Alaska or a Native corporation. While it is possible for impacts for multiple resources to adversely affect individuals and groups in a cascading fashion, most nearby communities exhibit sufficient resiliency to adapt to change.

All individual programs would have minimal net positive or negative effect to social conditions and are not analyzed further. For further discussion, see Effects Common To All Alternatives in all Subunits.

4.6.4.4. Subsistence Upper Black River Subunit

Summary of Effects

The Upper Black River Subunit is extremely remote. Current uses of BLM-managed lands consist primarily of subsistence and casual recreation use. When resources are limited, federally qualified subsistence users would have priority use on federal public lands (ANILCA Title VIII § 802(2)).

Potential impacts to subsistence resources and uses would include displacement of resources and potential declines in resource availability due to disturbance in critical habitats or during critical times (e.g., calving periods). User conflicts could result in federally qualified rural residents being displaced from traditional use areas into less familiar, more distant areas where resources are less accessible. Relief from competition for fish and wildlife resources would be through regulations promulgated by the Alaska Boards of Fish and Game and the Federal Subsistence Board.

Lifetime use of resources by local subsistence users/consumers in the Upper Black River Subunit has been documented by Caulfield (1983), Sumida and Andersen (1990), and by the Council of Athabascan Tribal Governments (CATG unpublished 2015). At the time of analysis, data for Chalkyitsik from the CATG Upper Black River land use project were not available. Transfer of Traditional Ecological Knowledge during the scoping, government-to-government consultation, and public comment periods has been critical to the analysis of impacts to subsistence uses and resources.

Subsistence fishing on BLM lands in the Upper Black River Subunit has been documented by Caulfield (1983) to occur along the Salmon Fork and near the confluence of Bull Creek with Grayling Creek. The Salmon Fork ACEC encompasses the fishing areas identified along Salmon

Fork but not in the Grayling Creek area (Map 98). No fishing use areas are represented on the Upper Black River maps created for the CATG land use mapping project (preliminary 2015).

Black and brown bear, caribou, moose, furbearers and small game are recognized as subsistence wildlife resources in the subunit. In household surveys respondents from Chalkyitsik and Fort Yukon continued to report that the primary wild food resource is moose (Van Lanen 2012). Residents of Fort Yukon report harvesting moose on BLM-managed lands along the Salmon Fork, Tetthajik Creek and lower Wood River (Sumida and Andersen 1989). Over three harvest years from fall 2008 through spring 2011 Chalkyitsik and Fort Yukon residents reported harvesting moose on the Salmon and Grayling Forks and upper Black River (Fleener and Thomas 2003, Stevens and Maracle 2012, Van Lanen et al. 2012). Residents of Chalkyitsik report trapping for furbearers within the Grayling Fork and Runt Creek drainages, harvesting moose and bears along the Salmon Fork and Grayling Fork and harvesting caribou in the Grayling Fork drainage (Caulfield 1983). Management decisions vary by alternative in the ACEC and other BLM-managed lands and therefore impacts would differ by alternative.

Some land use decisions under the alternatives could potentially impact vegetative communities and indirectly impact fish and wildlife habitat, thereby affecting subsistence resources on and off BLM-managed lands. Impacts to vegetative communities are discussed in section 4.3.1.8.

No applications for rights-of-way have been received and few requests would be anticipated over the life of the plan. Impacts from other land use activities are discussed under the common to all alternatives or by alternative.

4.6.4.4.1. Effects Common to All Alternatives

In addition to effects discussed under Impacts Common to All Subunits (section 4.3.3.4 Subsistence), the following effects would occur in the Upper Black River Subunit.

Effects from Forest and Woodland Products

Based on existing data, primarily from Caulfield (1983) and CATG (preliminary 2015), subsistence use timber is harvested along the Black River east and west of the community of Chalkyitsik primarily on Yukon Flats NWR lands. Woodland products are harvested along the Grayling Fork of the Black River, including a small area of BLM-managed lands. Caulfield (1983) indicates that Fort Yukon and other communities harvest timber, including firewood and house logs, berries, bark and other forest plant materials in the upper Black River area but not on BLM-managed lands.

Caulfield (1979) documents no subsistence harvest of firewood, house logs, or timber on BLM-managed lands by residents of Circle. However, it is likely that residents of Circle harvest these resources on the BLM-managed lands surrounding the village, and could request free-use permits to do so. The entire subunit would be open to free-use permits under all alternatives, as regulated under the Nonsale Disposals Act 1878, amended for Alaska 1898 and 1938.

Personal use of timber products and commercial use of forest products would be allowed throughout the subunit under all alternatives. Subsistence use of timber products would be allowed as defined in ANILCA Section 803. Commercial timber sales and salvage timber sales would be prohibited in the subunit under Alternative B. Commercial sales could be considered under Alternatives C, D, and E, however not within the Salmon Fork ACEC in Alternatives C and E. Commercial timber salvage sales would be considered on all lands in Alternatives C, D,

and E. However, demand for commercial and salvage timber sales is expected to be minimal to nonexistent because of the remoteness of the area and the lack of commercially valuable timber.

Harvest or salvage of timber for local biomass projects would be allowed but would not be likely to occur on BLM-managed land in the Upper Black River Subunit (sections 2.6.3.4., 3.3.6.2., and 4.2.1.3.1). No significant restrictions to subsistence uses would be expected from any biomass projects.

Decisions on forest resources would not be expected to impact subsistence uses or resources in any of the alternatives.

Effects from Leasable Minerals

Most of the BLM-managed lands in the subunit have no or low potential fluid leasable minerals. The exception would be around the village of Circle, which has a high potential. No fluid mineral leasing or development would be anticipated, although seismic exploration could occur under some alternatives. The Salmon Fork ACEC would be closed to mineral leasing under Alternative C and the ACEC, RCAs, and Black River watershed would be closed in Alternative E. On BLM-managed lands in Alternative E, the upper Kandik, the Black River below its confluence with the Wood River, and upper Little Black River would be within RCAs.

No potential for solid leasable minerals has been identified in the subunit. Coal leasing has been deferred to a future RMP and would not occur under this plan. No impacts to subsistence uses or resources are anticipated from solid leasable minerals.

Effects from Salable Minerals

Although the amount of land available for salable minerals varies slightly by alternative, no demand for salable minerals would be anticipated over the life of the plan because distances to transport gravel from the Upper Black River to developed areas would be too far and therefore not economical. Thus no effects would be anticipated under any alternative.

Effects from Recreation

Recreation occurs at low levels in the Upper Black River Subunit. There are no developed sites associated with recreational activities on BLM-managed lands and none would be anticipated over the life of the plan. Most recreational use would occur during hunting seasons, primarily August and September. The current and reasonably foreseeable level of recreation in the subunit would not significantly impact subsistence resources or uses in the subunit.

Effects from Travel Management

Travel management prescriptions would allow unrestricted boat, aircraft, and non-motorized use, and cross-country winter use of snowmobiles (1,500 pounds curb weight and less) throughout the subunit under all alternatives. Cross-country summer use of OHV 1,500 pounds curb weight and less would be allowed throughout the subunit, except in Alternative B where no summer OHV use would be allowed within the Salmon Fork ACEC. Where OHV use would be allowed a permit would be required for any OHV over 1,500 pounds curb weight. For those uses requiring a permit, stipulations would be used to mitigate impacts to subsistence resources and uses.

Boat and winter cross-county snowmobile travel would be expected to be local and mostly in support of subsistence activities. Some use of recreational aircraft would be expected, mostly during hunting and fishing seasons.

With projections for population growth and advances in recreation vehicle technology increased demands in travel-related land use would be expected to occur across the planning area. Growth would be limited in the Upper Black River Subunit because there are no existing highways in the subunit, the Yukon River presents a barrier, and terrain is not suitable for summer cross-country use of OHVs. Impacts to subsistence resources and uses from motorized and non-motorized use under all alternatives would be minimal.

Effects from Special Designations

In general the Salmon Fork ACEC and RCAs would benefit subsistence resources and uses through heightened attention to maintaining fish and wildlife values within these areas. The Salmon Fork ACEC would be created to protect salmon spawning habitat and Porcupine caribou migration and wintering areas. The location and size of the ACEC would be constant throughout the action alternatives. Although the RCAs are not designations, in combination with the ACEC, they would protect many areas identified by local residents as important for harvest of subsistence resources, particularly in Alternatives B and E (Map 11).

4.6.4.4.2. Alternative A (No Action)

Present land management practices and levels of resource used would continue in accordance with existing laws, regulations and policy. Land use activities would continue to be analyzed through the NEPA process and include ANILCA Title VIII Section 810 evaluations. Through these processes, appropriate stipulations would be developed to mitigate any impacts identified.

OHV use would be unrestricted in the subunit. No recreation management area, RNA, ACEC or WSR designations would exist. The subunit is extremely remote and ongoing uses of BLM-managed lands would consist primarily of subsistence and casual recreation use.

Effects from Forest and Woodland Products

All types of forest product and timber uses could be considered throughout the subunit. In the past, demand for commercial forest products and timber has been nonexistent because of the remoteness of the area. Future demand for commercial uses would be expected to be nonexistent to low. Impacts to subsistence resources and uses would be expected to be negligible.

Effects from Lands and Realty

There would be no effects from changes in land tenure as no lands would be identified for disposal. Land use authorizations would be considered throughout the subunit. Few requests for land use authorizations would be expected. Little or no adverse impacts to subsistence from these decisions would be anticipated.

Effects from Leasable and Locatable Minerals

The entire subunit is currently and would continue to be withdrawn from mineral entry and leasing. There are no existing mining claims. Thus there would be no impacts to subsistence resources and uses from leasable or locatable minerals.

4.6.4.4.3. Alternative B

Effects from Forest and Woodland Products

Personal use of timber and commercial use of forest products would be allowed throughout the subunit. Commercial timber sales and salvage sales would not be allowed. Demand for commercial forest products and personal use timber would be expected to be minimal to nonexistent because of the remoteness of the area. Impacts to subsistence resources and uses would be expected to be negligible.

Effects from Lands and Realty

Under Alternative B the Salmon Fork ACEC would be retained; that is, the lands within the ACEC would not be considered for disposal. Private inholdings could be acquired from willing sellers. Parcels intermingled with Native village lands around Circle would be considered for acquisition or disposal for the purposes of consolidating land ownership. Consolidation of scattered parcels would simplify land status and benefit management and continued uses of subsistence resources. No adverse impacts would be expected from these actions.

The Salmon Fork ACEC would be a right-of-way avoidance area. Subsistence resources could benefit from this designation due to reduced disturbance from construction and maintenance activities or fragmentation of habitat, which could occur from rights-of-way development. Requests for rights-of-way in the rest of the subunit would be considered at the project level, allowing for mitigation of impacts to subsistence resources and uses. Few requests for rights-of-way would be expected. Little or no adverse impacts to subsistence uses from these decisions would be anticipated.

Effects from Leasable and Locatable Minerals

Under Alternative B the entire subunit would be closed to fluid and solid mineral leasing, and locatable minerals. The effect would be positive for subsistence resources and uses.

4.6.4.4.4. Alternative C

Effects from Forest and Woodland Products

Under Alternative C, timber salvage sales would be allowed on all BLM-managed lands and commercial timber sales would be allowed on all BLM-managed lands except in the Salmon Fork ACEC. Impacts to subsistence resources and uses would be expected to be negligible due to remoteness of area and lack of interest in commercial harvest of these resources.

Effects from Lands and Realty

Decisions and impacts from land tenure changes would be the same as Alternative B.

No right-of-way avoidance area would be designated under Alternative C. Requests for rights-of-way would be considered at the project level, allowing for mitigation of impacts to subsistence resources and uses. Few requests for rights-of-way authorizations would be expected. Little or no adverse impacts to subsistence would be anticipated from these decisions.

Effects from Leasable Minerals

The Salmon Fork ACEC (621,000 acres) would be closed to leasable minerals. The remaining BLM-managed lands would be open to leasable minerals under Alternative C with differing levels of constraints. Geophysical (seismic) exploration for oil and gas could be permitted on high potential lands near Circle. Impacts would be minimal and mitigated through SOPs and permit stipulations.

Effects from Locatable Minerals

The Salmon Fork ACEC would be open to locatable minerals. The remaining lands in the subunit would also be open. However, mineral potential is low, access is poor, and no mining activity would be anticipated. Impacts to subsistence resources would be minimal or nonexistent.

4.6.4.4.5. Alternative D

Effects from Forest and Woodland Products

Alternative D would be the same as Alternative C except commercial timber sales would be allowed in the Salmon Fork ACEC. Sales would be considered and analyzed at the project level. Saw timber in this area is not considered marketable, largely due to the distance to market, and it would be unlikely that a commercial sale would occur in this area over the life of the plan. Other effects from forest and woodland products are discussed in section 4.6.4.4.1 Effects Common to All Alternatives.

Effects from Land and Realty Actions

Same as Alternative C.

Effects from Leasable Minerals

All BLM lands, including the Salmon Fork ACEC, would be open to leasable minerals with differing levels of constraints. Due to low potential for leasable minerals, impacts to subsistence resources would be the same as Alternative C.

Effects from Locatable Minerals

Effects will be the same as Alternative C.

4.6.4.4.6. Alternative E (Proposed RMP)

Alternative E differs from Alternative C in that the Salmon Fork ACEC would be slightly larger (623,000 acres), 28 watersheds would be managed as RCAs, and the ACEC, RCAs, and Black River watershed would be closed to locatable and leasable minerals (1,813,000 acres).

Effects from Leasable and Locatable Minerals

Alternative E would have the least impacts and most benefits on subsistence resources and uses. Using existing literature, TEK comments from public comment meetings and ANILCA Section 810 hearings held in the communities in and adjacent to the subunit, and recent CATG reports and preliminary land use data mapping results, the area of closure (1,813,000 acres or 77 percent of the subunit) includes the most important subsistence use areas in the subunit.

Effects from Special Designations

Expansion of the Salmon Fork ACEC and adoption of the RCAs from Alternative B would further protect resources and uses important to local rural residents. Special management decisions in the ACEC for commercial timber and commercial timber salvage sales, land tenure, fluid and solid leasable minerals, and travel management would be the same as for Alternative C. Decisions unique to Alternative E would be the closure of the ACEC to locatable minerals. These prescriptions would benefit and protect resources important for subsistence uses in the ACEC.

Additionally, RCAs within and outside the ACEC, would be closed to locatable and leasable minerals, further benefiting subsistence resources and uses throughout the subunit.

4.6.4.4.7. Cumulative Effects

The cumulative effects of past, present and future actions in the Upper Black River Subunit are not likely to impact subsistence resource or uses over the life of the plan. The remoteness of the area, lack of overland access and costs of developing resources, other than those that would be used by local residents in or adjacent to the subunit, render it unlikely that locatable or salable minerals or commercial forest resources sales would occur during the life of this plan. Rights-of-way development would be driven by resource development and therefore would not be expected during the life of the plan. No proposed exploration, development, access or other rights-of-way are currently under consideration on BLM-managed or adjacent lands in the subunit. No new proposals, other than perhaps oil and gas seismic exploration in the Circle area, would be expected. Further discussion of the cumulative case within the subunit is in section J.2.3.5 Appendix J, *ANILCA Section 810 Analysis*.

4.7. Impacts Specific to the White Mountains Subunit

4.7.1. Resources

4.7.1.1. Cultural and Paleontological Resources White Mountains Subunit

Summary of Effects

See section 4.3.1.3 Effects Common to All Alternatives, Impacts Common to All Subunits. For impacts from leasing of locatable minerals see Appendix M.

4.7.1.1.1. Alternative A (No Action)

Effects from Lands and Realty

Two transportation corridors were established in the White Mountains NRA to allow access to potential minerals deposits. All rights-of-way will, as far as possible, be located in one of these corridors. Outside of the NRA, rights-of-way are considered anywhere, although existing trails and roads will be followed to the extent possible. In the White Mountains Subunit, this is primarily limited to federal mining claims near Livengood.

The approval of new roads or trails either within or outside of these transportation corridors, as with all such surface-disturbing activities, would have the potential to directly and adversely impact cultural and paleontological resources. In addition, there could be an indirect effect on surficial cultural resources; with the creation of new routes of access, more resource use permittees would have access to BLM-managed lands which were previously inaccessible. There would be an increased potential of more people finding surface cultural resources and potentially adversely impacting them, either intentionally or unintentionally.

Effects from Locatable Minerals

The entire White Mountains Subunit (including Beaver Creek WSR) of 1,020,000 acres is currently closed to new locatable mineral entry and mineral leasing. There are 4,000 acres of valid existing federal claims inside the subunit but outside of the White Mountains NRA, with mining presently occurring on some of these claims.

Most, if not all, locatable mineral mining that presently occurs is surface-disturbing, open-air mining, and not underground mining which is accessible through shafts and adits that would otherwise leave the upper ground surface undisturbed. As such, locatable mineral mining does directly and adversely impact all manner of cultural and paleontological resources.

Three types of placer mining operations occur or could occur in the subunit: (1) suction dredge operations, where the only surface disturbance relates to the supporting camp, (2) small-scale placer mines, where disturbance is limited to less than five acres per operation, with an assumed total area of 20 to 30 acres for the life of each mine, and (3) large-scale placer mines, where disturbance is estimated at five to twenty acres per operation, with an assumed total area of 60 to 80 acres for the life of each mine.

Further assumptions for locatable minerals for Alternative A in the White Mountains Subunit indicate no suction dredge operations in any given year, three small-scale placer mines, and one

large-scale mine, all of which would occur outside of the White Mountains NRA. This equates to about 120 to 170 acres of disturbed ground, in areas that very likely contain evidence of prior, historic mining operations, which have occurred in some drainages in this subunit for at least 100 years. All of this disturbance would occur outside of the White Mountains NRA proper, because there are no longer any valid federal mining claims in the NRA and this area is closed to new claims. Disturbance to prehistoric sites by any particular operation would have to be assessed on a case-by-case basis. In sum, locatable mineral mining will likely directly and adversely impact all manner of cultural and paleontological resources in the subunit, but outside of the NRA.

In addition, new access roads often need to be constructed in order to reach mineral claims. The construction of new roads not only has a direct and adverse effect on cultural and paleontological resources, but would also have an indirect effect by providing new access by other users to previously isolated lands. With more resource users accessing BLM-managed lands, there would be an increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

Effects from Recreation

At present, a wide range of recreational opportunities are available and/or are authorized in the White Mountains Subunit including: established campgrounds, private and commercial floating in the Beaver Creek WSR, all-season motorized and non-motorized overland travel on 220 miles of established trails, 12 public use cabins, staging areas, and waysides. The BLM currently manages the White Mountains NRA as a SRMA, although it is not officially designated as such in existing plans. Special recreation management areas (SRMA), recreation settings, and recreation management zones are not currently addressed in existing plans, and thus have no effects upon cultural resources.

The construction of infrastructure to support these activities can be ground disturbing, and thus can potentially directly affect cultural and paleontological resources. Also, visitors to the public lands have the potential to inadvertently find surficial cultural and paleontological resources, and thus have the potential to adversely impact such resources, either intentionally or unintentionally.

Effects from Travel Management

The current OHV designation for RNAs in the White Mountains NRA (13,000 acres) is closed for all summer and winter use. Current management for the remainder of the subunit is that summer OHV use of vehicles greater than 1,500 pounds are prohibited without a permit on 563,000 acres, but are allowed on 440,000 acres. The remaining 4,000 acres are in the Livengood area and are currently undesignated to OHV use.

Winter snowmachine use is currently allowed on 1,003,000 acres of the White Mountains NRA (excepting the RNAs), but are limited to 1,500 pounds. There are 117 miles of BLM-built and managed winter trails in the White Mountains NRA north of the Beaver Creek WSR, all of which are closed to summer use. The use of UTVs is currently not allowed on any trails. These uses have little to no direct effects upon cultural and paleontological resources.

The use of airboats and hovercraft within the White Mountains NRA, including Beaver Creek WSR, is currently not allowed. Motorboat use is allowed under specific regulations, primarily limiting the size of the motor to 15 horsepower. Use of watercraft has minimal direct impact on cultural and paleontological resources. Use of watercraft has the potential for indirect impacts on these resources by providing access to otherwise inaccessible lands. With river access, there is an

increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

The BLM assumes ever increasing travel visitation and use, both motorized and non-motorized, on the land it manages in the White Mountains Subunit, with OHV use accounting for much of travel-related activities. The current visitation rate of increase is approximately five percent per year, which is expected to continue for the life of the plan. At this rate, travel visitation in the subunit is expected to double within the next 15 years. Additional trails and mechanisms for managing these trails are needed. Construction of new trails, whether authorized or not, like any other surface-disturbing activities, have the potential to directly and adversely affect cultural and paleontological resources.

The construction of new trails also has an indirect effect by providing new access to previously isolated lands. With more resource users accessing BLM-managed lands, there would be an increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

4.7.1.1.2. Alternative B

Effects from Lands and Realty

Alternative B would have the same direct and indirect effects as Alternative A, relative to the construction of new trails in the White Mountains NRA, new access to mining claims in the Livengood area, and land tenure decisions. Only the Nome Creek transportation corridor would be retained. However, since few rights-of-way other than those associated with BLM's development of recreational facilities are anticipated, the reduction to one designated corridor per se is not expected to result in any additional effects to cultural or paleontological resources. This alternative also considers acquiring private land in-holdings from willing sellers. The effect of acquiring this property would be that cultural resources on the previously private parcels (166 acres) would be protected under federal laws.

Effects from Locatable Minerals

Same as Alternative A, but with the added provision that the entire White Mountains Subunit (1,020,000 acres) would be closed to future locatable mineral entry (Map 32).

Effects from Recreation

A wide range of recreational opportunities would be available and/or authorized under Alternative B, in which the White Mountains Subunit is divided into the SRMA (1,016,000 acres) and about 4,000 acres of undesignated land near Livengood. The White Mountains SRMA includes the White Mountains NRA, the Beaver Creek WSR, and associated staging areas and recreation sites. The SRMA would be divided into seven Recreation Management Zones (RMZs), each with a well defined “setting character,” ranging from Primitive, to Semi-Primitive, to Backcountry, to Middlecountry, to Frontcountry. The recreation management objectives associated with each of these RMZs are well defined, with differing emphases on building and maintaining facilities and trail, to varying permissible OHV uses.

Construction of public and administrative facilities by the BLM to meet recreational demand can directly and adversely impact surface and subsurface cultural and paleontological resources. The BLM assumes a ten to fifteen percent increase over the life of the plan in demand for recreational

users and visitation (both motorized and non-motorized), resource damage, and user-resource conflicts. Any increased visitation to the public lands has a concurrent potential increase for inadvertently finding surficial cultural and paleontological resources and adversely impacting such resources, either intentionally or unintentionally.

Effects from Travel Management

Under Alternative B, OHV use in RNAs in the White Mountains NRA (13,000 acres) would remain closed for all summer and winter use. For the remainder of the subunit, summer use of OHVs greater than 1,000 pounds are prohibited on 635,000 acres, allowed on only designated trails on 368,000 acres, and allowed cross country with a 1,000 pound weight limit on 4,000 acres (largely in the Livengood area).

Winter snowmachine use would be allowed on 1,007,000 acres of the subunit with a weight limit of 1,000 pounds, excepting only the RNAs which remain closed. The 117 miles of BLM-built and managed winter trails in the White Mountains NRA north of the Beaver Creek WSR would remain closed to summer use. The use of UTVs would continue to be prohibited on the trail system. These uses have little to no direct effects upon cultural and paleontological resources.

The use of airboats, hovercraft, and personal motorized vehicles would be prohibited within the proposed White Mountains SRMA, which includes the Beaver Creek WSR. Motorboat use would remain the same as in Alternative A, along with any direct and indirect effects upon cultural and paleontological resources.

Effects from increasing visitation rates and construction of new trails would be the same as Alternative A.

4.7.1.1.3. Alternative C

Effects from Lands and Realty

Alternative C would have the same direct and indirect effects as Alternatives A and B, relative to the construction of new trails in the White Mountains NRA, new access to mining claims in the Livengood area, and land tenure decisions. Alternative C would be the same as Alternative B, except no transportation corridors would be designated. However, since few rights-of-way other than those associated with BLM's development of recreational facilities are anticipated, the lack of designated corridors per se is not expected to result in any additional effects to cultural or paleontological resources.

Effects from Locatable Minerals

Same as Alternative B.

Effects from Recreation

Alternative C is overall very similar to Alternative B, except there are more acres in Middlecountry and Backcountry RMZs and less acres in Semi-Primitive RMZ. There would be a concomitant rise in potential adverse effects on cultural and paleontological resources under Alternative C because more ground-disturbing recreational infrastructural development would be permitted.

Effects from Travel Management

Under Alternative C, OHV use in RNAs in the White Mountains NRA (13,000 acres) would remain closed for all summer and winter use. For the remainder of the subunit, summer use of OHVs greater than 1,000 pounds are prohibited on 567,000 acres, allowed on only designated trails on 436,000 acres, and allowed cross country with a 1,000 pound weight limit on 4,000 acres (largely in the Livengood area).

Winter snowmachine use would be allowed on 1,007,000 acres of the subunit with a weight limit of 1,000 pounds, excepting only the RNAs which remain closed. The 117 miles of BLM-built and managed winter trails in the White Mountains NRA north of the Beaver Creek WSR would remain closed to summer use. The use of UTVs would be allowed on 27 miles of the trail system south of the Beaver Creek WSR. These uses have little to no direct effects upon cultural and paleontological resources.

The use of airboats, hovercraft, personal motorized vehicles, and motorboats use would be the same as in Alternative B, along with any effects upon cultural and paleontological resources.

Effects from increasing visitation rates and construction of new trails would be the same as Alternative A.

4.7.1.1.4. Alternative D

Effects from Lands and Realty

Same as Alternative C, except the 200-acre recreation withdrawal at Perhaps Creek would be revoked, allowing it to be conveyed to the state. This change would slightly increase the potential of impacts to any cultural and paleontological resources present on this specific site, as surface-disturbing development activities could be more likely to occur.

Effects from Locatable Minerals

Same as Alternative A, but with the added provision that this alternative would open 160,000 acres of land in the White Mountains NRA for leasing of hardrock minerals. This acreage includes placer gold ground deemed of high and medium developmental potential, as well as acres of land with known deposits of rare earth elements. Alternative D has many more acres opened to potential mineral activity than Alternatives A, B, C, and E, and thus would have greater potential adverse impacts to cultural and paleontological resources.

Effects from Recreation

Effects would be essentially the same as Alternative C, except there would be even more acres managed for Middlecountry and Backcountry settings and fewer acres in Semi-Primitive settings in Alternative D, with a concomitant increased potential for adverse impacts to cultural and paleontological resources. There may be a greater emphasis on construction of BLM facilities and trails, resulting in a slightly increased potential for adverse effects to cultural and paleontological resources.

Effects from Travel Management.

Under Alternative D, OHV use in RNAs in the White Mountains NRA (13,000 acres) would remain closed for all summer and winter use. For the remainder of the subunit, summer use of OHVs greater than 1,000 pounds are prohibited on 513,000 acres, allowed on only designated

trails on 31,000 acres, and allowed cross country with a 1,000 pound weight limit on the remaining 459,000 acres.

Winter snowmachine use would be allowed on 1,007,000 acres of the subunit with a weight limit of 1,000 pounds, excepting only the RNAs which remain closed. The 117 miles of BLM-built and managed winter trails in the White Mountains NRA north of the Beaver Creek WSR would remain closed to summer use. The use of UTVs would be allowed on 112 miles of the trail system south of the Beaver Creek WSR. These uses have little to no direct effects upon cultural and paleontological resources.

The use of airboats, hovercraft, personal motorized vehicles, and motorboats use would be the same as in Alternative B, along with any effects upon cultural and paleontological resources.

Effects from increasing visitation rates and construction of new trails would be the same as Alternative A.

4.7.1.1.5. Alternative E

Effects from Lands and Realty

Same as Alternative D.

Effects from Locatable Minerals

Same as Alternative B.

Effects from Recreation

Same as Alternative C.

Effects from Travel Management.

A Travel Management Plan would be developed for the White Mountains Subunit after approval of the RMP. Until that time, interim management would remain largely the same as Alternative A, with a few exceptions: opening up the RNAs (13,000 acres) to winter motorized use; opening up 27 miles of trails south of the Beaver Creek WSR to UTV travel; and allowing the use of airboats, hovercraft, and personal motorized vehicles in the subunit.

These new exceptions to current management practices would not directly affect cultural and paleontological resources, except to potentially increase the indirect effects on cultural resources by providing more access to otherwise previously inaccessible lands. With access, there is an increased potential of more people finding surface cultural resources and adversely impacting them, either intentionally or unintentionally.

4.7.1.2. Fish and Aquatic Species White Mountains Subunit

Summary of Effects

Fish and aquatic resources would be primarily affected by surface-disturbing activities (such as trail construction) which alter stream channels, remove or damage riparian vegetation, or result in soil erosion and sedimentation to fish and aquatic habitat. The level of impact would depends on the success and adequacy of protective measures, but would generally be minor under all

alternatives, as trails would be designed to avoid impacting aquatic habitat and the entire subunit would be closed to locatable mineral entry.

Table 4.19. Stream Miles and Acres Open to Locatable Mineral Entry, White Mountains Subunit

WHITE MOUNTAINS SUBUNIT (BLM-managed lands)	ALTERNATIVES				
	A	B	C	D	E
Stream miles	1,723	1,723	1,723	1,723	1,723
Stream miles open to locatables (proposed)	0	0	0	0	0
Stream miles open to locatables (proposed) plus miles within current valid federal claims	10	10	10	10	10
Stream miles within RCAs in areas open to locatables (proposed)	N/A	0	0	0	0
Stream miles outside RCAs in areas open to locatables (proposed)	N/A	0	0	0	10
Acres open to locatables (proposed)	0	0	0	160,000 (leasing)	3,500
Acres open to locatables (proposed) plus miles within current valid federal claims	3,500	3,500	3,500	3,500	3,500
Anticipated stream gravel disturbance by suction dredging during life of plan measured in cubic yards measured in cubic yards	0	0	0	0	0
Potential impacts to fish and aquatic habitat would be the greatest under Alternative D					

4.7.1.2.1. Alternative A (No Action)

Effects from Leasable Minerals

No lands within the White Mountains Subunit are open to leasing of either fluid minerals (oil and gas) or solid minerals (coal). There are no existing mineral leases. Under this alternative, impacts to fisheries and aquatic resources would be non-existent.

Effects from Locatable Minerals

The White Mountains Subunit is withdrawn from new locatable mineral entry. Mining is occurring on valid existing mining claims (3,500 acres), which are primarily located near Livengood. Beaver Creek, which contains the highest value fishery resources in the subunit, is closed to mineral entry within one-half mile of both banks under ANILCA. Since the majority of the subunit is closed to locatable mineral entry, especially areas containing high-value fish and aquatic habitat, impacts to fish and aquatic habitats are expected to be minimal under this alternative.

Effects from Recreation Management

This subunit receives a high level of recreational use and recreation management is focused on the White Mountains NRA and Beaver Creek WSR. There are set recreation objectives and varying levels of allowable recreational activities within the subunit, based on existing management units. Beaver and Nome Creek receive the greatest amount of fishing pressure due to good access and the high-value grayling fisheries found there. Recreation management on Nome and Beaver Creeks is virtually the same for all alternatives. Some off-trail motorized use is allowed under this

alternative having the potential to impact fish and aquatic habitat. Impacts to fish and aquatic habitat are expected to be minimal under Alternative A.

Effects from Travel Management

The current OHV designation for the White Mountains NRA is "Limited" and allows cross-country travel with OHVs weighing 1,500 pounds and less during summer months on forty-four percent of the subunit. Areas closed to OHV travel during summer months, include the Beaver Creek WSR Corridor, RNAs, and the Primitive Management Unit, which comprise fifty-five percent of the subunit. Prohibiting summer use of OHVs within the Beaver Creek WSR Corridor offers protection to the high-value fishery resources found there. Some trails are managed as non-motorized recreation trails and are generally closed to motorized use. Unmanaged trail proliferation would continue with no guidance for proper construction and placement of new trails. Given the assumption of increased OHV use during the life of the plan, the unauthorized and unmanaged proliferation of trails is also likely to increase under this alternative with a resulting increase in erosion and sediment impacts. Currently, there are no known impacts to fish and aquatic habitat from OHV use, but this could change with the trend of increasing use. Impacts to fish and aquatic habitat should be minimized with the protection of the OHV monitoring plan, which closes or restricts areas open to OHV use if resource damage such as erosion, sedimentation, and water pollution occurs.

Effects from Special Designations

There are three RNAs in this subunit: Limestone Jags (5,170 acres), Serpentine Slide (4,274 acres), and Mount Prindle (3,147 acres). These RNAs are closed to mineral location and leasing and no surface-disturbing activities are allowed, except permitted research projects. Fish and aquatic habitats benefit from those closures and restrictions because the habitat generally remains intact. Although fish and aquatic habitat resources are relatively low within these headwater RNAs, the protections provided ensure these headwater areas remain intact reducing potential impacts to fish and aquatic habitat lower in the drainage.

The Beaver Creek WSR contains high-value fishery resources, including Beaver Creek Chinook salmon which are currently on the BLM Alaska Watch List. The river corridor is withdrawn from mineral leasing and location. Fish and aquatic habitats benefit in areas closed to mineral entry, because the habitat generally remains intact, reducing potential for future impacts on fish and aquatic habitat.

4.7.1.2.2. Alternative B

Effects from Leasable Minerals

Although Alternative B would open BLM split-estate to mineral leasing, the effects would essentially be the same as Alternative A due to the extremely limited amount of split-estate lands in the subunit (100 acres) and lack of potential for leasable minerals.

Effects from Locatable Minerals

Impacts to fish and aquatic habitats would be the same as Alternative A.

Effects from Recreation Management

In Alternatives B, C, D, and E, the White Mountains SRMA is established. The size (just over one million acres) and boundaries of the SRMA remain the same for Alternatives B, C, D, and E, but the number and size of the different management zones within the SRMA varies between alternatives. Alternative B has the greatest number of acres in Primitive and Semi-Primitive management zones, which provide greater protection to fish and aquatic habitat than other zones. Alternative B would provide the most protection to fish and aquatic habitat. Impacts to fish and aquatic habitat are expected to be minimal and localized under Alternative B.

Effects from Travel Management

Under Alternative B, the OHV designation would be Limited and summer use of OHVs weighing 1,000 pounds curb weight and less would be limited to designated trails on thirty-six percent of the subunit. Approximately sixty-one percent of the subunit would be closed to OHV travel in summer months, including the Beaver Creek WSR Corridor, RNAs, and Primitive, Semi-Primitive, and Backcountry RMZs. Proliferation of user made trails should be significantly reduced because OHVs would be restricted to designated trails. However, without adequate enforcement user made trails may continue and possibly increase as OHV use increases. Impacts are expected to be minimal. Alternative B would provide the greatest protection to fish and aquatic habitat when compared to Alternatives A, C, D, and E.

Effects from Special Designations

In addition to effects discussed under Alternative A of this subsection, Alternative B recommends 23 miles of Fossil Creek as suitable for designation in the National Wild and Scenic Rivers System. Fossil Creek is likely to support Arctic grayling and whitefish species. Fish and aquatic habitats are not likely to benefit from Wild and Scenic River designations, because development is limited and the rivers are closed to new mineral entry and leasing. Alternative B would provide the greatest protection to fish and aquatic habitat when compared to Alternatives A, C, D and E.

4.7.1.2.3. Alternative C

Effects from Leasable Minerals

The effects would be the same as Alternative B.

Effects from Locatable Minerals

Impacts to fish and aquatic habitats would be the same as Alternative A.

Effects from Recreation Management

Alternative C has more acres of land in Backcountry and Middlecountry RMZs and therefore less land in Semi-Primitive Zones, compared to Alternative B. Middlecountry Zones provide less protection to fish and aquatic habitat than do Primitive and Semi-Primitive Zones. This alternative allows for increased development of visitor facilities, landscape modifications, and group size. Alternative C has more potential to effect fish and aquatic habitat than Alternative B, less than Alternatives A and D, and the same as E. However, effects from recreation would likely be minimal and easily mitigated with best management practices.

Effects from Travel Management

Similar to Alternative B, summer use of OHVs weighing 1,000 pounds curb weight and less would be limited to designated trails on forty-three percent of the subunit. Approximately fifty-four percent of the subunit would be closed to summer OHV travel, including the Beaver Creek WSR Corridor, RNAs, and Primitive, Semi-Primitive and Backcountry RMZ. However, this alternative allows off-trail use for the retrieval of big game and allows the use of larger UTVs on 27 miles of designated trails. Alternative C provides slightly less protection to fish and aquatic habitat than Alternative B, but more than Alternative A, D, and E. Impacts to fish and aquatic habitat are expected to be minimal.

Effects from Special Designations

The effects would be the same as Alternative A.

4.7.1.2.4. Alternative D

Effects from Leasable Minerals

Alternative D would open 451,000 acres to leasable minerals. There is no potential for solid leasable and limited potential for oil and gas. Industry has shown no interest in leasing development in the White Mountains Subunit. If leasing occurred, further NEPA analysis would be required. Since there is limited potential, it is assumed that seismic surveys would not occur. Given those assumptions, impacts to fisheries and aquatic habitat would be minimal or non-existent.

Effects from Locatable Minerals

Alternative D would open 160,00 (149,000 gold, 11,000 rare earth) acres to the leasing of locatable minerals in the Beaver Creek National Wild and Scenic River drainage. The Standard Operating Procedures (SOPs) and Leasing Stipulations in Appendix A of this document would apply to hardrock mineral leasing and exploration licenses. Additional reclamation requirements similar to those required in riparian conservation areas would also apply. A hardrock mineral leasing program would result in an increased number of placer mining operations with the potential to adversely affect fish and aquatic resources, including BLM Alaska watch list species and the outstandingly remarkable fisheries value for Beaver Creek. A major goal for the NRA is to protect and maintain the water quality of Beaver Creek to meet state water quality standards and promote a quality fishing experience (BLM 1986b). Mechanized placer mining within the floodplain and/or stream channels of Beaver Creek's principal tributaries would not maintain or enhance fish habitat and populations or water quality. The White Mountains NRA Record of Decision and Resource Management Plan (BLM 1986b) states that "Extensive placer mining on Beaver Creek or its principal tributaries would be in conflict with recreational purposes because of degradation to natural and primitive values of the Beaver Creek WSR corridor and damage to Arctic grayling habitat". If mining did occur within or adjacent to streams, the impacts to fish and aquatic resources would be moderate and long term (10–20 years).

Alternative D is the only Alternative that would allow large-scale surface disturbing activities (mining) within or adjacent to streams and as such poses the greatest threat to fish and aquatic resources.

Effects from Recreation Management

Alternative D has the greatest number of acres in Backcountry and Middlecountry RMZs and therefore the least number of acres in the more protective Primitive and Semi-Primitive Zones. This alternative allows for the greatest increase in development of visitor facilities, landscape modifications, and group size. Alternative D has more potential to effect fish and aquatic habitat than Alternatives B, C, and E, and would have similar effects as Alternative A. However, effects from recreation would likely be minimal and easily mitigated with best management practices.

Effects from Travel Management

Similar to Alternative A, summer cross-country use of OHVs weighing 1,000 pounds curb weight and less would be allowed on forty-six percent of the subunit. Approximately fifty percent of the subunit would be closed to summer OHV travel, including the Beaver Creek WSR Corridor, RNAs, and Semi-Primitive and Backcountry RMZs. Unmanaged trail proliferation would continue with no guidance for proper construction and placement of new trails. Given the assumption of increased OHV use during the life of the plan, the unauthorized and unmanaged proliferation of trails may also increase under this alternative with the potential for increased erosion and sediment impacts. This alternative would also allow the use of the larger UTVs on 112 miles of trail. OHVs would be restricted to designated trails in the Nome Creek Valley to protect visual and other resource damage in this high use area. This alternative has more potential to effect fish and aquatic habitat than Alternatives B, C and E, and would have similar effects as Alternative A. Impacts to fish and aquatic habitat would be minimized with the protection of the OHV monitoring plan, which closes or restricts areas open to OHV use if resource damage such as erosion, sedimentation, and water pollution occurs.

Effects from Special Designations

Same as Alternative A.

4.7.1.2.5. Alternative E (Proposed RMP)

Effects from Leasable Minerals

This Alternative would open 3,500 acres in the Livengood Area to leasing with standard terms and operating procedures. There is no potential for solid leasable and limited potential for oil and gas. Industry has shown no interest in leasing development in the White Mountains Subunit. If leasing occurred, further NEPA analysis would be required. Since there is limited potential, it is assumed that seismic surveys would not occur. Given those assumptions, impacts to fisheries and aquatic habitat would be minimal or non-existent.

Effects from Locatable Minerals

This Alternative would open 3,500 acres in the Livengood area to locatable mineral entry. As previously mentioned, mining already occurs on these 3,500 acres, however opening this area to new mineral entry would allow the existing “grandfathered” claims to be transferred to new owners. The impacts to fish and aquatic resources would be minimal and similar to Alternative A.

Effects from Recreation Management

Same as Alternative C.

Effects from Travel Management

This Alternative proposes interim management similar to Alternative A until travel management plans can be completed. Alternative E is the only Alternative that would allow airboats and hovercraft within the White Mountains SRMA. Those types of transportation would likely occur on Beaver Creek, but are not likely to adversely impact fish and aquatic resources. This Alternative removes winter OHV restrictions in the RNAs. Winter OHV use in the RNAs would not effect fish and aquatic resources. Impacts to fish and aquatic habitat would be minimized with the protection of the OHV monitoring plan, which closes or restricts areas open to OHV use if resource damage such as erosion, sedimentation, and water pollution occurs.

Effects from Special Designations

The effects would be similar to Alternative A.

4.7.1.3. Invasive Species White Mountains Subunit

Summary of Effects

Travel management, rights-of-way, and recreation would likely to have the greatest impacts on nonnative invasive species (invasive species) in the subunit. Disturbances are the primary cause of impacts to invasive species, particularly nonnative invasive plants.

Alternative B would result in the least impacts. This alternative provides the greatest opportunities to prevent the introduction and spread of invasive species, particularly plant species, because the least amount of ground disturbing and travel activities would occur. Alternatives A and D would provide the least opportunities of the alternative to prevent establishment of invasive species.

4.7.1.3.1. Effects Common to All Alternatives

In addition to effects discussed as common to all subunits in section 4.3.1.5.1, the following effects would occur in the White Mountains Subunit.

Effects from Forest and Woodland Products

Management decisions for forest and woodland products vary somewhat over the five alternatives in the White Mountains Subunit. Alternatives A and B would best protect against introduction and spread of invasive species, as commercial use of timber and forest products are not allowed on ninety-eight percent of the subunit. Alternatives C and D only prohibit commercial use of timber in the Beaver Creek WSR Corridor (69,000 acres) and the RNAs (12,600 acres). However, restrictions on commercial uses of timber and forest products under Alternatives A and B, would have a limited beneficial effect for the following reasons. Timber within the subunit is not considered marketable due to the remote location of stands of suitable trees from access to milling and markets. Biomass harvest could shift the economics over the life of the plan to result in commercial harvest of wood. Measures to mitigate the impacts of these actions on invasive species and resources would be attached as stipulations to the authorizing documents for the use of timber and forest products. Most timber operations would be restricted to winter operations, which would result in minimal soil disturbance and reduced potential for introduction of invasive plants. Monitoring and EDRR efforts conducted at sites disturbed by harvest of timber and forest products would mitigate impacts as well. Based on historic demand and use, lack of high-value timber, and limited access, minimal impacts to the introduction and spread of invasive species would be expected from resource use of forest and woodland products under any alternative.

The proposed alternative (Alternative E) would allow for the opportunity for commercial timber sales on about 55 percent of the White Mountains NRA. Impacts would be mitigated by restricting operations to winter. The commercial use of forest products would be allowed on all lands managed by BLM in the subunit. Forest product would be occasional and have a small footprint. Stipulations to mitigate impacts from these operations would be attached to permits for this use.

Effects from Leasable Minerals

All BLM lands in the White Mountain Subunit are currently withdrawn from fluid and solid leasable minerals and there are no existing leases. Alternatives B and C would be closed to leasable minerals, except for opening 100 acres of split-estate lands. Alternative E would be closed to leasable minerals in the White Mountains NRA but open on lands near Livengood. Alternative D would open forty-four percent (451,000 acres) in the Foothills Middlecountry RMZ to leasable minerals. The decisions to open some lands to leasing under Alternatives B, C and E would have little effect due to the low development potential for leasable minerals within the subunit. Any exploration that might be proposed would require a permit and impacts would be mitigated through permit stipulations. Nominations for lease sales would be analyzed under a new NEPA document. No exploration or development is anticipated under any alternative due to the lack of development potential. No impacts to invasive species would occur.

Effects from Locatable Minerals

Activity is limited to 4,000 acres of valid existing claims in the Livengood area many of which have been actively mined for decades. Land disturbance from mining typically creates suitable conditions for nonnative invasive plant (invasive plant) species to become established. Invasive plants are able to germinate in the marginal conditions, suppressing native vegetation from becoming established. Each operation must comply with BLM's reclamation standards, which minimize the impacts to invasive plants. Land disturbance from mining typically creates suitable conditions for invasive plant species to become established because removal of over burden often results in a gravelly substrate with little or no fines. This substrate does not hold moisture and many invasive plant species can tolerate these arid conditions and become established. Monitoring and EDRR efforts would further reduce the potential for invasive plants to become established. The remaining lands in the subunit would be closed to locatable mineral entry under all alternatives and no new impacts to invasive plants would be likely to occur from decisions on locatable minerals.

Analysis of leasing locatable minerals under Alternative D is analyzed in Appendix M.

Effects from Recreation

Management of recreation areas through recreation setting character (RSC) classes largely set the stage for the level of protection or development afforded an area. The size and location of RMZs, and therefore RSC settings, change with each alternative and are reflected in the decisions for travel management and related activities. Impacts to invasive species are discussed under these other resource uses.

Effects from Travel Management

The White Mountains Travel Management Plan decisions vary widely across the four alternatives. The range of allowed uses includes non-motorized access only, size and weight limits of motorized vehicles, winter cross-country, designated trails, summer cross-country, permits for

other uses and combinations of each. Roads and trails are prime habitat for invasive plants and vehicles (including boats and airplanes) are vectors for the introduction and spread of invasive plants. Limitations on OHV use, particularly limiting use to designated trails, would help prevent the introduction of invasive plants and aid EDRR efforts by concentrating use and reducing disturbance to native vegetation. Permitting use would provide opportunities to educate users on the threats to habitats from invasive plants and prevention measures they can take (use and site-specific mitigation).

Airboats, hovercraft and personal watercraft would be prohibited in the White Mountains SRMA under all of the action alternatives, which will significantly reduce disturbance to vegetation along streams and the potential for introduction and spread on invasive plants in the White Mountains subunit.

4.7.1.3.2. Alternative A (No Action)

Effects from Lands and Realty

Acquisition of inholdings within the White Mountains NRA would simplify and promote management of invasive species, resulting in minimal but somewhat beneficial impacts to management of nonnative invasive species (invasive species) resources.

Two transportation corridors are identified in the White Mountains NRA. All rights-of-way would be located within these corridors to the extent possible. Consolidation of rights-of-way within designated corridors would help prevent introduction and spread of invasive plants by reducing the overall disturbance. Monitoring for invasive plants and EDRR efforts would be aided by concentration of rights-of-way. However, rights-of-ways have not been applied for, outside of those for the BLM, for any specific uses or access and are not likely to occur over the life of the plan under any alternative. BLM proposed trails, or any other rights-of-way application, would be analyzed and measures to mitigate impacts would be attached to authorizing permits.

Effects from Salable Minerals

Disposal of salable minerals is allowed on all BLM lands in the subunit and authorized at the project level. Impacts to invasive plants are minimized through permit stipulations.

Material sites are commonly infested with invasive plants species. Moving materials from contaminated sites results in introduction of invasive plants at the project site, which would likely be in or adjacent to BLM lands in the White Mountains Subunit.

Existing material sites are located near the highways, roads or other developments, and close to the site of ultimate use. Demand for gravel and other salable materials in the subunit is predicted to yield additional authorizations over the life of the plan. Development of future sites would likely be concentrated near projects, highways, and roads and be used locally. Although effects would likely be limited, site-specific measures to reduce impacts to invasive plants introduction and spread would be attached to authorizations. Monitoring and EDRR efforts by the BLM and operators/permittees would further reduce the potential for invasive plants to become established.

Effects from Travel Management

Under Alternative A, ninety-nine percent of BLM lands in the subunit are open to winter use of OHV 1,500 pounds GVWR and less without a permit (Map 48). The Primitive Management Unit

(494,000 acres) and Beaver Creek WSR Corridor (69,000 acres) are closed to summer motorized use. In the Semi-Primitive Motorized Management Unit (428,000 acres) cross-country travel with vehicles of 1,500 pounds and less GVWR is allowed. However, a permit is required for the use of OHVs of greater than 1,500 pounds GVWR off a valid right-of-way. The three RNAs are closed to motorized use. These limitations on OHV use, particularly not allowing summer use of OHVs, would help prevent the introduction and spread of invasive plants into some areas. However, Alternative A would have a high potential for the introduction and spread of invasive plants due to the allowance of cross-country summer travel on forty-four percent of the area.

4.7.1.3.3. Alternative B

Effects from Lands and Realty

Impacts from land tenure decisions would be the same as Alternative A.

One transportation corridor would be retained in Alternative B. The White Mountains ACEC, the three RNAs, and the Beaver Creek WSR Corridor would be right-of-way avoidance areas. No adverse impacts to invasive species are expected from these decisions. As discussed under Alternative A, consolidating rights-of-way within designated corridors would help prevent introduction and spread of invasive plants by reducing the overall disturbance and travel throughout the subunit. Monitoring for invasive plants and EDRR efforts would be aided by concentrating transportation uses into a corridor. These beneficial effects would likely be minimal as few rights-of-way are anticipated, other than trails established by the BLM.

Effects from Salable Minerals

Approximately thirty-six percent of lands within the subunit would be open to salable minerals and proposed sales would be authorized at the project level. Demand for gravel and other salable materials is predicted to yield additional authorizations over the life of the plan. Development of future sites. similar to existing sites, would likely be concentrated near projects, highways, and roads and be for use locally. Although fewer acres would be open to salable minerals under Alternative B than under Alternative A, demand is not expected to vary by alternative and effects would essentially be the same as Alternative A.

Effects from Travel Management

Under Alternative B, 4,000 acres would be undesignated recreation area. Cross-country winter and summer use of OHVs 1,500 pounds curb weight and less would be allowed. Use of larger vehicles would be allowed on existing roads.

Non-motorized transportation, including horses and bicycles, would be allowed in all areas. The RNAs (12,600 acres) would be closed to all motorized OHV use. Semi-Primitive and Backcountry RMZs (623,000 acres) would be open to winter use of snowmobiles 1,000 curb weight and less. Within the Middlecountry RMZ (329,000 acres) and Frontcountry RMZ (39,000 acres), cross-country use of snowmobiles would be allowed. Travel by OHVs 50” and less and 1,000 curb weight and less would be limited to designated trails. Use of aircraft would generally be unrestricted (with provisions) in all but the Primitive RMZ. Use of motorized vehicles exceeding the limitations set for each RMZ would require a permit.

This alternative offers the best protection against the introduction and spread of invasive plants. Using designated trails in the summer reduces disturbance from user established trails, which

protects against new pathways for pioneering invasive plants to become established. EDRR would be enhanced by concentration of OHV on trails. Where permits are required, stipulations to reduce the threat of introductions would mitigate the potential for introduction and spread. Other active management, including outreach and education at boat launches, trail heads and targeting float plane pilots, could mitigate impacts. This alternative also has the largest acreage (sixty-one percent) closed to summer OHV use.

4.7.1.3.4. Alternative C

Effects from Lands and Realty

Impacts from land tenure decisions would be the same as Alternative A.

Alternative C differs from B in that no transportation corridors and no right-of-way avoidance areas would be identified. Impacts to invasive species, particularly plants, would potentially increase because rights-of-way could be developed within areas more vulnerable to disturbance, enhancing the potential for invasive plants to establish and spread. Rights-of-way may cross streams, and many invasive plant seeds are readily dispersed by water. Infestations of species such as white sweetclover (*Melilotus officinalis*, formerly *M. alba*) have been documented on sand bars along the Nenana River, spreading from source populations far upstream (Conn et al. 2008). The increased potential for impacts would likely be minimal due to the lack of rights-of-way anticipated and the fact that even if transportation corridors and right-of-way avoidance areas existed, rights-of-way could still be approved outside of these areas.

Effects from Salable Minerals

All but the Beaver Creek WSR Corridor would be open to salable minerals under Alternative C. Although ninety-three percent of the area would be open, impacts would be essentially the same as Alternatives A and B, since demand would not vary by alternative.

Effects from Travel Management

Alternative C differs from Alternative B in the location and size of the RMZs and that off-route travel for game retrieval is allowed in the undesignated recreation areas and all but Semi-Primitive and Backcountry RMZs. Approximately ninety-seven percent of the area is in designations that would allow cross-country winter use of snowmobiles 1,000 curb weight and less. Summer use of OHV 1,000 pounds curb weight and less is limited to designated trails, except for retrieval of game, on forty-three percent of the area.

The potential for introduction and spread of invasive plants species would increase substantially in this alternative compared to Alternative B. Off-route travel for game retrieval would be concentrated during seasons when many of the weeds of concern will be in seed. Many of the OHV will come from outside the area, increasing the likelihood of introducing new invasive plants species to the area. EDRR, outreach and education, and larger scale control efforts would be used to try to mitigate impacts.

4.7.1.3.5. Alternative D

Effects from Lands and Realty

Impacts from land tenure decisions would be the same as Alternative A. Impacts from land use authorizations would be the same as Alternative C.

Effects from Salable Minerals

The entire subunit would be open to salable minerals under Alternative D. Impacts would essentially be the same as Alternatives A, B, and C since demand would not vary by alternative.

Effects from Travel Management

Alternative D differs from Alternative C in the location and size of the RMZs and that cross-country summer use of OHVs (1,000 pounds curb weight and less) would be allowed on 464,000 acres or forty-five percent of the area (undesignated recreation area, Middlecountry and Frontcountry RMZs). Alternative D would have high potential for the introduction and spread of invasive plants. Cross-country summer travel would occur across the seed maturation period of all weeds of concern. Many of the OHV will come from outside the area, increasing the likelihood of introducing species that do not already occur in the area. EDRR, outreach and education, and larger scale control efforts would be used to mitigate impacts. Impacts would be similar to Alternative A.

4.7.1.3.6. Alternative E (Proposed RMP)

Differences between the Alternative C (Draft RMP preferred alternative) and the Alternative E (Proposed RMP) for the White Mountains Subunit include one additional riparian conservation area, allowing fluid and solid leasable mineral development on 4,000 acres, changing RNAs from closed to motorized vehicles to limited to snowmobile use, lifting prohibition on airboats and hovercraft, and deferral of the Travel Management Plans with adoption of the no action alternative (Alternative A) as interim management.

The addition of one RCA and opening of leasable minerals on 4,000 acres near Livengood, would not be expected to create much impact on invasive species management. Impacts would be the same as Alternative C.

Effects from Travel Management

In Alternative E, travel management would be the same as for Alternative A with the following exceptions. Winter motorized use (snowmobiles) would be allowed in RNAs, UTVs would be allowed on designated trails (section 2.10.2.2.2.6 Travel Management), use of airboats and hovercraft would be allowed on Beaver Creek WSR, a 1,000 pound curb weight and 50 inches width limitation on snowmobiles would replace the 1,500 pound GVWR limitation, and a 1,000 pound curb weight and 50 inches width limitation on ATVs would replace the 1,500 pound GVWR limitation. In Alternative A and E 563,000 acres, including Beaver Creek WSR, would be limited to no summer use. Interim management in Alternative E differs from Alternative C in that RMZs open to summer OHV would not be limited to designated trails. Impacts from cross-country use by all users would be expected to increase as described in the assumptions for analysis as population trends are projected to increase and ATV technology continues to advance. While cross-country OHV use would be allowed the potential for introduction and spread of invasive plants would be increased and if allowed over the life of the plan would be expected to result in significant costs to BLM to monitor and control infestations.

Research Natural Areas (RNAs) are established and maintained for the primary purpose of research and education (43 CFR Part 8200). The areas are to be used in a manner that is nondestructive and consistent with the purpose of the RNA. Winter OHV use with adequate snow cover would generally cause limited impact to soils and vegetation. Most of the RNAs are highland areas subject to wind that can result in snow free areas. Invasive plant seed could be harbored on snowmobiles if they have been driven though areas where invasive plants occur and snow cover is below the seed heads. Although it is possible that invasive plants could be introduced from this use, the likelihood of invasive plants becoming established in RNAs from use of snowmobiles would be small.

Motorized watercraft are major vectors for introduction and spread of invasive plants. However, little use of airboats and hovercraft would be expected from the lifting of the prohibition in the Beaver Creek NWR. Launching of boats with motors exceeding 15hp would still be prohibited in the Nome Creek Valley, which would require access to be from the Yukon River and the mouth of Beaver Creek (section 4.2.1.3.8 Travel Management). It would be unlikely that motorized boats would still harbor invasive plant seeds after travelling in this direction onto the WSR in the White Mountains National Recreation Area.

4.7.1.3.7. Cumulative Effects

Cumulative impacts would be similar among the alternatives, but will vary in the extent of effect. Alternative B would contribute least to cumulative effects. Cumulative effects would be greatest under Alternatives A and D, which have fewest restrictions on OHV use, for example. Alternative C would provide a balance of management of invasive species while providing for multiple uses of BLM lands. Alternative E would be similar to Alterative C but with increased opportunity for invasive species to be introduced because cross-county summer OHV use would be allowed off designated trails.

Demand for recreational use in and around the White Mountains NRA is anticipated to increase over the life of the plan as populations in the state increase and as technological advancements in recreation equipment continue to occur. Placer mining is occurring on valid federal mining claims in the Livengood area and state mining claims in the White Mountains Subunit. There would be no increase in federal lands available for mining under any alternative. In addition to potential realty actions and OHV use occurring on state and private lands, similar activities allowed under this plan would increase the potential for invasion and spread of invasive species in the White Mountains Subunit.

Analysis of mining rare earth minerals in Alternative D is in Appendix M, Supplement to the Draft RMP.

4.7.1.4. Soil and Water Resources White Mountains Subunit

Summary of Effects

Effects to soil and water resources come from activities resulting in surface disturbance such as mining, trail construction, or facilities development. Proper management of air quality, soils, vegetation, fish and wildlife would generally protect or enhance visual resources.

Generally, the potential for direct adverse impacts to soil and water resources from new mineral development is the same for all Alternatives except Alternative D. Mining closures would be

retained and no new lands would be made available for the staking of new mining claims or leasing of locatable minerals for Alternatives A through C and E. Alternative D would make locatable minerals available on 160,000 acres in the southeastern portion of the NRA under a leasing program. Concerning potential OHV travel impacts to soil and water resources, Alternative B provides the greatest protection by emphasizing less motorized use in a primitive setting while Alternatives D and E offer more motorized recreation use and include the most acreage for cross-country OHV travel.

Appropriate stipulations and SOPs for soil and water resources would be implemented to ensure that long-term adverse impacts would be minimized or avoided. Additional impacts beyond those discussed under 4.3.1. Impacts Common to All Alternatives, are discussed in the following sections.

4.7.1.4.1. Effects Common to All Alternatives

Effects from Locatable Minerals

The White Mountains Subunit is currently withdrawn from locatable mineral entry and would remain closed to new locatable mineral entry under all alternatives. Approximately 4,000 acres of valid existing claims, outside the White Mountains NRA, predate the withdrawals. Mining is occurring on some of these claims.

Impacts to soil and water resources could occur on existing claims near Livengood in all alternatives. Mine operations utilizing heavy equipment have the potential to adversely impact soil resources and water quality through erosion, unintended discharge of sediment laden water, and subsequent increased downstream turbidity. Depending on the methods used and size of operation, mining operations could impact the natural water quality and flow characteristics of selected river segments. Disturbance to soil and water resources from mining operations would be reduced through SOPs and site-specific analysis of subsequent authorizations.

4.7.1.4.2. Alternative A (No Action)

Effects of Land and Realty Actions

There are two transportation corridors established in the White Mountains NRA. Construction of or continued use of existing trails and roads that occur within these corridors have the potential to adversely impact soil and water resources through surface disturbance activities. Outside of the NRA, there are no designated transportation corridors and rights-of-way are considered in all areas. In the White Mountains Subunit, this is primarily limited to federal mining claims near Livengood.

Effects of Recreation

Recreation management is focused on the White Mountains NRA and Beaver Creek WSR Corridor, which are essentially managed as an SRMA with recreation objectives and varying levels of allowable recreational activities. The construction of infrastructure to support these activities would be ground disturbing, and thus could potentially affect soil and water resources. Nonetheless, past impacts to soil and water resources have been low and future impacts are expected to be minimal under Alternative A.

Effects of Travel Management

Disturbance of soil and water resources is expected to increase because travel visitation in the subunit is expected to increase by ten to fifteen percent over the life of the plan. Activities such as construction of new trails have the potential to adversely impact resources. Also, some off-trail motorized use is allowed having the potential to impact soil resources and water quality. However, past impacts to soil and water resources have been low and future impacts are expected to be minimal under Alternative A.

4.7.1.4.3. Alternative B

Alternative B emphasizes active measures to protect and enhance resource values. It is anticipated that the greatest level of resource protection would occur under this alternative, and consequently, the lowest level of soil and water resource disturbance.

Effects of Land and Realty Actions

Under Alternative B one transportation corridor would concentrate the building of access roads and potentially provide a location for other rights-of-way such as pipelines, transmission lines and associated facilities.

Designation of Serpentine Slide, Limestone Jags, and Mount Prindle RNAs, the White Mountains ACEC, and Beaver Creek WSR Corridor as right-of-way avoidance areas would protect soil and water resources. Activities such as removal of vegetation or construction of facilities associated with rights-of-way would not be allowed.

Effects of Recreation

Under Alternative B, 1,017,000 acres in the White Mountains would be established as a SRMA. Acreage for SRMA would be the same for Alternatives C, and D but the number and area of the various Recreation Management Zones (RMZs) within the SRMA would differ between alternatives (Maps 48, 49, and 50). Compared to other Alternatives, Alternative B would allocate the greatest number of acres to Semi-Primitive (483,000) RMZs. Semi-Primitive RMZs provide protection to soil and water resources because of OHV travel restrictions. Impacts to soil and water resources from recreation management actions under Alternative B are expected to be minimal.

Effects of Travel Management

The Beaver Creek WSR Corridor would remain closed to summer OHV use. The use of OHVs with a curb weight of 1,000 pounds or less would be allowed on designated trails during summer. Cross-country use of snowmobiles could occur in most areas (Maps 48, 49, and 50).

Alternatives B and C would provide the greatest protection to soil and water resources when compared to Alternatives A and D because they would designate the same number of acres (12,600) to Primitive RMZ and RNA, areas are closed to all OHV use, and 13,400 acres in the White Mountains Spine as Primitive RMZ with Limited OHV designation; winter use of snowmobiles allowed. Continued trail maintenance, seasonal travel restrictions, and OHV weight restrictions would reduce the amount of surface disturbance potentially affecting soil and water resources.

4.7.1.4.4. Alternative C

Alternative C emphasizes a moderate level of protection, use, and enhancement of resources and services that would provide a balance between development and protection of resources in the subunit. Anticipated resource development levels, as well as impacts to soil and water resources, would be greater than in Alternative B but less than in Alternative D. In some areas, OHV travel would be excluded to protect sensitive resources.

Effects of Land and Realty Actions

Under Alternative C, no transportation corridors would be identified and no right-of-way avoidance areas would be designated. This would allow for the construction of rights-of-way throughout the subunit, 1,020,000 acres, and could result in disturbance to soil and water resources. However, because of limited resource development opportunities, few rights-of-ways are anticipated within the White Mountains NRA during the life of the plan.

Effects of Recreation

Alternative C would allocate more land to Backcountry (382,000 acres) and Middlecountry (398,000 acres) RMZs and less land in Semi-Primitive (171,000 acres) RMZs compared to Alternative B. Middlecountry Zones provide less protection to soil and water resources than the more restrictive Primitive and Semi-Primitive RMZs. Alternative C allows for increased development of visitor facilities, landscape modifications, and group size. Hence, Alterative C provides less protection of soil and water resources compared to Alternative B, but more protection than Alternatives A and D.

Effects of Travel Management

Alternative C and B would provide the greatest protection to soil and water resources when compared to Alternatives A and D because Alternatives C and B have greater restrictions on OHV use. Alternatives B and C would designate the same number of acres (12,600) to Primitive RMZ and RNA, areas are closed to all OHV use, and 13,400 acres in the White Mountains Spine as Primitive RMZ with Limited OHV designation; winter use of snowmobiles allowed. Proliferation of user made trails should be minimal, because OHVs are restricted to designated trails. Trail maintenance, seasonal travel restrictions and OHV weight and width restrictions would reduce the amount of surface disturbance potentially affecting soil and water resources.

4.7.1.4.5. Alternative D

Effects of Land and Realty Actions

Under Alternative D, the Perhaps Creek portion of PLO 4167 would be revoked. This revocation would allow 200 acres to be transferred out of BLM management and open for development and any associated surface-disturbing activities.

Similar to Alternative C, no transportation corridors or right-of-way avoidance areas would be identified, resulting in potential disturbance to soil and water resources.

Effects of Recreation

Alternative D has the greatest number of acres allocated to Backcountry (445,000) and Middlecountry (452,000) RMZs and therefore the least number of acres in the more protective Primitive and Semi-Primitive RMZs. This alternative allows for the greatest increase in development of visitor facilities, landscape modifications, and group size. Thus, Alternative D has greater potential to impact soil and water resources than Alternatives B and C and would likely have similar effects to Alternative A.

Effects of Travel Management

Alternative D greatly increases the amount of area where OHVs can travel cross-country during the summer and expands the type of vehicles allowed compared to Alternatives B and C. Hence, Alternative D has more potential to adversely impact soil and water resources through soil erosion and stream siltation than Alternatives B and C and would likely have effects similar to Alternative A. Measures to minimize disturbance of soil resources and protect water quality would be developed with site-specific stipulations and SOPs during NEPA analysis of travel management actions.

4.7.1.4.6. Alternative E (Proposed RMP)

Alternative E is intended to provide a mix of land management actions that best satisfies issues and concerns in consideration of all values and programs and adopts a blend of actions that would balance moderate development with protection of the environment.

Effects from Locatable Minerals

Under Alternative E the entire subunit (1,016,000 acres) would remain closed to locatable minerals protecting soil and water resources by limiting surface disturbance. There are 4,000 acres of valid existing federal claims inside the subunit but outside of the White Mountains NRA, with mining presently occurring on some of these claims. Impacts from the mining of locatable minerals are described under section 4.3.1.6. Impacts to soil and water resources would depend on the scale of the action and the number of mineral sites mined. It is anticipated that there could be one large-scale placer mine operation. Each operation would have a disturbed annual footprint of 16 acres over the life of the mine for a total of 60 to 80 acres of disturbance. Impacts from operations would include 60 to 80 acres over the life of this plan. Up to three small-scale placer mine operations are anticipated over the life of the plan. Each operation would have a disturbed annual footprint of 4.4 acres over the life of the mine for a total of 20 acres of disturbance. Mineral exploration activities with resulting camp and field sampling programs would include surface disturbance of between 6 to 50 acres. Only one exploration operation is anticipated and no suction dredge operations are expected to occur over the life of the plan.

Effects from Recreation

Recreation Management Zones are managed for different physical settings which include remoteness, naturalness and visitor facilities. These Recreation Management Zones provide a range from Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and description of how facilities will fit on the landscape. Alternative E is similar to Alternative C. Both Alternatives have more acres of land in Backcountry and Middlecountry RMZs and less land in Semi-Primitive Zones, compared to Alternative B. Middlecountry Zones provide less protection to soil and water resources than do Primitive and Semi-Primitive Zones. Alternative E allows for increased development of visitor

facilities, landscape modifications, and group size and has greater potential for adverse impacts to soil and water resources than Alternative B, but less than Alternatives A and D.

Effects from Travel Management

A Travel Management Plan would be developed for the White Mountains Subunit after approval of the RMP. Until that time, interim management would remain largely the same as Alternative A, with a few exceptions; opening the RNAs (13,000 acres) to winter motorized use, opening 27 miles of trails south of the Beaver Creek WSR to UTV travel, and allowing the use of airboats, hovercraft, and personal motorized vehicles in the subunit.

Open cross-country travel on BLM lands would be restricted to motorized vehicles of 1,000 pounds curb weight or less and 50 inches in width or less year round. OHV travel may impact soil and water resources primarily by disturbing vegetation and by propagation of user-created trails. Weight restricted travel would help reduce the amount of surface disturbance to vegetation and soils on approximately 1,020,000 acres.

Cross-country travel in Beaver Creek Corridor is limited to winter travel with limited impacts to soil and water resources. Summer use of OHVs within the corridor would not be allowed. Vehicles weighing up to 1,500 pounds curb weight and 64 inches in width or less would be allowed within areas designated for use by UTVs. These areas are a portion of the Wickersham Creek Trail, the Trail Creek Trail, the trail from Mile 23.5 of the Elliott Highway to the Wickersham Creek Trail, the Quartz Creek Trail and the Nome Creek tailings area. Vehicles weighing less than 10,000 pounds curb weight would be allowed on existing roads only, protecting soil resources by restricting use to already hardened areas.

Effects from Forest and Woodland Products

Under Alternative E, personal use of timber and forest products, as well as commercial timber salvage sales and commercial use forest products would be considered on all BLM-managed lands (1,020,000 acres). Impacts from commercial timber sales (large and small) would be considered on all BLM-managed lands except within the Beaver Creek WSR, RNAs and the White Mountains ACEC. These acres (499,000) would be protected from impacts associated with commercial timber sales. Soil and water resource impacts would depend on the location, size or the area and harvest techniques used, however, surface disturbance associated with harvesting forest products would likely result in adverse erosion and sedimentation impacts in some areas.

4.7.1.5. Visual Resources White Mountains Subunit

Summary of Effects

VRM Classes outline the level of change that could occur within that class. Identifying an area as a specific management class does not guarantee that change will take place. The discussion below identifies the number of acres that may retain or lose visual quality due to management in a specific VRM Class; however, the potential for every acre to lose visual quality due to management in a specific VRM Class is extremely low. The analysis logically assumes that areas designated as VRM Class III and IV would permit more surface-disturbing impacts and potentially have greater adverse impacts on visual resources and scenic quality than those areas designated as VRM Class I and II.

In addition to those impacts discussed under section 4.3.1.9 Impacts Common to all Subunits, the following impacts may occur in the White Mountains Subunit. For the visual resource inventory see Appendix D, *Visual Resource Inventory*.

Alternatives – VRM Management Class Designations		**VISUAL RESOURCES INVENTORY CLASS DESIGNATION[a]**			
		VRI Class I		**VRI Class II**	
		71,000	**7%**	**950,000**	**93%**
Alternative A	**Acres**	**Acres**	**%**	**Acres**	**%**
VRM I	69,000	69,000	7	227	<1
VRM II	506,000	1,000	<1	505,000	50
VRM III	428,000	57	<1	428,000	43
VRM IV					
Total[b]	**1,003,000**	**71,000**	**7**	**933,000**	**92**
Alternative B	**Acres**	**Acres**	**%**	**Acres**	**%**
VRM I	96,000	70,000	7	25,000	3
VRM II	554,000			554,000	54
VRM III	367,000			367,000	36
VRM IV	4,000			4,000	<1
Total	**1,020,000**	**70,000**	**7**	**950,000**	**93**
Alternative C	**Acres**	**Acres**	**%**	**Acres**	**%**
VRM I	96,000	70,000	7	25,000	3
VRM II	217,000			217,000	21
VRM III	268,000			268,000	26
VRM IV	440,000			440,000	43
Total	**1,020,000**	**70,000**	**7**	**950,000**	**93**
Alternative D	**Acres**	**Acres**	**%**	**Acres**	**%**
VRM I	82,000	70,000	7	12,000	1
VRM II	123,000			123,000	12
VRM III	321,000			321,000	31
VRM IV	494,000			494,000	48
Total	**1,020,000**	**70,000**	**7**	**950,000**	**93**
Alternative E	**Acres**	**Acres**	**%**	**Acres**	**%**
VRM I	96,000	70,000	7	25,000	2
VRM II	883,000	400	<1	882,000	86
VRM III					
VRM IV	42,000			42,000	4
Total	**1,020,000**	**71,000**	**7**	**950,000**	**93**

[a]No lands in the White Mountains classed as VRI Class III or IV in the inventory.
[b]In Alternative A, only the White Mountains NRA and Beaver Creek WSR Corridor have assigned VRM Classes.

4.7.1.5.1. Effects Common to All Alternatives

Effects from Cave and Karst

The cave and karst resources are located within the Limestone Jags RNA and are managed under a Primitive recreation setting character classification to preserve scientific integrity. The area is closed to OHV use, mineral entry, and mineral leasing. These management actions help protect the visual resources by maintaining the area in a near natural landscape.

Effects from Cultural and Paleontological Resources

Use of four public use areas (approximately six acres) will continue to impact visual resources from changes in vegetation through the creation of trails and facilities associated with increased use. Changes to line, form, color and texture will result in greater contrast between exposed soils and adjacent vegetation. Temporary camps and human-made facilities will introduce color and straight lines into an already disturbed landscape. Colors from temporary camps will be the greatest impact, but would be short-term, generally lasting only a few nights. Impacts from scientific use are described in section 4.3.1.9 Impacts Common to All Subunits.

Effects from Locatable Minerals

The entire subunit is closed to locatable minerals and this would remain the case under all alternatives. Visual resources would only be impacted by mining on 4,000 acres of valid existing claims in the Livengood area. These impacts would be present in varying degree depending on the number and size of active mining operations and the degree of reclamation on existing disturbed areas. But, would not vary by alternative.

One large-scale placer mine operation is anticipated near Livengood. The operation would have a disturbed annual footprint of 16 acres over the life of the mine which is anticipated to be between 10 to 20 years for a total of 60 to 80 acres of disturbance. Additionally, up to three small-scale placer mine operations are anticipated. Each operation would have a disturbed annual footprint of 4.4 acres over the life of the mine which is anticipated to be between 10 to 20 years for a total of 20 to 30 acres of disturbance. Impacts from all three operations would impact between 60 to 90 acres over the life of this plan. Impacts from mining operations are described in section 4.3.1.9 Impacts Common to All Subunits.

The preference of winter cross-country moves associated with mining activities helps protect visual resources by reducing the amount of disturbance to soils and vegetation when the ground is frozen and vegetation is at least partly covered by snow. Some changes to line, form, color and texture still occurs through clearing the route of large woody vegetation in a relatively straight line on an otherwise irregular, multi-hued landscape.

Effects from Travel Management

Trail construction, for non-motorized or motorized use, causes changes in color, line, and texture on the landscape. The destruction of vegetation and the hardening of the travel surface create a contrast between the adjacent greens of natural vegetation and the browns and grays of the soils or travel surface materials. A contrast in line occurs when the irregular characteristics of vegetation is altered by a more regular line in the form of a constructed trail. Texture characteristics change from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a developed trail, trail hardening techniques, or soil surface areas. Most trails would attract attention of the casual observer if viewed from a higher observation point and if the trails were located within the Foreground-Middleground and Background zones. Trails that are properly designed and viewed from ground level, however, would not generally attract the attention of a casual observer, except from trailhead observation points.

4.7.1.5.2. Alternative A (No Action)

In addition to impacts discussed as common to all subunits in section 4.3.1.9, the following impacts would occur in the White Mountains Subunit under Alternative A.

Effects from Visual Resources

Under Alternative A, of VRI Class I acres (seven percent), one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character of those lands. These lands, the Beaver Creek WSR Corridor, have an A rating for scenic quality, high sensitivity and occur in the foreground-middle ground zone.

Additionally, of VRI Class II lands (ninety-three percent), less than one percent would be managed as Class I resulting in preservation of the existing visual character of the lands associated with the Beaver Creek WSR Corridor. Approximately fifty percent of VRI Class II land would be managed as VRM Class II allowing a low level of change, while forty-three percent would be managed as VRM Class III, potentially resulting in only partially retention of landscape characteristics. These lands have an A rating for scenic quality, a high sensitivity and occur in both the Foreground-Middleground and Background zones.

No lands classed as VRI Class III or VRI IV during the inventory and no lands would be managed as VRM Class III or VRM Class IV under any alternative.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities can contribute significantly in reducing impacts to visual resources, regardless of VRM Class.

Effects from Water Resources

Management activities such as closing watersheds to OHV use would improve visual resources over long-term as trails are naturally revegetated, covering exposed soil and cleared vegetation regrows. The scope of effects would depend on the size of the closure.

The Water Resources and Riparian Reclamation project along Nome Creek will enhance visual resources by reclaiming past mining activities and returning the stream to one proper functioning channel, on approximately seven miles of the creek. Reducing materials piles and restoring the floodplain will return the site to a more natural landscape in line and form. Natural revegetation will return a more natural line, form, color and texture to the landscape.

Effects from Wildlife

Management activities for wildlife and wildlife habitat generally include restrictions on other resource use such as closing areas to mining, seasonal closures or the use of prescribed fire. Closing areas to certain surface-disturbing activities would improve visual resources by not allowing those activities. Seasonal closures protect visual resources for the duration of the closures. Impacts from prescribed fire would last the longest and are described in section 4.3.1.9. The size and scope would depend on the size of the closures and prescribed fire area.

Effects from Forest and Woodland Products

No commercial timber harvest is permitted under Alternative A, which would protect visual resources on 1,020,000 acres. Personal use of timber is allowed throughout the subunit. Management restrictions may include winter cutting and movement, maintaining a set distance from waterways, and lopping and scattering slash. These management restrictions would help reduce impacts to visual resources. The size and scope of impacts would depend on the size of the area and the harvest techniques used.

Effects from Land and Realty

The two transportation corridors (27,000 acres) would concentrate the building of access roads and possibly provide a location for other ROWs such as pipelines, transmission lines and associated facilities. This consolidation of ROW facilities would help protect visual resources by limiting the locations of surface disturbance and facilities development. If alternative ROWs are necessary, existing trails or travel routes would be used whenever possible. Using existing trails would reduce impacts to visual resources by using already disturbed areas where possible.

Retaining all lands within the White Mountains NRA under BLM management will help protect visual resources by limiting non-BLM actions to current inholdings. Retaining other important lands for recreation purposes helps protect visual resources by evaluating surface-disturbing activities and development on these lands. Retention applies to approximately 1,017,000 acres.

There are three withdrawals under PLO 4176 totaling 505 acres for BLM development as recreation sites. These withdrawals would be maintained, protecting visual resources by keeping these lands under BLM's management.

Effects from Leasable Minerals

The entire subunit, 1,020,000 acres, is closed to both fluid and solid leasable minerals. Visual resources will not be impacted by exploration or development of leasable minerals.

Effects from Salable Minerals

The entire subunit (1,020,000 acres) is open to salable minerals. Impacts from the mining of salable minerals are described under section 4.3.1.9. Visual resources would be protected on a project-specific basis through the use of management class objectives and the visual contrast rating process. While the subunit would be open to salable minerals it is anticipated that demand for material will generally be met from production on state lands and only 100 acres along roads would be mined within this subunit. Mining activities for salable minerals would generally occur along roads due to transportation requirements.

Effects from Recreation

Development within the Beaver Creek WSR Corridor and adjacent viewshed of the river has been minimized. Six winter trails cross Beaver Creek and were designed to retain the existing character of the landscape and to meet VRM Class II objectives. Some human-made features, such as trapping cabins and inholdings are located within the corridor. Many of these facilities are made using natural appearing materials and blend with the surrounding landscape in color. These management activities help protect the visual resources in the corridor (69,000 acres).

The Primitive Management Unit is managed to protect the wild and natural character of the area. Facilities such as motorized trails, non-motorized trails, and public use cabins were constructed of natural appearing materials and blend with the surrounding landscape. These management activities help protect the visual resources on 494,000 acres.

The highlands, consisting of the high ridge complex from Cache Mountain to Lime Peak and Mount Prindle, plus the White Mountains backbone and Victoria Mountain, are managed to protect remote primitive values, including outstanding scenic vistas of high mountain terrain, pristine areas with virtually no evidence of human-made improvements. These management activities help protect the visual resources on 494,000 acres.

The Semi-Primitive Motorized Management Unit has a number of human-made facilities, such as trails, roads, trail-heads, public use cabins, shelters, campgrounds with related facilities and an administrative site. These facilities were constructed as sustainable and to blend with the surrounding landscape characteristics, thus protecting visual resources on 428,000 acres.

Effects from Travel Management

Research Natural Areas are closed to OHV use. This helps protect visual resources by preventing surface disturbance to vegetation and soils from the use of motorized vehicles, on 12,600 acres.

The Beaver Creek WSR Corridor management allows motorized use of OHV weighing 1,500 pounds GVWR and less without permit for winter travel. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation. These management activities help protect the visual resources on 69,000 acres. The Windy Creek and Fossil Creek drainages are closed to OHV use from April 15 to August 31. This closure helps protect visual resources by closing these drainages within the river corridor to travel from April 15 until the snow melts along approximately 27 miles.

The Primitive Management Unit (Map 48) allows for motorized use of OHV weighing 1,500 pounds GVWR and less without permit for winter travel. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation. These management activities help protect the visual resources on 494,000 acres.

The Semi-Primitive Motorized Unit allows for unrestricted travel by OHVs weighing 1,500 pounds GVWR and less year round. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation. These management activities help protect the visual resources on 428,000 acres. However, allowing summer and winter cross-country travel by OHVs could result in an increase of user-created travel routes with impacts to vegetation and soils in line, color and texture. It is anticipated that over the life of the plan, an addition of 200 user-created travel routes may be created. Summer travel routes are typically developed in areas that show changes to line. color and texture with repeated passes.

The Semi-Primitive Motorized Unit also allows for use of vehicles greater than 1,500 pounds GVWR on US Creek Road, along valid ROWs such as roads within the Nome Creek Valley, and approximately 11 miles of tailings along Nome Creek. These areas are hardened and show little change from the existing modified landscape. These management actions impact visual resources on 428,000 acres.

The use of motorized vehicles greater than 1,500 pounds GVWR within the White Mountains NRA and Beaver Creek is allowed by permit. The impacts from this travel would vary depending on the size of vehicle, season of travel, and the number of passes made. Impacts would be similar to those described for cross-country travel under section 4.3.1.9 Impacts Common to All Subunits.

Travel on lands outside the White Mountains NRA and Beaver Creek is unrestricted and may impact visual resources on 4,000 acres by disturbing primarily vegetation by repeated passes and by clearing travel routes.

Effects from Special Designations

Under Alternative A, three areas are designated as RNAs and no surface-disturbing activities are allowed except by permit in association with research projects. The RNAs are closed to OHV, camping, and mineral location and leasing. These management activities will help protect visual resources by limiting surface-disturbing activities in association with permits issued for research projects on 12,600 acres.

The Beaver Creek WSR Corridor is managed to preserve the river and its immediate environment in its natural, primitive condition, in accordance with the Wild and Scenic Rivers Act (P.L. 90542). The designated corridor (69,000 acres) is managed as VRM Class I. No additional rivers are recommended suitable for designation.

4.7.1.5.3. Alternative B

Additional impacts under Alternative B, beyond those discussed as common to all subunits under section 4.3.1.9 are discussed below.

Effects from Fish and Aquatic Species

There are fourteen Riparian Conservation Areas (RCAs) identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 488,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

Of VRI Class I lands in Riparian Conservation Areas (67,000 acres) one-hundred percent would be managed under Class I management retaining the natural appearance of the landscape. Of VRI Class II lands in Riparian Conservation Areas, two percent or 6,000 acres would be managed as Class I while sixty-two percent or 263,000 acres would be managed as Class II lands and thirty-six percent (152,000 acres) would be managed as Class III lands allowing some change to the natural landscape. No lands were identified as VRI Class III or IV.

Effects from Visual Resources

Under Alternative B, of VRI Class I acres (seven percent), one-hundred percent (70,000 acres) would continue to be managed as VRM Class I resulting in preservation of the existing visual character of those lands. These lands, the Beaver Creek WSR, have an A rating for scenic quality, high sensitivity and occur in the foreground-middle ground zone.

Additionally, of VRI Class II lands (ninety-three percent or 950,000 acres), approximately three percent (25,000 acres) would be managed as VRM Class I resulting in preservation of the existing visual character of these lands associated with the Beaver Creek WSR Corridor. Approximately fifty-four percent (554,000 acres) of VRI Class II land would be managed as VRM Class II allowing a low level of change, while thirty-six percent (367,000 acres) would be managed as VRM Class III, potentially resulting in only partial retention of landscape characteristics. Less than one percent (4,000 acres) would be managed as Class IV lands potentially resulting in a high level of change to the landscape characteristics. These lands have an A rating for scenic quality, a high sensitivity and occur in both the Foreground-Middleground and Background zones.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance and by repeating the landscape elements of form, line, color and texture for all surface-disturbing

activities can contribute significantly in reducing impacts to visual resources, regardless of VRM Class.

Effects from Wilderness Characteristics

Visual characteristics are related to the criteria used to determine the presence of wilderness characteristics which includes naturalness. Management decisions to preserve wilderness characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining natural vegetation and landform. Under Alternative B, wilderness characteristics would be maintained on 509,000 acres (fifty percent), limiting activities that impact the appearance of naturalness.

Of VRI Class I lands where wilderness characteristics will be maintained (70,000 acres) one-hundred percent would be managed under Class I retaining the natural appearance of the landscape. Of VRI Class II lands where wilderness characteristics will be maintained, six percent or 25,000 acres would be managed as Class I while ninety-four percent or 414,000 acres would be managed as Class II lands. No lands where wilderness characteristics will be maintained were identified as VRI Class III or IV lands.

Effects from Wildlife

In addition to the effects discussed under Alternative A, the following effects would occur under Alternative B. If OHV travel impacts wintering caribou by reducing caribou use of an area, then use restrictions or closures may occur. These actions would improve visual resources by restricting or eliminating damage to vegetation and clearing of winter trails. Changes in vegetation, and clearing winter trails and travel routes from OHV use impact visual resources by primarily changing the line, color and texture of the natural landscape.

Effects from Forest and Woodland Products

Personal use of timber, timber salvage sales, commercial timber sales, and commercial use of forest products would not be allowed within the White Mountains SRMA (inclusive of Beaver Creek WSR). Temporary camps and various impacts from different harvest techniques would not impact 1,017,000 acres. These management actions would help protect visual resources.

The rest of the subunit would be open to these uses, potentially impacting visual resources on 4,000 acres. The size and scope of impacts would depend on the size of the area and harvest techniques used.

Effects from Land and Realty

Under Alternative B, the retention of one transportation corridor (7,000 acres) would continue to concentrate the building of access roads and possibly provide a location for other rights-of-way. This consolidation of rights-of-way facilities would help protect visual resources by limiting the locations of surface disturbance and facilities development associated with these activities.

All of the lands within the transportation corridor were identified as VRI Class II lands (7,000 acres) one-hundred percent would be managed as Class III lands allowing some change to the natural landscape.

The designation of Serpentine Slide, Limestone Jags and Mount Prindle RNAs, the White Mountains ACEC, and Beaver Creek WSR Corridor as a right-of-way avoidance areas would

protect visual resources by not allowing clearance of vegetation and construction of structures associated with different kinds of rights-of-ways. A natural landscape in line, form, color and texture would be maintained on 95,000 acres.

Recreation withdrawals under PLO 4176 would be maintained, protecting visual resources by keeping these lands under BLM's management.

Effects from Leasable Minerals

Under Alternative B, approximately 100 acres of split-estate lands would be open to fluid mineral leasing subject to major constraints. The remainder of the subunit would be closed to both solid and fluid leasable minerals. These actions would protect visual resources.

Effects from Salable Minerals

Approximately 649,000 acres would be closed to salable minerals, including the three RNAs, the Primitive RMZ, the Beaver Creek WSR Corridor, the Highlands RMZ, and the Cache Mountain RMZ. Visual resources would not be impacted on these lands. Impacts to visual resources by production of salable mineral resources on the remaining 371,000 acres would depend on the scale of the action and the number of mineral sites. Changes to line, form, color and texture of the natural landscape would result from activities such as trenching, road building for access, vegetation clearing for exploration activities, and mineral extraction processes. Buildings and other facilities would impact primarily line, color and texture.

While thirty-six percent of the subunit is open to salable minerals under Alternative B, it is anticipated that only 100 acres would be material sites would be approved over the life of the plan. Mining activities for salable minerals would generally occur along roads due to transportation requirements. Impacts to visual resources by the development of salable minerals are described under section 4.3.1.9.

Effects from Recreation

Recreation Management Zones (RMZs) are managed for different physical settings which include remoteness, naturalness and visitor facilities. Of these, naturalness and visitor facilities impact visual resources by setting prescriptions for management, i.e., describing the amount of naturalness and how facilities will sit on the landscape. These prescriptions include a range from Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and descriptions of how facilities will sit on the landscape.

Of VRI Class I lands (70,000 acres) one-hundred percent would be retained under Class I management. Of VRI Class II lands, three percent or 25,000 acres would be managed as Class I while fifty-four percent or 554,000 acres would be managed as Class II lands, thirty-six percent (367,000 acres) would be managed as Class III lands allowing some change to the natural landscape and less than one percent (4,000 acres would be managed as Class IV lands allowing visual changes to the natural landscape to occur. No lands were identified as VRI Class III or IV.

Under Alternative B: the Beaver Creek WSR Corridor and the Primitive RMZ would have a VRM Class I (96,000 acres); the Semi-Primitive and Backcountry RMZs would have a VRM Class II (554,000 acres); the Middlecountry and Frontcountry RMZs would have a VRM Class III (367,000 acres); and all other lands would have a VRM Class IV (4,000 acres).

Effects from Travel Management

Travel management on other BLM lands outside the SRMA

Open cross-country travel on (4,000 acres) is restricted to winter use of snowmobiles weighing 1,000 pounds curb weight and less, and summer use of OHVs weighing 1,500 pounds curb weight and less. These restrictions may impact visual resources by disturbing vegetation by repeated passes and by clearing of travel routes. Vehicles weighing less than 10,000 pounds curb weight would be allowed on existing roads. This would protect visual resources by restricting this type of use to already hardened areas. All other vehicle use could be allowed under permit. The impacts larger vehicles would vary depending on the size of vehicle, season of travel, and the number of passes made but would be similar to impacts described for open cross-country travel, except on a larger scale. Impacts to visual resources by open cross-country travel are described in section 4.3.1.9.

Travel Management within the SRMA

Within all zones, restrictions or closures associated with travel may occur to protect resources. These actions would improve visual resources by restricting or eliminating damaged to vegetation and clearing of trails.

Research Natural Areas are closed to OHV use. This helps protect visual resources by preventing surface disturbance to vegetation and soils from the use of motorized vehicles on 12,600 acres. The remainder of the Primitive Zone (13,400 acres) would be closed to summer OHV use, but open to the winter use of snowmobiles.

The **Semi-Primitive Zones** (483,000 acres), which include Beaver Creek WSR Corridor and the White Mountains Highlands, allows cross-country motorized use of OHV weighing 1,000 pounds curb weight and less without permit for winter travel. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation.

The **Backcountry Zone** (140,000 acres) allows cross-country motorized use of OHV weighing 1,000 pounds curb weight and less without permit for winter travel. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape even with cross-country travel allowed because of the frozen soils and snow cover on lower growing vegetation. In addition, Windy Creek and Fossil Creek drainages are closed to OHV use from April 15 to August 31. As in Alternative A, this closure helps protect visual resources by closing these drainages to travel from April 15 until the snow melts along approximately 27 miles.

In both the Semi-Primitive and Backcountry zones, the summer use of OHV weighing 1,000 pounds curb weight and less and all use of motorized vehicles greater than 1,000 pounds curb weight may be allowed by permit. The impacts from vehicles would vary depending on the size of vehicle, season of travel, and the number of passes made. They would be similar to impacts described for cross-country travel except on a larger scale. Stipulations could be attached to permits to reduce impacts.

The **Middlecountry Zone** (329,000 acres) allows for cross-country motorized use of OHV weighing 1,000 pounds curb weight and less without permit for winter travel. These seasonal and weight restrictions help reduce the amount of surface disturbance to vegetation and soils with

resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation.

Summer travel by OHVs weighing 1,000 pounds curb weight and less and a width not exceeding 50 inches is allowed on designated trails only. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape because travel is limited to hardened designated trails. These management activities help protect the visual resources on 327,000 acres.

The **Frontcountry Zones** (38,500 acres) allows for cross-country motorized use of OHV weighing 1,000 pounds curb weight and less without permit for winter travel. These seasonal and weight restriction help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover.

Summer travel by OHVs weighing 1,000 pounds curb weight and less and a width not exceeding 50 inches is allowed on designated trails only. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape because travel is limited to hardened designated trails These management activities help protect the visual resources on 38,000 acres. In addition, the Table Top Mountain trail, the Ski Loop trail and the Summit trail, are limited to non-motorized use only, which helps protect the visual resources along these trails.

A portion of the Wickersham Trail is closed to OHV use from April 15 to June 1. This closure helps protect visual resources by closing this trail to travel until soils are suitable for travel without resource damage. This management action helps protect visual resources on approximately 28,000 acres.

The Frontcountry Zone also allows for use of highway vehicles and OHVs weighing 1,500 pounds curb weight along approximately 11 miles of mining tailings along Nome Creek. These areas are hardened and show little change from the existing modified landscape. These management actions impact visual resources along these travel areas.

In both the Middlecountry and Froncountry zones, the use of larger vehicles off designated trails may be allowed by permit. Visual resources would be protected through the use of management class objectives and the visual contrast rating process when permits are considered.

Effects from Special Designations

Under Alternative B, 589,000 acres would be designated as the White Mountains ACEC to protect caribou and Dall sheep habitat. Management decisions to protect wildlife habitat would help preserve the visual characteristics of the area. For example, seasonal restrictions or closures of areas to motorized use may occur to protect habitat. Seasonal restrictions on activities within a one mile radius of ungulate mineral licks would limit development and use in these areas. The ACEC would be closed to leasable and locatable minerals, and would be a ROW avoidance area. ROW avoidance would protect visual resources by not allowing clearance of vegetation and construction of structures associated with different kinds of rights-of-ways. These actions would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape to 589,000 acres.

Of VRI Class I lands within ACECs (39,000 acres) one-hundred percent would be retained under Class I management. Of VRI Class II lands, five percent or 25,000 acres would be managed as Class I while seventy-three percent or 403,000 acres would be managed as Class II lands and twenty-two percent or 121,000 acres would be managed as Class III lands allowing some change to the natural landscape.

Impacts to visual resources from RNAs would be the same as Alternative A.

Under Alternative B, 5,800 acres associated with Fossil Creek would be maintained as a natural landscape under the eligibility as a "scenic" river and would be assigned a VRM Class II to protect the naturalness of the river corridor. "Scenic" rivers are still largely primitive and undeveloped by may contain some development such as roads, trails and minor facilities. Management decisions to preserve these characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining natural vegetation and landform.

4.7.1.5.4. Alternative C

In general, Alternative C anticipates a moderate level of resource protection, use and enhancement of resources and adopts VRM classes that would allow a range of development and still protect visual resource in certain areas. Additional impacts beyond those discussed as common to all subunits under section 4.3.1.9 are discussed below.

Effects from Fish and Aquatic Species

There are 14 RCAs identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 444,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

Of VRI Class I lands within RCAs (67,000 acres) one-hundred percent would be retained under Class I management. Of VRI Class II lands, two percent or 6,000 acres would be managed as Class I while twenty-two percent or 263,000 acres would be managed as Class II lands, eighteen percent (152,000 acres) would be managed as Class III lands allowing some change to the natural landscape and forty-seven percent (177,000 acres) would be managed as Class IV allowing a visible level of change to the landscape. No lands were identified as VRI Class III or IV.

Effects from Visual Resources

Under Alternative C, of VRI Class I lands (seven percent or 70,000 acres), one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character of those lands. These lands, the Beaver Creek WSR, have an A rating for scenic quality, high sensitivity and occur in the foreground-middle ground zone.

Additionally, of VRI Class II lands (ninety-three percent or 950,000 acres), approximately three percent (25,000 acres) would be managed as Class I resulting in preservation of the existing visual character of these lands associated with the Beaver Creek WSR Corridor. Approximately twenty-three percent (217,000 acres) of VRI Class II land would be managed as VRM Class II allowing a low level of change, while twenty-six percent or 268,000 acres would be managed as Class III lands potentially resulting in only partially retention of landscape characteristics. Additionally, forty-three percent or 440,000 acres of VRI Class II lands would be managed as VRM Class IV potentially resulting in a high level of change to the characteristic landscape.

These lands have an A rating for scenic quality, a high sensitivity and occur in both the Foreground-Middleground and Background Zones.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities can contribute significantly in reducing impacts to visual resources, regardless of VRM Class.

Effects from Wilderness Characteristics

Visual characteristics are related to the criteria used to determine the presence of wilderness characteristics which includes naturalness. Management decisions to preserve wilderness characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining natural vegetation and landform. Under Alternative C, wilderness characteristics would be maintained on 312,000 acres (thirty-one percent), limiting activities that impact the appearance of naturalness.

Of VRI Class I lands where wilderness characteristics will be maintained (70,000 acres) one-hundred percent would be retained under Class I management. Of VRI Class II lands where wilderness characteristics will be maintained, ten percent or 25,000 acres would be managed as Class I while ninety percent or 217,000 acres would be managed as Class II lands. No lands were identified as VRI Class III or IV lands.

Effects from Wildlife

Same as Alternative B.

Effects from Forest and Woodland Products

Personal use of timber and commercial timber sales would not be allowed within the Beaver Creek WSR Corridor and the RNAs. Temporary camps and various impacts from different harvest techniques would not impact 82,000 acres. Additionally, commercial use of forest products would not be allowed within the RNAs. Temporary camps and various impacts from different harvest techniques would not impact 12,600 acres. These management actions would help protect visual resources.

The rest of the subunit would be open to personal use of timber, and commercial use of both forest products and timber, potentially impacting visual resources on 935,000 acres. The size and scope of impacts would depend on the size of the area and harvest techniques used. Commercial timber sales are unlikely due to lack of access and lack of commercially valuable timber.

Timber salvage sales would be considered throughout the subunit. The size and scope of impacts would depend on the size of the area and harvest techniques used.

Effects from Land and Realty

No transportation corridors or right-of-way avoidance areas would be identified. The concentration of access roads and other rights-of-way may not occur. However, few rights-of-way are anticipated during the life of the plan within the White Mountains NRA.

Effects from retaining PLO 4176 would be the same as Alternative B.

Effects from Leasable Minerals

Under Alternative C, approximately 100 acres of split-estate lands would be open to fluid mineral leasing. The remainder of the subunit would be closed to both solid and fluid leasable minerals. These actions would protect visual resources.

Effects from Salable Minerals

Impacts would be similar to Alternative A, except less land would be opened to salable minerals. Under Alternative C, impacts to visual resources by production of salable mineral resources on 951,000 acres would depend on the scale of the action and the number of mineral sites. While ninety-three percent of the subunit is open to salable minerals it is anticipated that only 100 acres along roads would be mined within this subunit.

The Beaver Creek WSR Corridor (69,000) acres would be closed. Visual resources would not be impacted by mining salable minerals on these lands.

Effects from Recreation

Recreation Management Zones are managed for different physical settings which include remoteness, naturalness and visitor facilities. Of these, naturalness and visitor facilities impact visual resources by setting prescriptions for management, i.e., describing the amount of naturalness and how facilities will sit on the landscape. These prescriptions range from Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and description of how facilities will sit on the landscape.

Of VRI Class I lands (70,000 acres) one-hundred percent would be retained under Class I management. Of VRI Class II lands three percent (25,000 acres) would be managed as Class I, while twenty-one percent or 217,000 acres would be managed as Class II, twenty-six percent or 268,000 acres would be managed as Class III lands allowing some change to the natural landscape and forty-three percent (440,000) would be managed as Class IV lands allowing visual changes to the natural landscape to occur. No lands were identified as VRI Class III or IV lands.

Under Alternative C: the Beaver Creek WSR Corridor and Primitive RMZs would have a VRM Class I (96,000 acres); the Semi-Primitive RMZ (102,000 acres) would have a VRM Class II; the Backcountry RMZ would have a VRM Class III (382,000 acres); and all other lands, including the Middlecountry and Frontcountry RMZs would have a VRM Class IV (440,000 acres).

Effects from Travel Management

Under Alternative C, effects from travel management outside of the SRMA and in Primitive Zones would be the same as Alternative B.

Travel Management within the SRMA

The **Semi-Primitive Zones** (171,000 acres), which includes Beaver Creek WSR Corridor and the White Mountains Highlands, allow cross-country motorized use of OHV weighing 1,000 pounds curb weight and less without permit for winter travel. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation.

The **Backcountry Zone** (382,000) allows for cross-country motorized use of OHV weighing 1,000 pounds curb weight and less without permit for winter travel. The season of travel and

weight restriction helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation. Same as Alternative A, Windy Creek and Fossil Creek drainages are closed to OHV use from April 15 to August 31. This closure helps protect visual resources by closing these drainages within the river corridor to travel from April 15 until the snow melts along approximately 27 miles.

In both the Semi-Primitive and Backcountry zones, the summer use of OHV weighing 1,000 pounds curb weight and less and all use of motorized vehicles greater than 1,000 pounds curb weight may be allowed by permit. The impacts from vehicles would vary depending on the size of vehicle, season of travel, and the number of passes made. They would be similar to impacts described for cross-country travel except on a larger scale. Stipulations could be attached to permits to reduce impacts.

The **Middlecountry Zone** (398,000 acres) allows for cross-country motorized use of OHV weighing 1,000 pounds curb weight and less without permit for winter travel. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation.

Summer travel by OHVs weighing 1,000 pounds curb weight and less and a width not exceeding 50 inches is allowed on designated trails only. Travel off designated trails or designated routes will be allowed to retrieve legally harvested game within this zone only. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape because travel is limited to hardened designated trails except for game retrieval. Multiple passes over the same travel route for the retrieval of game could cause changes in color, line, and texture on the landscape. Repeated OHV use leads to destruction of vegetation, which in turn results in soil exposure, creating a contrast between the adjacent greens of natural vegetation and the browns and grays of exposed soil and organic materials. A contrast in line occurs when the irregular characteristics of vegetation is altered by a more regular line in the form of a developed route or constructed trail. Texture characteristics change from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a developed trail, trail hardening techniques, or mineral soil area. These management activities help protect the visual resources on 398,000 acres.

The heavier UTVs would be allowed designated trails only. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape because travel is limited to hardened designated trails These management activities help protect the visual resources on 398,000 acres. The use of UTVs off designated trails and all use of motorized vehicles greater than 1,500 pounds curb weight off of roads and outside designated areas may be allowed by permit. Visual resources would be protected through the use of management class objectives and the visual contrast rating process when permits are considered.

The **Frontcountry Zone** (38,500 acres) allows for cross-country motorized use of OHV weighing 1,000 pounds curb weight and less without permit for winter travel. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation.

Summer travel by OHVs weighing 1,000 pounds curb weight and less and a width not exceeding 50 inches is allowed on designated trails only. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape because travel is limited to hardened designated trails These management activities help protect the visual resources on 38,500 acres.

The heavier UTVs would be allowed designated trails only and no game retrieval would be allowed. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape because travel is limited to hardened designated trails These management activities help protect the visual resources on 38,500 acres.

In addition, the Table Top Mountain trail, the Ski Loop trail and the Summit trail, are limited to non-motorized use only. A portion of the Wickersham Trail is closed to OHV use from April 15 to June 1. This seasonal closure helps protect visual resources by closing this trail to travel until soils are suitable for travel without resource damage. These management actions helps protect visual resources along these trails.

The Frontcountry Zone also allows for use of highway vehicles and OHVs weighing 1,500 pounds curb weight along approximately 11 miles of mining tailings along Nome Creek. These areas are hardened and show little change from the existing modified landscape. These management actions impact visual resources along these travel areas. The use of UTVs off designated trails/areas and other motorized vehicles greater than 1,500 pounds curb weight may be allowed by permit. Visual resources would be protected through the use of management class objectives and the visual contrast rating process when permits are considered.

Effects from Special Designations

Under Alternative C, the White Mountains ACEC would not be designated and Fossil Creek would not be recommended as suitable for inclusion to the National Wild and Scenic Rivers system.

The three designated RNAs would continue, helping to protect visual resources on 12,600 acres. Management of the RNAs would differ from Alternatives A and B. Primitive camping and the construction of hiking trails would be allowed. Visual impacts from trail construction include changes in color, line, and texture on the landscape. A contrast in line occurs when the irregular characteristics of vegetation is altered by a more regular line in the form of a constructed trail. Texture characteristics change from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a developed trail, trail hardening techniques or mineral soil areas. Most trails would attract attention of the casual observer if viewed from a higher observation point and if the trails were located within the Foreground-Middleground and Background Zones. Trails or routes that are properly designed and viewed from ground level, however, would not generally attract the attention of a casual observer, with the exception from trailhead observation points.

Of VRI Class I lands (1,000 acres) one-hundred percent would be retained under Class I management. Of VRI Class II lands, one-hundred percent (12,000 acres) would be managed as Class I. No lands were identified as VRI Class III or IV lands.

Same as Alternatives A and B, the Beaver Creek WSR Corridor would be managed as a VRM Class I.

4.7.1.5.5. Alternative D

In general, this alternative anticipates the greatest amount of resource development and adopts the least restrictive VRM classes that would allow major development while protecting visual resource in certain areas.

Effects from Fish and Aquatic Species

There are eight RCAs identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 205,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

Of VRI Class I lands within RCAs (66,000 acres) one-hundred percent would be managed under Class I resulting in the preservation of the existing visual character of the landscape. Of VRI Class II lands within RCAs, two percent or 4,000 acres would be managed as Class I, twenty-two percent or 42,000 acres would be managed as Class II lands, while thirty-six percent (68,000 acres) would be managed as Class III lands allowing some change to the natural landscape and forty percent or 75,000 acres would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Visual Resources

Under Alternative D, of VRI Class I (70,000 acres or seven percent), one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character of those lands. These lands, the Beaver Creek WSR, have an A rating for scenic quality, high sensitivity and occur in the foreground-middle ground zone.

Additionally, of VRI Class II lands (ninety-three percent), one percent or 12,000 acres would be managed as VRM Class I resulting in preservation of the existing visual character of these lands associated with the Beaver Creek WSR Corridor. Approximately twelve percent or 123,000 acres of VRI Class II lands would be managed as VRM Class II while thirty-one percent or 321,000 acres would be managed as Class III lands, potentially resulting in only partially retention of landscape characteristics; and forty-eight percent or 494,000 acres would be managed as VMR Class IV lands potentially resulting in a high level of change to the characteristic landscape. These lands have an A rating for scenic quality, a high sensitivity and occur in both the Foreground-Middleground and Background zones.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities regardless of VRM Class can contribute significantly in reducing impacts to visual resources.

Effects from Wilderness Characteristics

Visual characteristics are related to the criteria used to determine the presence of wilderness characteristics which includes naturalness. Management decisions to preserve wilderness characteristics help to preserve the visual resources of the area by limiting surface-disturbing activities and maintaining natural vegetation and landform. Under Alternative D, wilderness characteristics would be maintained on 205,000 acres (twenty percent), limiting activities that impact the appearance of naturalness.

Of VRI Class I lands where wilderness characteristics will be maintained (70,000 acres) one-hundred percent would be managed under Class I resulting in the preservation of the existing visual character of these lands. Of VRI Class II lands where wilderness characteristics will be maintained, nine percent or 12,000 acres would be managed as Class I while ninety-one percent or 123,000 acres would be managed as Class II lands. No lands where wilderness characteristics will be maintained were identified as VRI Class III or IV lands.

Effects from Wildlife

Same as Alternative B.

Effects from Forest and Woodland Products

Effects under Alternative D would be the same as Alternative C, except personal use of timber would not be excluded from the Beaver Creek WSR Corridor and the RNAs, increasing the potential for impacts in these areas. The size and scope of impacts would depend on the size of the area and management restrictions required.

Effects from Land and Realty

Same as Alternative C, no transportation corridors or ROW avoidance areas would be identified, resulting in potential impacts to visual resources.

Under Alternative D, a portion of PLO 4167 on Perhaps Creek would be revoked. This revocation would allow 200 acres to be transferred out of BLM management and open for development and associated surface disturbance activities.

Effects from Leasable Minerals

Approximately 569,000 would be closed to fluid and solid leasable minerals, including the RNAs, the Primitive RMZ, Beaver Creek RMZ, Highlands RMZ, Cache Mountain RMZ, Nome Creek RMZ, Wickersham/Blixt RMZ, the Perhaps Creek recreational withdrawal, and all disposal lands. These actions would protect visual resources by not allowing surface disturbance activities associated with leasable mineral development.

Approximately 451,000 acres in the Foothills Middlecountry RMZ would be open to leasable minerals subject to minor constraints, such as seasonal restrictions. Although almost half of the subunit would be open to leasable minerals, no exploration, leasing, or development is anticipated due to the low development potential for the area. Impacts to visual resources by the development of fluid leasable minerals are described under Impacts Common to All Subunits.

Effects from Salable Minerals

Under Alternative D, the entire subunit (1,020,000 acres) would be open to salable minerals. Impacts from the mining of salable minerals are described under section 4.3.1.9. Impacts to visual resources would depend on the scale of the action and the number of mineral sites mined. While the entire subunit is open to salable minerals, it is anticipated that demand for material will be met from production on state lands and no new federal material sites are anticipated. Mining activities for salable minerals would generally occur along roads due to transportation requirements.

Effects from Locatable Minerals

Same as Alternative B.

Effects from Hardrock Minerals

Under Alternative D, approximately 860,000 acres would be closed to hardrock mining, protecting visual resources in these areas. Closed areas include Beaver Creek WSR, all RNAs, all of White Mountains Highlands and Cache Mountain RMZs, and portions of the White Mountains Foothills RMZ. This would protect visual resources by not allowing surface-disturbing activities associated with mineral development.

Approximately 160,000 acres would be open to leasing of hardrock minerals Open areas include the eastern portion of the White Mountains Foothills and Nome Creek RMZs. Impacts from the mining of leasable hardrock minerals are described under section 4.3.1.9. Impacts to visual resources would depend on the scale of the action and the number of mineral sites mined.

The Quartz Creek area would be open to suction dredging only with no operations anticipated. However, if an operation occurred, impacts would be from a camp footprint of less than one acre. The movement of materials occurs underwater and thus does not have a noticeable impact to visual resources and is generally redistributed each spring during break-up or high water events. Impacts from various types of mining operations are described under section 4.3.1.9.

Three small-scale operations are anticipated over the life of the plan. Each operation would have a disturbed annual footprint of 4.4 acres over the life of the mine (10–15 years) for a total of 44 to 66 acres of disturbance. Impacts from all three operations would impact 132 to 198 acres. It is anticipated that one large-scale operation may be developed under this alternative. The operation would have a disturbed annual footprint of 16 acres over the life of the mine (10–15 years) for a total of 160 to 240 acres of disturbance.

Mineral exploration activities with resulting camp and field sampling would impact visual resources on between 2 and 52 acres annually. Reclamation would generally occur annually with the only impacts to visual resources from camps. It is anticipated that only one operation would occur over the life of this plan.

Of the 160,000 acres open to hardrock mining, no lands were identified as VRI Class I, III or IV. Of VRI Class II lands, 118,000 (74 percent) would be managed as Class II and 42,000 acres (26 percent) would be managed a Class IV.

Effects from Recreation

Recreation Management Zones are managed for different physical settings which include remoteness, naturalness and visitor facilities. Of these, naturalness and visitor facilities impact visual resources by setting prescriptions for management, i.e., describing the amount of naturalness and how facilities will sit on the landscape. These prescriptions provide a range from Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and description of how facilities will sit on the landscape.

Of VRI Class I lands (70,000 acres) one-hundred percent would be retained under Class I management. Of VRI Class II lands, one percent or 12,000 acres would be managed as Class I, twelve percent (123,000 acres) would be managed as Class II, while thirty-one percent or 321,000 acres would be managed as Class III lands allowing some change to the natural landscape and forty-eight percent (494,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape. No lands were identified as VRI Class III or IV lands.

Under Alternative D: the Beaver Creek WSR Corridor and Primitive RMZ would have a VRM Class I (82,000 acres); the Backcountry RMZ would have a VRM Class III (445,000 acres); all remaining lands including Middlecountry and Frontcountry RMZs would have a VRM Class IV (494,000 acres).

Effects from Travel Management

Under Alternative D, effects from travel management outside of the SRMA would be the same as Alternative B.

Travel management within the SRMA

In all zones, restrictions or closures associated with travel may occur to protect resources. These actions would improve visual resources by restricting or eliminating damaged to vegetation and clearing of trails.

Primitive Zones (RNAs) are closed to OHV use. This helps protect visual resources by preventing surface disturbance to vegetation and soils from motorized vehicles on 12,600 acres.

The **Semi-Primitive Zone** (69,000 acres), which consists of the Beaver Creek WSR Corridor, allows cross-country motorized use of OHV weighing 1,000 pounds curb weight and less without permit for winter travel. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation.

The **Backcountry Zone** (445,000 acres) allows for cross-country motorized use of OHV weighing 1,000 pounds curb weight and less without permit for winter travel. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation. In addition, Windy Creek and Fossil Creek drainages are closed to OHV use from April 15 to August 31. This closure helps protect visual resources by closing these drainages within the river corridor to travel from April 15 until the snow melts along approximately 27 miles.

The summer use of OHV weighing 1,000 pounds curb weight and less and all use of motorized vehicles greater than 1,000 pounds curb weight within the Semi-Primitive and Backcountry zones may be allowed by permit. Visual resources would be protected through the use of management class objectives and the visual contrast rating process when permits are considered.

The **Middlecountry Zone** (452,000 acres) and the **Wickersham Dome-Fred Blixt Frontcountry RMZ** (7,500 acres) allows for cross-country motorized use of OHV weighing 1,000 pounds curb weight and less without permit for winter travel. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover on lower growing vegetation.

Similar to Alternative A, cross-country summer travel by OHVs weighing 1,000 pounds curb weight and less and a width not exceeding 50 inches is allowed. Multiple passes over the same travel route could cause changes in color, line, and texture on the landscape. Repeated OHV use leads to destruction of vegetation, which in turn results in soil exposure, creating a contrast between the adjacent greens of natural vegetation and the browns and grays of exposed soil and

organic materials. A contrast in line occurs when the irregular characteristics of vegetation is altered by a more regular line in the form of a developed route or constructed trail. Texture characteristics change from the natural course or rough textures of diverse vegetation to the smooth uniform texture of a developed trail, trail hardening techniques or mineral soil area. Limiting by weight, helps protect the visual resources on 460,000 acres.

The heavier UTVs would be allowed on designated trails only. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape because travel is limited to hardened trails. These management activities help protect the visual resources on 460,000 acres. The use of larger vehicles may be allowed by permit.

Same as Alternatives B and C, a portion of the Wickersham Trail is closed to OHV use from April 15 to June 1. This closure helps protect visual resources by closing this trail to travel until soils are suitable for travel without resource damage. This management action helps to protect visual resources on approximately 28,000 acres.

The **Nome Creek Frontcountry Zone** (31,000 acres) allows for cross-country motorized use of OHV weighing 1,000 pounds curb weight and less without permit for winter travel. The season of travel and weight restriction helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape, even with cross-country travel allowed, because of the frozen soils and snow cover.

Summer travel by OHVs weighing 1,000 pounds curb weight and less and a width not exceeding 50 inches is allowed on designated trails only. This helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape because travel is limited to hardened trails. These management activities help protect the visual resources on 31,000 acres.

UTVs would be allowed on designated trails only and no game retrieval by UTV would be allowed, helping to reduce the amount of surface disturbance and resulting changes to line, form, color and texture of the natural landscape because travel is limited to hardened trails. These management activities help protect the visual resources on 31,000 acres.

Several trails are limited to non-motorized use only and the use of highway vehicles is allowed on approximately 11 miles of mine tailings along Nome Creek. Impacts would be the same as Alternatives B and C.

Effects from Special Designations

Same as Alternative C.

4.7.1.5.6. Alternative E (Proposed RMP)

In general, Alternative E represents a mix and variety of actions that best resolves issues and concerns in consideration of all values and programs and adopts a blend of VRM classes that would allow major development while protecting visual resource in certain areas. It has the highest percentage of VRM Class II lands of all Alternatives. Class II allows a low level of change to the characteristic landscape where management activities may be seen but not attract the attention of the casual observer.

Effects from Fish and Aquatic Species

Under Alternative E, the Sumner Creek-Nome Creek watershed has been identified as a High Priority Restoration Watershed and would be emphasized for restoration and/or protection on 40,000 acres. Active restoration projects, such as willow planting, seeding and fertilizing would have positive impacts to areas with surface disturbance. Changes to line, color and texture would result in that the area would be returned to a more natural looking landscape. There are fourteen RCAs identified for accelerated rehabilitation of habitats which include active revegetation and streambank stabilization techniques on 447,000 acres. These activities would have a positive impact to areas with surface disturbance in returning the disturbance to a more natural looking landscape faster than natural revegetation.

All of the lands identified as important watershed, have a VRI Class of I or II. Of VRI Class I lands (70,000 acres) one-hundred percent would be managed under Class I resulting in the preservation of the existing visual character of the landscape. Of VRI Class II lands, two percent or 25,000 acres would be managed as Class I, while eighty-six percent or 882,000 acres would be managed as Class II lands. Only the Nome Creek Watershed (HUC #190404022004; 40,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Visual Resources

Under Alternative E, of VRI Class I (70,000 acres or seven percent), one-hundred percent would continue to be managed as VRM Class I resulting in preservation of the existing visual character of those lands. These lands, the Beaver Creek WSR, have an A rating for scenic quality, high sensitivity and occur in the foreground-middle ground zone.

Additionally, of VRI Class II lands (ninety-three percent or 950,000 acres), two percent or 25,000 acres would be managed as VRM Class I resulting in preservation of the existing visual character of these lands associated with the RNAs. Approximately eighty-six percent or 882,000 acres of VRI Class II lands would be managed as VRM Class II while four percent or 42,000 acres would be managed as VMR Class IV lands potentially resulting in a high level of change to the characteristic landscape. These lands have an A rating for scenic quality, a high sensitivity and occur in both the Foreground-Middleground and Background zones. No lands would be managed as VRM Class III lands.

Using design fundamentals of proper siting and location, reducing unnecessary disturbance and by repeating the landscape elements of form, line, color and texture for all surface-disturbing activities regardless of VRM Class can contribute significantly in reducing impacts to visual resources.

In summary, 96,000 acres will be managed as VRM Class I, 883,000 acres will be managed as VRM Class II, no lands will be managed as VRM Class III and 42,000 acres will be managed as VRM Class IV.

Effects from Wildlife

Under Alternative E, 417,000 acres would be managed as crucial caribou and Dall sheep habitat to protect important values for caribou calving and post calving habitat, Dall sheep habitat and mineral licks. The protection of habitat would also help protect visual resources on 417,000 acres.

Of VRI Class I lands within crucial caribou and Dall sheep habitat , one-hundred percent would be managed under Class I resulting in the preservation of the existing visual character of these

lands. Of VRI Class II lands within crucial caribou and Dall sheep habitat, one-hundred percent would be managed as Class II allowing a low level of change to the natural characteristics. No lands within crucial caribou and Dall sheep habitat were identified as VRI Class III or IV lands.

Effects from Wilderness Characteristics

Under Alternative E, no lands would be managed to protect wilderness characteristics as a priority over other resource values and multiple use. Wilderness characteristics would be maintained on 777,000 acres, by limiting activities that impact wilderness characteristics of size, naturalness and outstanding opportunities for solitude or primitive and unconfined recreation.

Of VRI Class I lands where wilderness characteristics will be maintained (70,000 acres) one-hundred percent would be managed under Class I resulting in the preservation of the existing visual character of these lands. Of VRI Class II lands where wilderness characteristics will be maintained, one percent or 17,000 acres would be managed as Class I while seventy percent or 900,000 acres would be managed as Class II lands and eighteen percent or 236,000 acres would be managed as Class IV. No lands where wilderness characteristics will be maintained were identified as VRI Class III or IV lands.

Effects from Forest and Woodland Products

Under Alternative E, personal use of timber and forest products, as well as commercial timber salvage sales and commercial use forest products would be would be considered on all BLM-managed lands (1,020,000 acres). Impacts from commercial timber sales (large and small) would be considered on all BLM-managed lands except within the Beaver Creek WSR, RNAs and crucial caribou and Dall sheep habitat. These acres (499,000) would be protected from impacts associated with commercial timber sales on 499,000 acres. Impacts would depend on the location, size or the area and harvest techniques used, however, harvesting forest products would impact color, line and texture throughout the subunit by allowing the harvest of white and black spruce for firewood and house logs.

Effects from Land and Realty

Same as Alternative D except that all of Perhaps Creek Parcel (505 acres) would be made available for state selection, removing these acres from BLM management.

Effects from Leasable Minerals

Approximately 1,016,000 would be closed to fluid and solid leasable minerals, including the White Mountains SRMA. These actions would protect visual resources by not allowing surface disturbance activities associated with leasable mineral development. Only the Livengood area (4,000 acres) would be open to mineral leasing subject to standard terms, stipulations and operating procedures. Impacts to visual resources by the development of fluid and solid leasable minerals are described under Impacts Common to All Subunits. No lands for leasable minerals were identified as VRI Class I, III or IV. Of VRI Class II lands, one-hundred percent (4,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape.

Effects from Salable Minerals

Under Alternative E, ninety-three percent of the subunit (951,000 acres) would be open to salable minerals. Impacts from the mining of salable minerals are described under section 4.3.1.9. Impacts to visual resources would depend on the scale of the action and the number of mineral

sites mined. While the majority of the subunit is open to salable minerals, it is anticipated that demand for material will be met from production on state lands and no new federal material sites are anticipated. Mining activities for salable minerals would generally occur along roads due to transportation requirements. Beaver Creek WSR Corridor (69,000 acres or seven percent of the subunit) would be closed to salable minerals, protecting visual resources.

Effects from Locatable Minerals

Under Alternative E, one-hundred percent of the subunit (1,016,000 acres) would remained closed to locatable minerals protecting visual resources in these area. Approximately 4,000 acres would be open to locatable minerals. Impacts from the mining of locatable minerals are described under section 4.3.1.9. Impacts to visual resources would depend on the scale of the action and the number of mineral sites mined. It is anticipated that there could be one large-scale placer mine operation. Each operation would have a disturbed annual footprint of 16 acres over the life of the mine for a total of 60 to 80 acres of disturbance. Impacts from operations would impact 60 to 80 acres over the life of this plan. Up to three small-scale placer mine operations are anticipated over the life of the plan. Each operation would have a disturbed annual footprint of 4.4 acres over the life of the mine for a total of 20 acres of disturbance.

No lands open for locatable minerals were identified as VRI Class I, III or IV lands. Of VRI Class II lands one-hundred percent (4,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape.

Mineral exploration activities with resulting camp and field sampling would impact visual resources on between 6 to 50 acres. Reclamation would generally occur annually with the only impacts to visual resources from camps. Only one exploration operation is anticipated to occur over the life of this plan.

No suction dredging operations are anticipated under this plan.

Effects from Recreation

Recreation Management Zones are managed for different physical settings which include remoteness, naturalness and visitor facilities. Of these, naturalness and visitor facilities impact visual resources by setting prescriptions for management, i.e., describing the amount of naturalness and how facilities will sit on the landscape. These prescriptions provide a range from Primitive, Semi-Primitive, Backcountry, Middlecountry, Frontcountry, Rural and Urban, each with different levels of naturalness and description of how facilities will sit on the landscape.

Of VRI Class I lands (71,000 acres) almost one-hundred percent would be retained under Class I management with 400 acres managed as Class II. Of VRI Class II lands, two percent or 25,000 acres would be managed as Class I, eighty-six percent (882,000 acres) would be managed as Class II, while four percent (42,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape. No lands were identified as VRI Class III or IV lands and no lands would be managed as Class III.

Under Alternative E: the Beaver Creek WSR Corridor, the RNAs and the White Mountains Spine Area RMZs would have a VRM Class I (96,000 acres); the White Mountains Highlands RMZ (as Primitive), the Cache Mountains (Backcountry) RMZ, and the White Mountains Foothills RMZ (Middlecountry) would have a VRM Class II (881,000 acres); all remaining lands including Frontcountry RMZs would have a VRM Class IV (43,000 acres).

Effects from Travel Management

Under Alternative E, open cross-country travel on BLM lands is restricted to motorized vehicles 1,000 pounds curb weight or less and 50 inches in width or less year round, and may impact visual resources primarily by disturbing vegetation by repeated passes and by clearing of travel routes. Weight restricted travel impacts 1,020,000 acres. The restriction of motorized use to OHVs 50 inches or less in width and weighing 1,000 pounds curb weight or less helps reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape on approximately 1,020,000 acres. However, allowing summer and winter cross-country travel by OHVs could result in an increase of user-created travel routes with impacts to vegetation in line, color and texture. It is anticipated that an additional 200 miles of user-created travel routes could be developed over the life of the plan. Typically, user-created summer travel routes are more visible than winter travel routes that tend to be positioned near valley bottoms and are protected by snow and frozen ground. Summer travel routes are typically developed in areas that show changes to line, color and texture with repeated passes. Cross-country travel in Beaver Creek Corridor is limited to winter travel with limited impacts to line, color and texture since summer use of OHVs within the corridor would not be allowed. Vehicles weighing up to 1,500 pounds curb weight and 64 inches in width or less would be allowed within areas designated for use by UTVs. These areas are a portion of the Wickersham Creek Trail, the Trail Creek Trail, the trail from Mile 23.5 of the Elliott Highway to the Wickersham Creek Trail, the Quartz Creek Trail and the Nome Creek tailings area. Vehicles weighing less than 10,000 pounds curb weight would be allowed on existing roads only, protecting visual resources by restricting use to already hardened areas.

All other vehicle use may be allowed under permit. The impacts would vary depending on the size of vehicle, season of travel, and the number of passes made, but would be similar to impacts described for open cross-country travel in section 4.3.1.9. It is anticipated that an additional 300 miles of trail will be created by users over the life of the plan impacting 1.6 acres per mile on average for anticipated changes to line, color and texture on an additional 480 acres or less than one percent of the subunit.

Of VRI Class I lands (70,000 acres) almost one-hundred percent would be retained under Class I management with 400 acres managed as Class II. Of VRI Class II lands, two percent or 25,000 acres would be managed as Class I, eighty–six percent (882,000 acres) would be managed as Class II, while four percent (42,000 acres) would be managed as Class IV lands allowing a visible level of change to the landscape. No lands were identified as VRI Class III or IV lands and no lands would be managed as Class III.

Effects from Wildlife

Under Alternative E, 417,000 acres would be managed as crucial caribou and Dall sheep habitat to protect caribou and Dall sheep habitat. Management decisions to protect wildlife habitat helps to preserve the visual characteristics of the area. The effects would be the same as Alternative C. Crucial caribou and Dall sheep habitat will remain closed to leasable and locatable minerals, subject to valid existing rights. Seasonal restrictions for a one-half mile radius around ungulate mineral licks will limit development and use in these areas. Seasonal restrictions or closures of areas to motorized use may occur to protect habitat. These actions would help reduce the amount of surface disturbance to vegetation and soils with resulting changes to line, form, color and texture of the natural landscape to 417,000 acres.

Salable minerals, land use permits, and leases could be authorized subject to constraints for ungulate mineral licks, but would be unlikely. The size and scope of impacts would depend on the size of the requested use and techniques used. Impacts to visual resources from travel and various land uses are described in section 4.3.1.9.

No lands within crucial caribou and Dall sheep habitat were identified as VRI Class III or IV lands. Of VRI Class I lands within crucial caribou and Dall sheep habitat almost one-hundred percent (36,000 acres) would be managed as Class I lands while 10 acres would be managed as Class II. Of VRI Class II lands within crucial caribou and Dall sheep habitat four percent (14,000 acres) would be managed as Class I lands while ninety-six percent (367,000 acres) would be managed as Class II lands, protecting the natural appearance while allowing for a low level of change to the characteristic landscape.

Effects from RNAs and Wild and Scenic Rivers would be the same as Alternative C.

4.7.1.6. Wilderness Characteristics White Mountains Subunit

Summary of Effects

There are 1,014,500 acres identified within the White Mountains Subunit as having wilderness characteristics of size, naturalness, and the opportunity for solitude or a primitive unconfined type of recreation experience. Managing lands for wilderness characteristics would not allow for many surface-disturbing activities. See section 4.3.1.10 Impacts Common to All Subunits. Alternative B would protect the most acres for wilderness characteristics while Alternative A would not identify any acres as having wilderness characteristic. Alternative C provides a balance between protection and resource use while Alternative D provides for resource development and protects the least amount of land for wilderness characteristics. Alternative E emphasizes other multiple uses while applying management restrictions to reduce impacts to wilderness characteristics.

4.7.1.6.1. Alternative A (No Action)

No lands are managed for wilderness characteristics under this Alternative. Of the 1,014,500 acres identified as having wilderness characteristic, none would be directly managed to protect those values. Other actions and management strategies may help protect those values indirectly, such as managing for a Primitive or Semi-Primitive recreation setting. All lands with wilderness characteristics are currently withdrawn from mineral entry, so no mining-related impacts to wilderness characteristics would occur.

4.7.1.6.2. Alternative B

Of the 1,014,500 acres identified as having wilderness characteristic, 509,000 acres (fifty percent), would be directly managed to protect those values. Other actions and management strategies may help protect wilderness values indirectly on the remaining 505,463 acres. All lands with wilderness characteristics are currently withdrawn from mineral entry, so no mining-related impacts to wilderness characteristics would occur. Approximately 951,000 acres would be open to salable minerals however the reasonably foreseeable development scenario does not suggest a high percentage of development during the life of the plan. Even if all development is realized it would affect much less than one percent of all available acres. Development of recreational facilities and travel management in Middlecountry and Frontcountry RMZs would also impact wilderness characteristics in localized areas.

4.7.1.6.3. Alternative C

Of the 1,014,500 acres identified as having wilderness characteristic, 312,000 acres (thirty-one percent), would be directly managed to protect those values. Other actions and management strategies may help protect wilderness values indirectly on the remaining 702,500 acres. All lands with wilderness characteristics are currently withdrawn from mineral entry, so no mining-related impacts to wilderness characteristics would occur. Approximately 951,000 acres would be open to salable minerals however the reasonably foreseeable development does not suggest a high percentage of development during the life of the plan. Even if all development is realized it would affect much less than one percent of all available acres. Development of recreational facilities and travel management in Middlecountry and Frontcountry RMZs would also impact wilderness characteristics in localized areas.

4.7.1.6.4. Alternative D

Of the 1,014,500 acres identified as having wilderness characteristic, 205,000 acres (twenty percent), would be directly managed to protect those values. Other actions and management strategies may help protect wilderness values indirectly on the remaining 890,500 acres. All lands with wilderness characteristics are currently withdrawn from mineral entry, so no mining-related impacts to wilderness characteristics would occur. Available acres for leasable minerals are 451,000 and 1,020,000 acres would be open to salable minerals. The reasonably foreseeable development scenario does not suggest a high percentage of development during the life of the plan and no leasable mineral exploration or development is anticipated. Even if all development is realized it would affect less than one percent of all available acres. Development of recreational facilities and travel management in Middlecountry and Frontcountry RMZs would also impact wilderness characteristics in localized areas.

4.7.1.6.5. Alternative E (Proposed RMP)

Of the 1,010,000 acres identified as having wilderness characteristics, those characteristics would be maintained on 777,000 acres by limiting activities that impact size, naturalness and opportunities for solitude or primitive and unconfined recreation. Available acres for leasable minerals are 4,000 and 951,000 acres would be open to salable minerals. The reasonably foreseeable development scenario does not suggest a high percentage of development during the life of the plan and no leasable mineral exploration or development is anticipated. Even if all development is realized it would affect less than one percent of all available acres. Development of recreational facilities and travel management in Middlecountry and Frontcountry RMZs would also impact wilderness characteristics in localized areas.

4.7.1.7. Wildlife White Mountains Subunit

Summary of Effects

Overall potential negative impacts to wildlife would be least in Alternative B and progressively greater in Alternatives C, E, A and D. Alternative D would allow leasing of locatable (160,000 acres) and leasable minerals (451,000 acres). Alternatives B and C would restrict summer OHVs to designated trails. Alternative E most differs from Alternative C in management of motor vehicle use. Decisions in alternative E would allow UTVs on some trails, allow airboats, hovercraft and personal watercraft, and allow winter OHVs everywhere including RNAs, but

other current motorized vehicle management would continue until a Comprehensive Travel Management Plan is completed. Alternative E would not prohibit summer OHV use except in RNAs. In Travel Mangement planning, Recreation Settings and management decisions for crucial caribou and Dall sheep habitat would be used to constrain summer OHV use, but if new summer OHV use occurs in portions of the 563,000 acres currently closed to this use, some impacts to wildlife would occur. Restrictions of summer OHV use to existing trails in some areas could be enacted in the Travel Management Plan. Only Alternative B designates an ACEC for protection of caribou calving/postcalving habitat and Dall sheep habitats. In Alternatives C and E, a smaller area is delineated as a Widlife Conservation Area (or crucial caribou and Dall sheep habitat) and management provisions similar to those in the ACEC are applied. Alternatives C, D, and E also allow commercial sales of timber and other forest products.

In addition to the effects discussed in section 4.3.1.12 Impacts Common to All Subunits, Wildlife, impacts which would occur in the White Mountains Subunit under various alternatives are described below.

4.7.1.7.1. Effects Common to All Alternatives

Effects from Locatable Minerals

In all alternatives, the White Mountains NRA and associated lands contained in the SRMA are closed to mineral location and entry. There are existing mining claims which occur outside of the SRMA in the Livengood area, and placer and lode mining and exploration occurs on those. Mining will therefore only occur on existing claims in the subunit and impacts will be local in nature, primarily in the Livengood area where a large lode mine is being developed, which includes a minority of federal claims.

Effects from Travel Management

Motorized boat usage can result in disturbance of wildlife in and along Beaver Creek. Effects depend on noise levels, frequency and duration. Motorized boats of up to 15 horsepower can be launched from Nome Creek. Use of larger boat motors is not prohibited, but larger boat usage has typically only occurred from three private inholdings on Beaver Creek, limiting potential effects. The horsepower limitation for launching at Nome Creek limits the distance downstream that many boats will travel and then travel back upstream. Greater impacts could occur if use from private inholdings increased greatly, road access to lower Beaver Creek was developed, or technology advances allow easier travel with small motors.

4.7.1.7.2. Alternative A (No Action)

Effects from Wildlife

There is no specific provision to monitor or limit off-trail snowmobile use in caribou habitat, but similar actions could be taken under other provisions.

Effects from Leasable Minerals

There would be no effects as the entire subunit is closed to mineral leasing.

Effects from Recreation

The Primitive Management Unit (575,000 acres) is managed to protect remote, primitive values (Map 48). Use occurs mostly by winter recreationists along the winter trails system, which includes four cabins in the unit, and in the summer by hikers in the upper Nome Creek and Mount Prindle areas. Summer motorized use occurs on the Quartz creek trail which forms the boundary of the unit in that area. Impacts from recreation in this unit are minor. The Beaver Creek WSR is used mostly by summer float boaters, although motorized use is allowed and occurs mostly by small boats during hunting season in the upper portion. The Semi-Primitive Motorized unit (428,000 acres) is subject to the most recreational use (and variety of types of use).

Effects from Travel Management

Summer OHV use (less than 1,500 pounds GVWR) is allowed throughout the Semi-Primitive Motorized Management Unit (Map 48), although some areas have been closed to reduce or prevent resource damage. Cross-country OHV use will continue to increase under this alternative with an increase in number of OHV owners and an increase in the capabilities of machines to readily traverse difficult terrain. Direct loss of habitat will occur from cross-country OHV use as described in the Vegetative Communities, Effects Common to all Subunits section 4.3.1.8. Sheep use in the area surrounding a mineral lick in upper Little Champion Creek may be hampered by the combined and increasing levels of motorized and non-motorized recreation. Dall sheep could possibly abandon use of the area between Champion Creek and Quartz Creek under foreseeable levels of OHV activity, due to the very scattered nature of small tors for escape terrain. Caribou winter habitats in upper Victoria Creek could be affected by snowmobile use facilitated by trails created in summer by OHV users.

Effects from Special Designations

Mount Prindle, Limestone Jags, and Serpentine Slide RNAs are the only specially designated areas. In Alternative A, no camping is allowed in the RNA (though this has not been enforced) to avoid disturbing research projects. This limits human activities in the areas and limits disturbance of Dall sheep, raptors, and other species. Management of Beaver Creek as a WSR, even though it attracts recreational use, limits impacts to wildlife overall.

4.7.1.7.3. Alternative B

Effects from wildlife

A provision to monitor snowmobile use of non-forested caribou habitat and adjust management if necessary will minimize potential future impacts should use of these habitats increase. An ACEC is designated in this alternative to protect caribou calving/postcalving and Dall sheep habitat.

Effects from Leasable Minerals

Same as Alternative A.

Effects from Recreation

RMZ designation in this alternative manages for smaller changes in the landscape than other alternatives (Map 533). A Primitive Area (White Mountains Spine) is created in this Alternative. A Travel Management plan limiting summer OHV travel to designated trails is the biggest change from current recreation management (see Effects from Travel Management). Effects of recreation to wildlife will be reduced relative to current management in this alternative. The

White Mountains Spine Primitive Area is Dall sheep habitat and the upper Victoria Creek drainage (designated Semi-Primitive in Alternative B) contains caribou calving range, caribou winter range, and areas of high-density moose habitat; potential negative effects from recreation in these areas will be reduced in this Alternative.

Effects from Travel Management

Summer OHV use is allowed in the Frontcountry and Middlecountry RMZs (491,000 acres) but is restricted to a system of designated trails. This restriction will greatly reduce the potential impacts of summer OHVs on wildlife. Off-highway vehicle travel will be limited to a designated subset (approximately 139 miles initially) of existing trails. The total miles of various types of existing trails, from well-established trails to those barely visible, are unknown but probably are much more than the 139 miles of trail to be designated. Trails are sometimes spread widely enough that surface disturbance may better be measured in area than miles. Over time, managed/constructed trails will replace many designated trails not currently under management. These trails can be routed so as to minimize impacts to sensitive wildlife and habitats. Pioneering of new trails will stop and current non-designated trails will begin to recover, dependent on the success in persuading off-highway vehicle users to remain on designated trails. The area of wildlife habitat influenced by off-highway vehicles will decrease dramatically.

Effects from Special Designations

Designated RNAs are the same as Alternative A and managed similarly. The White Mountains ACEC includes the majority of historical calving habitats of the Fortymile caribou herd and the current calving and postcalving habitats of the White Mountains caribou herd, as well as all Dall sheep habitats. The ACEC is closed to mineral location, entry and leasing and motorized vehicle use will be limited so as to maintain caribou and sheep habitat quality (including portions of a Middlecountry RMZ).

Fossil Creek would be considered suitable for designation as a “scenic” river. Management as a Wild and Scenic River would differ little from that otherwise proposed in this alternative.

4.7.1.7.4. Alternative C

Effects from wildlife

Same as Alternative B except no ACEC would be designated. Instead, the area would be managed as a Wildlife Conservation Area with identical management decisions and SOPs. The effectiveness of these management decisions and SOP’s in protecting habitat values is likely somewhat smaller than would be the same decisions applied to an ACEC. The area of delineated crucial caribou and Dall sheep habitat is smaller than that in Alternative B but includes most Dall sheep habitat and most of the concentrated calving/postcalving area of the White Mountains caribou herd. The portion of calving/postcalving area and Dall sheep habitats which overlapped with the Middlecountry RMZ was not included in delineation of crucial caribou and Dall sheep habitat and some degradation of wildlife habitat from motorized use is possible, especially in the Bear, Quartz, and Champion, and Little Champion Creek areas. At some level of OHV use in the area of granite tors west of the upper Quartz Creek, Dall sheep use of the area may cease, although appropriate trail designations could minimize this potential.

Effects from Leasable Minerals

Same as Alternative A.

Effects from Recreation

Relative to Alternative B, this alternative converts some Semi-Primitive RMZ to Backcountry RMZ (Cache Mountain) and some to Middlecountry RMZ (White Mountains Foothills). The latter change increases the area in which summer motorized use is allowed.

This alternative is very similar to Alternative A, except that the Alternative A "Primitive Management Unit" is designated a Semi-Primitive RMZ (Victoria Creek area) and the remainder is designated as Backcountry. Also, an area adjacent to Beaver Creek WSR Corridor is opened to motorized use (becoming Middlecountry) and a portion of Roy Creek drainage is closed to motorized use (becoming Backcountry). This alternative represents very little change from Alternative A, except for the designation of a largely inaccessible area as Primitive and a Travel Management decision to limit OHV use to designated trails (except for game retrieval).

Negative effects from recreation are expected to be lower in Alternative C than in Alternative A, but somewhat higher in Alternative C than in Alternative B. The Backcountry RMZ might be managed to allow more human use than the Alternative A "Primitive Management Unit," in which case there may be minor additional impacts in those areas. However, with the Travel Management decision to limit summer OHV use to designated trails, potential impacts to wildlife from Middlecountry RMZ management will be greatly reduced relative to Alternative A.

Effects from Travel Management

Summer OHV use on designated trails is allowed in Frontcountry and a somewhat larger Middlecountry RMZ (Map 54) than in Alternative B. Off-trail use will be allowed for game retrieval. This provision may create some of the impacts associated with allowance of cross-country travel (discussed under section 4.3.1.12 Impacts Common to all Subunits), but those impacts are expected to be relatively very minor. The off-trail use for game retrieval will be very limited and any tracks created will not be typically continued to be used and deepened, as they might in Alternatives A or D. In comparison to Alternatives A or D, the impacts of summer OHV use would be very small in Alternative C. UTVs (larger OHVs) will be allowed on some trails (27 miles) that are constructed to a standard that will allow use with minimal degradation of the trail. UTVs on select existing trails will have little impact. However, trails constructed or improved to support use by large OHVs begin to approach roads in size and design, with relatively larger potential impacts.

Effects from Special Designations

Designated RNAs are the same as Alternative B, but primitive camping is allowed, which may result in slightly greater human activities in the areas and disturbance of Dall sheep, raptors, and other species.

An ACEC for caribou and sheep habitat is not designated in this alternative, but instead a Wildlife Conservation Area is designated. The same management provisions will apply as to the ACEC in Alternative B. The Wildlife Conservation Area is smaller than the Alternative B White Mountains ACEC but includes most Dall sheep habitat and most of the concentrated calving/postcalving area of the White Mountains caribou herd. The portion of the calving/postcalving area which overlapped with the Middlecountry RMZ was not included in the Wildlife Conservation Area

and some degradation of wildlife habitat from motorized use is possible, although density of designated trails is not expected to reach levels that would impair use by caribou.

Fossil Creek is not classified as suitable for designation as a "scenic" river in this alternative. This will have minor effect on management during the life of the plan, due to other management provisions.

4.7.1.7.5. Alternative D

Effects from Wildlife

Similar to Alternative C, except there is no specific provision to monitor or limit off-trail snowmobile use in caribou habitat.

Effects from Leasable Minerals

The Middlecountry RMZ (Map 55), nearly half of the subunit, is open to leasing, but only the northwest portion of Victoria Creek drainage is considered to be a high potential zone for leasable minerals. This area includes known winter range for the White Mountains caribou herd and moose habitat supporting a moderately dense moose population. A low mineral potential zone occurs in the Wickersham, Moose, Trail, Roy, and Bear creek drainages. This includes moose habitat of varying moose densities (low to high) and caribou calving/postcalving habitat (mostly north of the Beaver Creek WSR Corridor).

Other portions of the Middlecountry RMZ , although classified as "no potential" for leasable minerals, contain valuable wildlife habitats that could potentially be impacted by mineral exploration or leasing which would be allowed, including Dall sheep habitat in the Quartz Creek/Champion Creek area and a Dall sheep movement corridor in lower Victoria Creek and additional portions of caribou calving/postcalving range. The greatest conflicts with wildlife would occur in lower Victoria Creek sheep habitat and the area north of Nome Creek and upper Beaver Creek. Disruption of movements between Victoria Mountain and Mount Schwatka and use of a mineral lick along Victoria Creek may occur as a result. Approval of leasing proposals are discretionary, with approval dependent on effects on other resources, and so effects on wildlife species vulnerable to impacts may be mitigated during NEPA evaluation of any proposal.

Effects from Recreation

This alternative has the largest area of Middlecountry RMZ (452,000 acres) and so the greatest area of allowed summer motorized use and increased emphasis on facility development. Relative to Alternative B, this alternative eliminates the White Mountains Spine Primitive Area and the Semi-Primitive White Mountains Highlands RMZ. Relative to Alternative A it will allow motorized use in a large portion of lower Victoria Creek and a relatively small area along Beaver Creek south of Serpentine Slide RNA. Travel management under this alternative will allow cross-country summer OHV use, with impacts of this activity occurring in a greater area. Effects of recreation on wildlife will be higher than all other alternatives. The area of Middlecountry is increased greatly (54,000 to 123,000 acres) and is higher than other Alternatives, and higher than the area of Semi-Primitive Motorized Unit of Alternative A. Impacts would potentially occur to Dall sheep, caribou, moose and other wildlife, primarily in the northern portion of the White Mountains NRA.

Effects from Travel Management

Summer OHV use is allowed throughout Frontcountry and expanded Middlecountry Zones and that use is not restricted to trails. Effects from summer OHV use would be greatest in this alternative. In addition to effects described for Alternative A, opening of Victoria Creek drainage to OHVs could result eventually in a trail to or near lower Beaver Creek, potentially affecting Dall sheep in the area. Similar to Alternative C, UTVs would be allowed on designated trails but, the miles of designated UTV trail will approximately triple (112 miles). This allowance on select existing trails will have little impact. However, new trails constructed to support use by UTVs will have a larger footprint than trails constructed for smaller OHVs.

Effects from Special Designations

The effects from RNAs and WSRs would be the same as Alternative C.

Effects from Wild and Scenic Rivers designation and management are the same as Alternative C. The Wildlife Conservation Area would be smaller under this alternative than under Alternative B. It would protect most Dall sheep habitats and most of the core (most highly used) White Mountains caribou calving/postcalving habitat. Portions of current White Mountain and historical Fortymile caribou calving/postcalving habitats could be impacted by cross-country summer OHV use in Middlecountry RMZ.

4.7.1.7.6. Alternative E (Proposed RMP)

Effects from Forest Products

In Alternative E, commercial timber sales would be allowed (except within the Beaver Creek WSR Corridor, crucial caribou and Dall sheep habitat, and RNAs), and personal use of timber, commercial salvage sales and commercial use of forest products would be allowed on all lands. Although little activity is predicted, these actions could have effects as described in the Impacts Common to All Subunits section (4.3.1.12.1 Wildlife and 4.3.1.8.1 Vegetative Communities).

Effects from wildlife

Same as Alternative C, except that the area designated as a Wildlife Conservation Area will be instead delineated as crucial caribou and Dall sheep habitat. The same management provisions will apply, except that some management decisions were modified slightly. For example, summer OHV management limitations in the crucial caribou and Dall sheep habitat will provide somewhat more flexibility to allow summer OHV use. Also, the effect of excluding caribou calving/postcalving area and Dall sheep habitats which overlapped with the Middlecountry RMZ (included in the ACEC in Alternative B) from areas delineated as crucial caribou and Dall sheep habitat may be somewhat greater in Alternative E than Alternative C because cross-country summer OHV use is allowed in Alternative E. Therefore some degradation of wildlife habitat from motorized use is possible, especially in the Bear, Quartz, and Champion, and Little Champion Creek areas. At some level of OHV use in the area of granite tors west of the upper Quartz Creek, Dall sheep use of the area may cease, although appropriate OHV limitations could be implemented through Travel Management planning to minimize this potential.

Effects from Leasable Minerals

Same as Alternative B (entire subunit closed) except for 4,000 acres in the Livengood area. This would limit potential impacts to a small area.

Effects from Recreation

Alternative E delineates the same RMZs as Alternative C, and results in a small increase (relative to Alternative A) in area in which widespread summer OHV use would be allowed. This alternative represents very little change from Alternative A, except that summer OHV use could be allowed in Primitive, Semi-Primitive and Backcountry RMZs; the Backcountry RMZ might be managed to allow more human use than the Alternative A "Primitive Management Unit," in which case there may be minor additional impacts in those areas; and a small and remote area is designated as a Primitive RMZ. Potential negative effects on wildlife from recreation would be higher in Alternative E than in C due primarily to the possibility of summer OHV use in all RMZs, especially Backcountry RMZs. HV use in Primitive, Semi-Primitive and Backcountry RMZs include disturbance of Dall sheep in habitats with little escape terrain and at mineral licks, nesting raptors including peregrine falcon and gyrfalcon, vegetation and soil disturbance and introduction of non-native invasive plants.

Effects from Travel Management

Unlike Alternative C, summer OHVs would not be limited to designated trails, so the overall effects of OHVs on wildlife and habitats would be considerably increased (particularly in Middlecountry RMZs that overlap with caribou calving/postcalving habitat that was not included in delineated crucial caribou and Dall sheep habitat). Also, the prohibition of summer OHV use in Primitive, Semi-Primitive, and Backcountry RMZs in all other alternatives is not included in Alternative E. Although Recreation Settings would limit OHV use in these RMZs, some impacts would occur if allowed. During travel management planning, additional public input and NEPA analysis would occur—restricting summer OHV use to designated trails may occur at least in some areas, and prohibitions on OHV use in Primitive, Semi-Primitive, and Backcountry RMZs could be enacted.

As in Alternative C, UTVs (larger OHVs) will be allowed on some trails (initially 27 miles) that are constructed to a standard that will allow use with minimal degradation of the trail. Use of UTVs on these 27 miles of generally wide existing trails will have little impact. However, trails constructed or improved to support use by UTVs begin to approach roads in size and design, with relatively larger potential impacts.

Motorboats are allowed in the White Mountains NRA in all alternatives, with a 15 horsepower restriction on boats launched in Nome Creek Valley. This restriction on the upper end of Beaver Creek Wild and Scenic River and the remoteness of the lower end has limited boat usage on Beaver Creek areas near Nome Creek or one of the three private inholdings along Beaver Creek. In Alternative E, airboats, hovercraft, and personal watercraft will also be allowed. The 15 hp restriction will moderate the use of these watercraft as well. However, hovercraft operating with smaller than 15 hp motors are currently available as kits and development of a 15hp personal watercraft during the life of the plan may not be out of the question. Utilization of airboats, hovercraft, and personal watercraft from private inholdings on Beaver Creek is currently more likely. Use of motorboats from these inholdings is somewhat limited in extent due to shallow water, but shallow water would not be limiting for airboats or hovercraft. Use of these types of watercraft, if it did develop, could reduce use of the riparian area by moose and other wildlife, reduce use of riverside mineral licks by Dall sheep, and potentially disturb nesting birds (including bald eagles, peregrine falcons, and other raptors. (See Effects Common to All Subunits). Although numbers and extent of airboat use may be somewhat limited, the disturbance of wildlife (especially nesting birds such as Bald Eagles and waterfowl) from high sound levels (

~100–110 dB(A) at 50 ft.) could be substantial in this remote and normally quiet environment. At least three traditional bald eagle nests occur on the upper half of Beaver Creek WSR. The ability of airboats to travel outside of the river channel would also result in impacts on adjacent wetlands, including nesting birds. Wildlife could similarly be impacted by hovercraft, which are not as noisy but also have the ability to travel off the river channel. Potential impacts would be greatest near private inholdings and upper Beaver Creek (where small, <15 hp) hovercraft could potentially travel from Nome Creek and return there.

Alternative E would change OHV designations in RNAs from Closed to Limited and would allow winter snowmachine use by all users. Snowmachine use by subsistence users with a permit is allowed in Alternatives B–D. This use would create a variety of impacts described in the Widlife and Special Designation sections of "Effects Common to All Subunits".

Effects from Special Designations

Boundaries of three existing RNAs remain the same in all Alternatives. Primitive trail development and camping may result in slightly greater human activities in the areas and disturbance of Dall sheep, raptors, and other species. In addition, allowance of snowmachines in RNAs will also result in greater disturbance of Dall sheep and other wildlife in accessible areas, such as portions of the Mount Prindle RNA and the Limestone Jags RNA.

As in alternative C, no new ACECs are designated. But similar management provisions apply to delineated crucial caribou and Dall sheep habitat.

4.7.1.7.7. Cumulative Impacts

In addition to the cumulative effects discussed in section 4.3.1.12 Wildlife, the following cumulative effects would occur in the White Mountains Subunit. The incremental development of more and larger OHV trails and the increasing numbers, speeds, and capabilities of OHVs will incrementally add to impacts to wildlife in Alternative D and E, where crosscrountry summer OHV use is allowed, and in all alternatives, where snowmachine use is allowed. OHV usage has increased greatly in recent years along with changes in technology which have increased capabilities to travel further, faster, with more comfort, and in more difficult terrain and conditions. These may change faster than anticipated in the future. Limiting OHV use to designated trails (Alternatives B and C) would greatly reduce potential impacts. Native Corporations are in some cases restricting access to their private lands. This and other restrictions of access on other lands in Alaska will likely affect use levels of BLM lands, especially in road-accessible portions. The future use of caribou calving habitats in the White Mountains by the Fortymile caribou herd could become less likely to occur because of increased development and human activity on either BLM lands or on state and private lands in the vicinity of the Steese Highway. Potential oil and gas development on Yukon Flats (and portions of the White Mountains NRA in Alternative D) and the access to support it could impact wildlife populations. Road and trail development near the White Mountains NRA may result in pioneering of new trails in the WMNRA, as well as increased use of existing trails. R.S. 2477 assertions could influence access in the White Mountains NRA, especially access to Beaver Creek. Increasing mineral development north of Fairbanks, primarily on state and private lands, could result in increased levels of human activities in the White Mountains. As non-native plant populations become more abundant and widely distributed on adjacent lands, especially the highway corridors, their spread to and establishment on BLM lands becomes more likely, especially in conjunction with climate change and in alternatives which

allow cross-country OHV use. Climate changes will result in habitats more suitable for moose, and likely less suitable for White Mountains and Fortymile caribou and Dall sheep.

4.7.2. Resource Uses

4.7.2.1. Locatable Minerals White Mountains Subunit

Summary of Effects

The White Mountains NRA is withdrawn from locatable mineral entry by ANILCA 1312(b). Known high potential areas in the southeastern portion of the subunit would be closed. These minerals and their benefits to society would remain unavailable for the foreseeable future under all alternatives.

4.7.2.1.1. Effects Common to All Alternatives

State-selected lands would remain segregated from mineral entry and location until final land title has been established. New mining operations on withdrawn lands would require a validity exam prior to approval of a Plan of Operation. All active mining operations would be required to submit a Plan of Operation if the 1,000 ton bulk sample is exceeded (43 CFR 3809.11(b)) or if using cyanide in the processing of amenable ores. Mining claim surface occupancy is guaranteed, but must remain reasonably incident to the current levels of mining activity. Bonding is required of all mining operations other than those grandfathered under 43 CFR 3809.300 and 3809.400. Reclamation of surface disturbance would be required. Undue and unnecessary degradation would remain the standard for mining operations on BLM lands. The right of reasonable access across BLM lands to unpatented federal mining claims would be assured. Cultural resources encountered during surface-disturbing activities are subject to the Antiquities Act (43 CFR 3809.420(b)(8).

The White Mountains NRA is withdrawn from locatable mineral entry by ANILCA 1312(b) and would remain withdrawn under all alternatives. There are known high potential areas in the southeastern portion of the NRA. These minerals, the jobs they create, and their benefits to society would remain unavailable for the foreseeable future.

The portions of the White Mountains Subunit outside the White Mountains NRA, 17,000 acres, is currently closed to locatable mineral through ANCSA 17(d)(1) withdrawals and by State-selection. There are 4,000 acres of existing federal mining claims near Livengood. The BLM would continue to administer new and existing operations on federal unpatented mining claims though Notices or Plans of Operations. The potential for future exploration and development would be limited to existing mining claims. Overall mining activity would likely decrease as there are few opportunities to stake new mining claims to offset claim attrition. Only alternative D would offer a process to address these closures.

4.7.2.1.2. Alternative A

Mining closures would be retained. No new lands would be made available for the staking of new mining claims or leasing of locatable minerals.

4.7.2.1.3. Alternative B

Same as Alternative A.

4.7.2.1.4. Alternative C

Same as Alternative A.

4.7.2.1.5. Alternative D (Leasing of Locatables)

Alternative D would make locatable minerals available on 160,000 acres in the southeastern portion of the NRA under a leasing program. Opening the identified lands in the White Mountains NRA to hardrock mineral leasing under Alternative D is predicted to result in suction dredging and both large and small-scale placer mining operations which would have an economic effect. The leasing program would be limited in scope, however, and some high and medium potential lands would still be unavailable.

Economic impacts associated with a leasing program are discussed in more detail in Appendix M.3.2.11 Supplement to the Draft RMP and in section 4.7.4.1 Economic Impacts White Mountains.

4.7.2.1.6. Alternative E (Proposed RMP)

Same as Alternative A, except withdrawals would be revoked on 4,000 acres near Livengood. This would have minimal effect as these lands are currently staked with valid federal mining claims. If existing claims went null and void, however, there would be an opportunity to stake new claims. If the withdrawal was removed, the requirement for a validity exam would no longer apply, reducing costs for the claim holder.

4.7.2.1.7. Cumulative Impacts

Under Alternatives A, B, C, and E, the only mining that would occur on BLM lands are the existing claims and operations near Livengood. If a large-scale hard rock mine near Livengood becomes a reality, increased exploration on the nearby federal claims would be possible, especially if infrastructure is improved.

Under Alternative D, an additional 160,000 acres would be available for mining through a leasing program.

Impacts to locatable minerals that are individually minor may cumulatively reduce exploration and production of commodities from public lands. Factors that affect mineral extraction and prospecting include, but are not limited to, such things as permitting and permitting delays, regulatory policy, public perception and concerns, travel management, transportation, mitigation measures, proximity to sensitive areas, low commodity prices, taxes, and housing and other necessities for workers. Many of these issues are issues over which the BLM has no control. Most of these issues result in additional costs or permitting delays that can individually or cumulatively impact projects.

Public lands that currently have no access could reduce the amount of mineral exploration and development that may occur. Mineral resources on non-BLM lands may not be developed if the adjacent public lands are withdrawn from mineral entry as it may not be economically feasible to develop a deposit if only a portion of the deposit is available for development.

This entire subunit would be restrictive to locatable minerals, as existing claims present the only mining opportunity on BLM lands, other than a very limited leasing program in Alternative D. This further affects the mining community as markets for new commodities have developed, ore deposit theory has advanced significantly, and new mining and milling processes that are less expensive, more efficient and environmentally friendly have been developed since the ANCSA 17(d)(1) withdrawals were enacted in the early 1970s.

4.7.2.2. Recreation White Mountains Subunit

Summary of Effects

Proper resource management, including site-specific measures to protect healthy, functioning watersheds, riparian areas, and associated fish and wildlife habitats, would result in short- and long-term, beneficial impacts to fish and game related recreation use.

Special designations and management applied to these areas, including RNAs, ACECs, and WSRs, would further protect the region, potentially increasing wildlife numbers that benefit wildlife viewing, hunting, and fishing opportunities. Proposed management in ACECs and WSRs would encourage recreation activities of a more non-motorized, Semi-Primitive nature. As the size and scope of these special designations increase, opportunities for non-motorized forms of recreation would also increase. Negative effects from these designations would also arise, if additional restrictions were placed on OHV use and other recreational activities.

The delineation of recreation management areas (SRMA) would protect and enhance recreational resources while encouraging specific targeted outcomes in these areas. Land, water, and snow based activities would continue to remain the focus in these designations, including the commonly conducted activities of boating and river based recreation, camping, fishing, hunting, gathering of edible plants and berries, hiking and backpacking, hobby mineral collecting, OHV use (both summer and winter), skiing, dogmushing, and other forms of winter recreation.

Alternative C best meets the goal of providing for multiple recreation use, while sustaining the recreation-resource base and other sensitive resource values of the region. Alternative B emphasizes less motorized recreation use in a more primitive setting, while Alternative D and E offers more motorized recreation use and includes the most acreage for cross-country OHV travel.

Table 4.20. Comparison of Recreation Indicators: White Mountains Subunit

Indicator	Alternatives			
	B (acres)	C (acres)	D (acres)	E (acres)
Special Recreation Management Area	1,016,000	1,016,000	1,016,000	1,016,000
Other BLM-managed lands	4,000	4,000	4,000	4,000
Recreation Setting Character Class (acres)				
Primitive	26,000	26,000	12,600	26,000
Semi-Primitive	483,000	171,000	69,000	171,000
Backcountry	140,000	382,000	445,000	382,000

Indicator	Alternatives			
	B (acres)	C (acres)	D (acres)	E (acres)
Middlecountry	329,000	398,000	452,000	398,000
Frontcountry	38,000	38,000	38,000	38,000

4.7.2.2.1. Effects Common to All Alternatives

Effects from Cave and Karst

Cave and Karst Resources located in the White Mountains Subunit are within the Limestone Jags RNA. These resources are currently protected through the established RNA. The Limestone Jags RNA does not change throughout the alternatives and would be managed for a Primitive recreational opportunity setting in Alternatives B, C, D, and E. The recreational niche for the RNA is to remain undeveloped. Motorized use is excluded and limited recreation development is expected. Management of this area would provide opportunities for a primitive recreational experience for visitors to the area.

Effects from Wildlife

Wildlife goals of protecting and enhancing wildlife populations and crucial habitat areas would impact recreation. Through avoidance areas and other restrictions on recreational development (including possible seasonal or timing closures, location changes, and limiting the extent of activities or development), restrictions to address wildlife concerns could make certain projects more costly, more difficult if not impossible to accomplish, or unable to meet recreation management objectives. Healthy wildlife populations would benefit hunting, wildlife viewing, and trapping which are all generally secondary activities in most RMZs. Access restrictions could offset that benefit by limiting participation in those activities. The biggest impacts to recreation from wildlife would be in limiting potential motorized and non-motorized recreational opportunities and possibly limiting further development of the winter cabin/trails program.

The prohibition on the use of domestic goats, sheep, and camelids in Dall sheep habitat, under Alternative B and E, could impact recreation use by users seeking to use these animals as pack animals as part of their recreation experience. It is anticipated that this is a small user group and effects would be minimal, but interest has been growing in the lower 48 states.

Effects from Lands and Realty

Impacts or benefits from the lands and realty program would be limited under all alternatives. Few land use authorizations are anticipated in the White Mountains NRA that would not be recreation related. Recreation related authorizations would be consistent with recreation setting prescriptions.

Two transportation corridors are designated in Alternative A, one of these would be retained in Alternative B and D, and none would be retained in Alternatives C, and E. Although the designation of corridors varies across alternatives, effects would not because few rights-of-way are anticipated, other than those for recreation related trails developed by the BLM. Additionally rights-of-way are not precluded outside of the transportation corridors, thus designation of corridors in Alternatives A and B would not prevent future approval of rights-of-way in other parts of the White Mountains NRA.

Effects from Locatable Minerals

There would be no effect from locatable minerals on recreation. Entry for locatable minerals is currently closed and would remain so in all alternatives. Although there are valid existing claims in the Livengood area that may be developed, these affect only 4,000 acres, surrounded by state lands. Recreational use of these lands is minimal due to ongoing mineral exploration. Over the long-term, these lands are not likely to remain under BLM management.

Effects from Recreation

Under all alternatives, management actions would continue to provide for multiple recreation uses, including a wide-range of structured opportunities that produce specific targeted outcomes (such as activities, experiences, benefits, and settings). Beaver Creek WSR (111 miles) would continue to be managed to preserve and enhance resource values. Approximately 1,016,000 acres in the White Mountains NRA and adjacent facilities (e.g., Fred Blixt Cabin, Cripple Creek Campground, and trailheads) would be managed to enhance and promote recreational opportunities. Together, these actions would directly affect recreation management by ensuring that land and water based recreation opportunities continue to exist.

Special Recreation Permits would continue to be issued as appropriate for commercial, competitive, and special event use, allowing managers to provide for safe and enjoyable recreation opportunities at fair and allowable levels. This would minimize user conflicts while ensuring that recreation activity levels do not negatively impact the recreation-resource base and other sensitive resource values of the region.

Opportunities for both developed and dispersed recreational use would exist in all alternatives. Current developed recreation sites would continue to be managed to enhance recreation experiences, provide for health and safety issues, and to help mitigate other possible resources at risk. The entire subunit would remain open to dispersed camping, except in areas where specific restrictions or exclusions are in place to meet other resource objectives. Under all alternatives , winter use (October 15 to April 30) of snowmobiles would be allowed, with adequate snow cover, providing opportunities for recreational users during winter months. During the summer months, all forms of non-motorized use would generally be allowed, except to protect specific resource values, preserve public safety, and maintain identified recreation opportunities.

Effects from Travel Management

Under all alternatives, travel management actions would continue to provide for a range of motorized and non-motorized recreation experiences, while protecting resource values and minimizing user conflicts. This comprehensive approach to travel management would allow the BLM to sustain and enhance recreation opportunities and experiences, visitor access and safety, and resource conservation of the subunit throughout all alternatives. All forms of non-motorized use would be allowed, providing users with opportunities for float boating, hiking, biking and horseback riding. Winter use (October 15 to April 30) of snowmobiles would be allowed, with adequate snow cover except in the RNAs (12,600 acres) where different rules would apply in Alternatives B, C and D. This would provide additional opportunities for recreational users during the winter months. Impacts to soils, water, and vegetative resources could affect both motorized and non-motorized winter recreational use by leaving certain trails rutted and in poor condition. Depending on use levels and degradation of natural resources, additional closures for summer OHV use could be put in place for specific trails or areas.

The use of aircraft would also be allowed, subject to reasonable provisions to protect the values of the Beaver Creek WSR and designated RNAs.

4.7.2.2.2. Alternative A (No Action)

Effects from Forest and Woodland Products

Effects of forest products on recreation are expected to be minimal. Under Alternative A, the White Mountains NRA is open to all forest products except commercial timber. Possible impacts that could occur would primarily be to the visual quality. Interest in harvesting would most likely occur along roads and at recreational sites like campgrounds and cabins. Unless properly stipulated and managed for, issuance of permits for timber or forest products could significantly impact certain recreational sites and recreation setting prescriptions such as naturalness. The issuance of permits for forest products, such as berries and mushrooms, to commercial pickers could also impact recreational users of that resource. This impact would most likely only occur in readily accessible areas frequented by the recreational users, such as Nome Creek valley.

Effects from Leasable Minerals

There would be no effects from Leasable Minerals as the entire subunit is withdrawn from mineral leasing.

Effects from Salable Minerals

No effects from salable minerals are expected. Although the entire NRA is available, demand for and reasonable access to material sites in the White Mountains Subunit is very limited. Currently some BLM lands outside the NRA may not have the same protection from development as lands inside the NRA.

Effects from Recreation

Effects would be the same as those discussed under the Effects Common to All Alternatives above. Although the existing Steese RMP (BLM 1986a) did not specifically identify any SRMAs, the BLM essentially manages the White Mountains NRA and Beaver Creek WSR Corridor as a SRMA. Facility enhancements (e.g., cabins, trails, trailheads, and toilets) may be added to accommodate increasing recreational demand. All public lands outside this SRMA would be managed for custodial recreation actions only, and would result in few if any, recreational improvements.

Effects from Travel Management

In addition to those effects discussed under the Effects Common to All Alternatives above, the following effects would occur. Summer motorized travel within the White Mountain NRA and associated lands would be open to use of vehicles 1,500 pounds GVWR and less, except in Primitive and Semi-Primitive non-motorized zones and in other administratively closed areas. Allowing this level of continued OHV use may not be addressing resource and user conflict issues and could result in additional emergency closures to protect the recreation resource base and other sensitive resource values of the region. These actions could result in long-term detrimental impacts to scenic viewsheds that enhance the quality of recreational experiences for other recreation users. Thus, while this alternative would offer greater allowances for recreational activities that involve the use of motorized travel, including hunting and ATV riding; fewer opportunities would exist for recreational users seeking a primitive, non-motorized type of experience. . The 1,500 pounds GVWR has been confusing to the public and difficult to enforce with the changing technology and because this information isn't always readily available.

Effects from Special Designations

The Beaver Creek WSR (111 miles) would continue to be managed to preserve and enhance its resource values, providing long-term, beneficial impacts to those recreation users seeking land and water based recreation activities in the region. Three designated RNAs totaling 12,600 acres, Serpentine Slide, Limestone Jags, and Mount Prindle, would be managed for a Primitive setting in all alternatives. The RNAs would remain closed to all forms of motorized use under this alternative. This would continue to provide for a primitive recreation experience and protect the values for which the RNAs were designated. If use increased to a high enough level that resource damage occurred, affected areas could be closed to recreational use, however, this is unlikely due to the distance from the highway system and relative inaccessibility to OHVs during the summer.

4.7.2.2.3. Alternative B

Effects from Wilderness Characteristics

Maintenance of wilderness characteristics on 509,000 acres (fifty percent) would help ensure that opportunities for a primitive and unconfined recreation experience would remain available for present and future recreation users. Maintenance of wilderness characteristics does not eliminate the ability to develop facilities such as trails or cabins though the process will be more stringent as to need, how they are located, that they blend in to the natural landscape, and that the development does not change the experience defined in the RMZ.

Effects from Forest and Woodland Products

There would be no effects under this alternative. The White Mountains SRMA would be closed to all forest uses and lands outside the SRMA (4,000 acres) are mining claims.

Effects from Leasable Minerals

Same as Alternative A.

Effects from salable Minerals

No effects would be expected. The Primitive, Semi-Primitive, and Backcountry RMZs (649,000 acres) would be closed to salable minerals and any sales in the remaining areas would be discretionary. More protections would be afforded BLM-managed lands within the SRMA than under Alternative A.

Effects from Recreation

Effects would be similar to those discussed under the Effects Common to All Alternatives above. Additionally, the BLM would continue to manage the Whites Mountains SRMA (1,016,000 acres) under Alternative B. The remaining BLM lands (4,000 acres) would be managed for custodial recreation only. This alternative adds the use of Benefits Based Management to set prescription settings and delineate RMZs. The SRMA would include seven different RMZs (Map 53) representing five different RSC settings including: Primitive (26,000 acres), Semi-Primitive (483,000 acres), Backcountry (140,000 acres), Middlecountry (329,000 acres), and Frontcountry (39,000 acres).

When compared to the other alternatives, a much greater portion of the SRMA would be reserved for Semi-Primitive experiences of non-motorized use. Facility and other development could be

limited to maintain Semi-Primitive setting prescriptions. These management decisions would affect recreation by providing high-quality recreation opportunities for those users who desire an experience characterized by solitude, tranquility, and self-reliance. Motorized users could experience some displacement with potential motorized closure areas or increased restrictions.

The RNAs would be limited to subsistence use of snowmobiles in the winter, with adequate snow cover, by free-use permit, for pursuit of subsistence resources. The RNAs would be closed to all other motorized use. There would be some conflict associated with this use. Existing snowmobile tracks into the RNAs will entice non-qualified users to travel into the RNAs which would create additional impacts to the resources from trenching through the snow and tearing vegetation, hill climbing , and disturbing non-motorized users that expect a primitive experience as prescribed for in the recreation management objectives. Conflict would occur between user groups when one group is allowed access to an area while another group is not allowed access to the same area by the same means.

Effects from Travel Management

Under Alternative B, few impacts would be expected to occur within the Semi-Primitive, and Backcountry RMZs. Within these zones, travel allowances and restrictions would be similar to those currently in place under Alternative A. The primary effects of travel management on recreation would be in the Middlecountry and Frontcountry RMZs (367,000 acres) where new restrictions to motorized use would occur. Motorized use in these zones would change from unlimited cross-country travel by OHVs weighing 1,000 pounds curb weight and less during summer months to the same machines being limited to designated trails. Although most summer OHV use occurs on trails that would be designated for use, OHV opportunities for cross-country uses, including exploring and hunting, would become unattainable. It is expected that fewer impacts would occur to soil, water, and vegetative resources, which should in return enhance scenic viewshed qualities and other non-motorized recreational opportunities. On the other hand it is difficult terrain to build trails sustainable for use of OHVs in the summer over the entire length of the trail. Mud holes develop making it nearly impossible for OHVs to stay on the trail. This can make for a difficult management strategy; trying to force individuals to stay on a trail that is almost impossible to do so.

By a free-use permit only, RNAs would be limited to cross-country use of snowmobiles weighing 1,000 pounds and less, 50” width and less and with adequate snow cover to federally qualified subsistence users. The permit would not carry any stipulations. The permit would be required mainly for law enforcement to differentiate between a legal subsistence user and someone who is not. This is a major change to previous management which had the RNAs closed to all forms of motorized use. The change could have moderate benefits to some by allowing an additional 12,600 acres of additional area (1.2 percent increase) to pursue subsistence resources and to those that are capable of riding snowmobiles in this steep terrain. However, due to the steep terrain, and wind-blown areas clear of snow, conditions typical of the RNAs in the White Mountains NRA, significant impacts could occur from the use of snowmobiles. Due to the steepness and wind-blown conditions, snowmobiles will cut through the snow to the vegetation and tear through the vegetation. The trenches cut through the snow create troughs that will channel water and create erosion ditches, further impacting soil and vegetation. The compaction of the snow creates an impervious condition that unnaturally channels water during spring run-off. Snowmobiles will also carry weeds that would compete with the natural vegetation. The RNAs were designated because they contain examples of significant natural ecosystems to be preserved for scientific

study. Allowing such use would alter the terrain, vegetation and ecosystems for which they were designated.

Effects from Special Designations

Under Alternative B, effects from RNAs and management of Beaver Creek WSR would be the same as Alternative A except that Outstandingly Remarkable Values (ORVs) of Beaver Creek would be identified as scenic, recreation, geologic, fisheries, and wildlife, and RNAs would be limited to subsistence use of snowmobiles by permit. Subsistence use of snowmobiles would negatively impact the RNAs for the purposes in which they were designated as described above. Identification of ORVs would enhance management of Beaver Creek and provide long-term, beneficial impacts to those recreation users seeking land and water based recreation activities.

One eligible river segment, Fossil Creek, would be recommended as suitable for designation as a "scenic" under the Wild and Scenic Rivers Act. If it were designated by Congress, the effect of its inclusion into the NWSR would ensure the protection and enhancement of the outstanding and remarkable scenic and geologic values for which it is identified, providing long-term, beneficial experiences for those individuals seeking scenic and natural landscapes and wanting to experience adventure.

Approximately 589,000 acres would be designated as the White Mountains ACEC to protect caribou and Dall sheep habitat. This ACEC designation would maintain or protect wildlife habitat, potentially increase wildlife numbers that have beneficial impacts on wildlife viewing and hunting. Negative effects of ACEC designation may also result, if additional restrictions are placed on OHV and other recreational activities.

4.7.2.2.4. Alternative C

Effects from Wilderness Characteristics

Maintenance of wilderness characteristics on 312,000 acres (thirty-one percent) would help ensure that opportunities for a primitive and unconfined recreation experience would remains available for present and future recreation users. Maintenance of wilderness characteristics does not eliminate the ability to develop facilities such as trails or cabins though the process will be more stringent as to need, how they are located, that they blend in to the natural landscape, and that the development does not change the experience defined in the RMZ The area identified to maintain wilderness characteristics is largely outside the current development of cabins and trails.

Effects from Forest and Woodland Products

Same as Alternative A except all timber harvest including personal use would be prohibited on 82,000 acres within the Beaver Creek WSR Corridor and the RNAs. The harvest of special use forest products such as berries and mushrooms would be allowed everywhere except RNAs. Visual impacts from timber harvest could occur in all RMZs except Beaver Creek and the RNAs potentially threatening the setting prescriptions.

Effects from Leasable Minerals

Same as Alternative A.

Effects from Salable Minerals

Under Alternative C, only the Beaver Creek WSR Corridor (69,000 acres) would be closed to development of salable minerals. Development of salable minerals in any of the Primitive, Semi-Primitive, or Backcountry RMZs could have a considerable impact on the setting prescriptions for these RMZs. Iit is unlikely that any development would occur, however, based on past interest, the lack of BLM lands along the highways, and the lack of reasonable access.

Effects from Recreation

Effects would be similar to those effects discussed under the Effects Common to All Alternatives above. This alternative is very similar to Alternative A, with the addition of utilizing Benefits Based Management to set prescription settings and delineate RMZs. As in Alternative B, the White Mountains SRMA (1,016,000 acres) and other BLM-managed lands (4,000) acres would be identified. The SRMA would include seven different RMZs (Map 54) representing five different RSC settings including: Primitive (26,000 acres), Semi-Primitive (171,000 acres), Backcountry (382,000 acres), Middlecountry (398,000 acres), and Frontcountry (39,000 acres).

A shift has been made, from Alternative B, away from Semi-Primitive towards more Backcountry and Middlecountry setting prescriptions. The effect of this shift would allow for a slightly higher level of modest site and facility development to enhance recreational opportunities. Through these recreational enhancements some displacement of traditional non-motorized users could be expected, but on the other hand both motorized and non-motorized recreational use, in general, would be expected to benefit from developments or improvements. Use would be expected to increase and a more moderate level of attainment anticipated for experiencing solitude, tranquility, and personal challenge and risk-taking.

Effects from Travel Management

Under Alternative C, the impacts from travel management on recreation would be nearly the same as Alternative B with a few exceptions. These exceptions would include allowing off-trail travel for the retrieval of legally harvested game within the Middlecountry and Frontcountry RMZs (438,000 acres), with the same weight restrictions as in Alternative B, and allowing the use of somewhat larger UTV type vehicles on two trails where they are currently restricted (Map 54). These changes would greatly increase the ability of hunters to utilize the White Mountains for those recreational purposes. The ability to use the UTV type vehicles even on two trails would significantly increase the range of allowed motorized opportunities. As in Alternative B, it is expected that by generally limiting summer cross-country travel by OHVs, fewer impacts would be expected on soil, water, and vegetative resources; and helps maintain the scenic quality of viewsheds and opportunities for non-motorized recreational activities.

The three RNAs would be opened to subsistence use of snowmobiles in the winter, by free-use permit. Impacts would be the same as described in Alternative B.

Effects from Special Designations

Under Alternative C, the effects from RNAs would be the same as Alternative A. Effects from management of Beaver Creek WSR would be the same as Alternative B. No White Mountains ACEC would be designated under Alternative C. Although no ACEC would be designated, decisions for management of wildlife common to all action alternatives and habitat protections afforded by the designation of the White Mountains NRA under ANILCA, would protect wildlife resources, benefitting wildlife related recreation.

4.7.2.2.5. Alternative D

Effects from Wilderness Characteristics

Maintenance of wilderness characteristics on 205,000 acres (twenty percent) would help ensure that opportunities for a primitive and unconfined recreation experience would remain available for present and future recreation users. Maintenance of wilderness characteristics does not eliminate the ability to develop facilities such as trails or cabins though the process will be more stringent as to need, how they are located, that they blend in to the natural landscape, and that the development does not change the experience defined in the RMZ. The area identified to maintain wilderness characteristics is largely outside the current developed area except for Beaver Creek WSR.

Effects from Forest and Woodland Products

Same as Alternative C.

Effects from Leasable Minerals

Impacts to recreation from leasable minerals could potentially occur. Approximately forty-four percent of the SRMA would be opened to mineral leasing. The area to be opened is the White Mountains Foothills Middlecountry RMZ (451,000 acres). The niche for this RMZ is to provide for winter recreation opportunities through a more highly developed cabin/trail system. Desired outcomes include escaping social pressures and crowds, and enjoying scenery and natural landscapes. Development of leasable minerals could affect these desired outcomes by diminishing them. No exploration or development of leasable minerals is anticipated, however, during the life of the plan due the low development potential for these minerals.

Effects from Salable Minerals

Effects would be the same as Alternative C, except that Beaver Creek WSR Corridor (69,000 acres) would be open to salable minerals.

Effects from Recreation

Effects would be similar to those discussed under the Effects Common to All Alternatives above. As in Alternative B, the White Mountains SRMA (1,016,000 acres) would be identified and Benefits Based Management would be used to set prescription settings and delineate RMZs. The White Mountains SRMA would consist of six different RMZs representing five different RSC settings including: Primitive (12,600 acres), Semi-Primitive (69,000 acres), Backcountry (445,000 acres), Middlecountry (452,000 acres), and Frontcountry (39,000 acres).

Under Alternative D, the only lands managed for Primitive and Semi-Primitive experiences would be the Beaver Creek RMZ and the RNAs. The Primitive and Semi-Primitive settings would be reduced by fifty to sixty percent compared to Alternative C. The long-term effects of Alternative D would allow more significant recreational development in the northern part of the SRMA. The omission of the Highlands Semi-Primitive RMZ and the fifty percent reduction in size of the Primitive RMZ would not be expected to have any real impact on non-motorized type recreational opportunities since very few are occurring now and little more would be forecast in the future. With both Middlecountry and Backcountry RMZs covering the northern portion of the SRMA future cabin and trail development could offer a much expanded version of the current cabin and trail system.

Effects from Travel Management

The effects of Travel Management on recreation would be fairly similar to Alternative A with a few exceptions. In Alternative D, summer cross-country travel by ATVs would be allowed in the Middlecountry RMZs (451,000 acres), with vehicles weighing 1,000 pounds curb weight or less. Alternative A also allows for cross-country travel with similar restrictions, but the size of the Middlecountry RMZ in Alternative D, in which cross-country use can occur, increases by about five percent. New portions of the northern and northwestern White Mountains SRMA would be opened to limited cross-country travel. In addition, UTV type vehicles would be allowed on numerous designated trails within the Middle and Frontcountry RMZs. Opportunities for motorized activities would be greatly enhanced. These decisions could potentially diminish the recreational experience of users seeking a primitive, non-motorized type of outing. Impacts to soils, water, and vegetative resources could also affect both motorized and non-motorized winter recreational use by leaving certain trails rutted and in poor condition. Depending on use levels and degradation of natural resources, additional closures for summer OHV use could be put in place for specific trails or areas.

Effects from Special Designations

Same as Alternative C.

4.7.2.2.6. Alternative E (Proposed RMP)

Effects from Wilderness Characteristics

Maintenance of wilderness characteristics on 205,000 acres (twenty percent) would help ensure that opportunities for a primitive and unconfined recreation experience would remain available for present and future recreation users. Maintenance of wilderness characteristics does not eliminate the ability to develop facilities such as trails or cabins though the process will be more stringent as to need, how they are located, that they blend in to the natural landscape, and that the development does not change the experience defined in the RMZ. The area identified to maintain wilderness characteristics is largely outside the current developed area except for Beaver Creek WSR.

Effects from Forest and Woodland Products

Same as Alternative C.

Effects from Leasable Minerals

Impacts to recreation from leasable minerals could potentially occur. Approximately forty-four percent of the SRMA would be opened to mineral leasing. The area to be opened is the White Mountains Foothills Middlecountry RMZ (451,000 acres). The niche for this RMZ is to provide for winter recreation opportunities through a more highly developed cabin/trail system. Desired outcomes include escaping social pressures and crowds, and enjoying scenery and natural landscapes. Development of leasable minerals could affect these desired outcomes by diminishing them. No exploration or development of leasable minerals is anticipated, however, during the life of the plan due the low development potential for these minerals.

Effects from Salable Minerals

Effects would be the same as Alternative C, except that Beaver Creek WSR Corridor (69,000 acres) would be open to salable minerals.

Effects from Recreation

Under Alternative E the delineations of Recreation Management Zones would be the same as described in Alternative C with one use exception. The entire SRMA (1,020,000 acres) would be open to the use of snowmobiles with adequate snow cover, including within the RNAs. The acreages would remain the same in each RMZ as in Alternative. C. Use levels would be similar to Alternatives A and D except that opening of previously closed areas will attract some increased use in those areas as well as increased use overall. There would be some conflict with the allowance of snowmobiles in the RNAs because the management prescription for the RNAs is Primitive. It is difficult to manage for a primitive recreation experience when the area is open to the use of motorized vehicles. The two are not compatible.

Effects from Travel Management

Under Alternative E, the White Mountains subunit would be managed similarly to Alternative A. The current supplemental rules will apply including: management of non-motorized trails, use limitations on the Wickersham Creek Trail and 15 hp limitation for launching boats in the Nome Creek Valley.

The limitation of OHVs in the summer and winter from 1,500 pound GVWR would change to 1,000 pound curb weight to make it more discernable to the public and to law enforcement. There will also be a width restriction of 50" or less. Cross country travel will be allowed.

UTVs, 1,500 pound curb weight, 64" and less, would be allowed on designated trails only, specifically on the Wickersham, Trail Creek and 23.5 mile trails to Lee's cabin and on the Quartz Creek Trail. UTVs would also be allowed within the Nome Creek tailings area. UTV's would not be allowed off trail except as described above. Additional trails could be added to the designated trail system in the future as identified in a travel management plan.

Licensed highway vehicles, including motorhomes and UTVs 1,500 pound curb weight and 64" and less, would continue to be allowed within the Nome Creek tailings area. Travel off the tailings is not allowed by the aforementioned vehicles other than on the Nome Creek Road.

The use of airboats and hovercraft would be allowed on Beaver Creek WSR which had previously been prohibited. This would create conflict with float boaters who are expecting a primitive experience as is a typical expectation for a nationally designated "Wild" river. Airboats and hovercraft are more amphibious in nature than a motorboat, so there would be some impacts to resources where these craft travel off of the water and onto land. For more of a description of impacts see the Travel Management section under Alternative B.

The prohibition for the use of airboats and hovercraft on Beaver Creek WSR would be lifted under Alternative E. There will be some conflicts associated with the use of these craft as Beaver Creek WSRis a designated as "wild.". The river is noted for its primitive character and is mostly a one way, float boat river. It narrows in places to less than 12 feet in width, narrower in some areas due to overhanging sweepers, and can be extremely shallow during the middle of the summer. Often float boats will have to drag across shallow riffles. There are a few outboard motorboats that operate on the river, mainly from private inholdings along the river in 3 locations. They generally are on the river during the moose hunting season, and only travel a few miles up and downstream of their inholding due to shallow water. Hovercraft and airboats can go over the shallowest of water, over gravel bars and up on the banks off the river. Airboats and hovercraft are more amphibious in nature than an outboard motorboat. There would be some safety concerns

for float boaters that are travelling one way, and it will be difficult for them to get out of the way of motorized traffic. Airboats and hovercraft have to travel with some speed to be maneuverable which can be dangerous to float boaters. Once the Airboat falls off step, it would be difficult to get back on step in shallow water. Every marsh and swamp adjacent to the river could have airboat and hovercraft traffic on them, especially during moose hunting season. The marshes will be targeted for access to these craft; trees will be cut to make trails to access the marshes, and vegetation will be compacted and torn. There are few limitations to where airboats and hovercraft can travel as long as it isn't too steep of terrain.

There is a 15 hp limit for launching boats in the Nome Creek Valley, so airboats and hovercraft will have to come up from the Yukon River, almost 200 miles to reach the portion of Beaver Creek that is designated as a WSR. It is unlikely that many will attempt to travel this distance. It is more likely that individuals with private inholdings along the river would attempt to get airboats or hovercraft to their property to expand their range along the river corridor. It is likely that allowing additional motorized craft on the river that attempts to travel the shallow narrow channels will result in boats getting stuck, broken down and abandoned on the river.

Noise from airboat and hovercraft use is in the range of 90 – 108dbA, similar to chainsaws at 110 dbA, and rock concerts 110 – 120 dbA. Noise levels of these types of craft will have a negative effect on recreational float boaters.

The potential exists for summer use of OHVs within the Backcountry and Semi-Primitive RMZs, however, these decisions will be deferred to the travel management plan. The impacts of allowing this use will be analyzed in the travel management plan as well.

Management prescriptions in crucial caribou and Dall sheep habitat include limitations to OHV use, potentially reducing opportunities for motorized use in these areas.

The Limestone Jags, Serpentine Slide and Mount Prindle RNAs include limitations to OHV use. The OHV area designation would change from closed to limited. The RNAs would be limited to winter use of snowmobiles 1,000 pounds curb weight and less and 50" and less in width. .

Effects from Special Designations

Under Alternative E, effects from RNAs and management of Beaver Creek WSR would be the same as Alternative A except that Outstandingly Remarkable Values (ORVs) of Beaver Creek would be identified as scenic, recreation, geologic, fisheries, and wildlife, and snowmobile use in the RNAs would be allowed. Subsistence use of snowmobiles would negatively impact the RNAs for the purposes in which they were designated as described above. Identification of ORVs would enhance management of Beaver Creek and provide long-term, beneficial impacts to those recreation users seeking land and water based recreation activities.

Approximately 417,000 acres would be delineated as crucial caribou and Dall sheep habitat and management applied to minimize impacts to these habitats. The management of these areas would maintain or protect wildlife habitat, potentially increase wildlife numbers that have beneficial impacts on wildlife viewing and hunting. Negative effects may also result, if additional restrictions are placed on OHV and other recreational activities.

4.7.2.2.7. Cumulative Effects

The effects of past, present and future actions, including the demand for recreational use, changes to the landscape as a result of surface-disturbing activities, and area closures or restrictions for resource protection, could affect recreation management in the White Mountain Subunit. Implementing any of the alternatives would not contribute to a significant cumulative change to recreational opportunities on public lands.

The demand for recreational use in the subunit is anticipated to increase by ten to fifteen percent over the life of the plan, due to general population increases and increases in recreation-related technology. This use would occur for both motorized (such as OHV use, including snowmobiles) and non-motorized (such as hiking, backpacking, hunting, float-boating, river-based recreation, camping, fishing, and gathering of edible plants and berries) activities, resulting in an increase in resource damage and conflicts among recreationists involved in these activities.

Surface disturbances resulting from forest sales and unmitigated OHV use could cumulatively affect recreational users if activities were concentrated in heavily recreated areas and if activities overlapped in duration. Effects to recreation as a result of these cumulative effects may include the potential dislocation of wildlife for hunting and viewing purposes, and/or the alteration of scenic viewsheds. These effects would be greatest in Alternatives A, D and E and lower or minimal in Alternatives C and B.

Special designation, including RNAs and WSRs, would further protect the White Mountains Subunit, by maintaining healthy populations of wildlife that benefit wildlife viewing, hunting, and fishing opportunities. As the size and scope of these areas increase in Alternatives B and C, opportunities for land- and water-based recreation uses that incorporate scenic viewsheds as part of the experience would also increase. As areas that require special management attention are identified to prevent irreparable damage to historic, cultural and scenic values, the need for additional restrictions could limit OHV use and other recreational activities. The RNAs would be opened to winter use of snowmobiles which could create some irreversible impacts to soil and vegetation, and reducing the quality of future scientific study for which the areas were designated.

Leasing of locatable minerals in Alternative D would have some long term cumulative effects. Indirect and cumulative impacts from the activities and infrastructure associated with mining activities and exploration include the related travel and access to lease locations as well as the increase of recreational users accessing these new access routes. Access routes to leases could benefit other users if trails were constructed in the proper locations and use sustainable trail construction techniques. Cross-country travel is allowed under alternative D, however, the addition of more concentrated routes with multiple passes over the same area would compact the soil and vegetation and create a permanent scar on the landscape. User-created trails or routes created by four-wheelers are not typically sustainable because they tend to go straight up and straight down hills, which creates a path for water to accelerate and intensify erosion. User-made trails deteriorate over time. Direct and cumulative effects of this action on recreation and travel management are discussed in detail in M.3.2.9.

4.7.2.3. Travel Management White Mountains Subunit

Summary of Effects

Transportation and travel management affects the number of users able to reach and travel on public lands. The primary cause of effects on or changes to the transportation network is resource protection. Measures that are implemented to protect natural resources, such as wildlife, water, and soil could result in seasonal or permanent route restrictions or closures. Permitted activities on BLM-managed lands, such as those related to minerals, could slightly expand the route network.

Alternative C would best manage travel, roads, and trails to provide access and recreational opportunities, while minimizing resource impacts and user conflicts. Alternative B is most restrictive to OHV use. Alternatives A and D have the most potential for resource impacts because of fewer limits to OHV use. Table 4.21, "White Mountains: Comparison of OHV Designations" identifies the indicators that were used to analyze effects on transportation and travel management under each alternative.

Table 4.21. White Mountains: Comparison of OHV Designations

Area Designation	Alternative									
	A		B		C		D		E	
	Acres	%*	Acres	%*	Acres	%*	Acres	%*	Acres	%*
Year-round										
Undesignated	4,000	<1	0	0	0	0	0	0	0	0
Open	0	0	0	0	0	0	0	0	0	0
Closed	12,600	1	12,600	1	12,600	1	12,600	1	0	0
Limited	1,004,000	98	1,008,000	99	1,008,000	99	1,008,000	99	1,020,000	100
Winter (October 15 through April 30)										
Limited: Cross–country use of vehicles 1,500 pounds GVWR and less allowed in Alternative, A, 1,000 pounds curb weight in Alts. B – E.	1,004,000	98	1,008,000	99	1,008,000	99	1,008,000	99	1,020,000	100
Summer (May 1 through October 14)										
Limited: Cross-country use of vehicles 1,500 pounds GVWR and less allowed in Alternative, A, 1,000 pounds curb weight in Alts. B – E.	440,000	44	4,000	<1	4,000	<1	464,000	46	405,000	40
Limited: Designated routes, weight & width	0	0	367,000	36	437,000[b]	43	31,000[b]	3	31,000	3
Limited: Closed to summer OHV use	563,000	55	636,000	62	566,000	55	514,000	50	580,000	57

*Percent of BLM lands within the White Mountains Subunit (1,020,000 acres)

[b]Off-trail retrieval of legally harvested game allowed

Table 4.22. White Mountains: Miles of trails

Trail Limitations	Alternative				
	A (miles)	B (miles)	C (miles)	D (miles)	E (miles)
Designated ATV (summer)	cross-country travel allowed	139 miles	139 miles	cross-country travel allowed	cross-country travel allowed except in Nome Creek
Designated UTV (summer)	0	0	27	112	27
Winter Trails Closed to Summer OHV use	109 miles	117 miles	117 miles	117 miles	117 miles

4.7.2.3.1. Effects Common to All Alternatives

There would be no effects to Travel Management from locatable minerals, and effects from Cave and Karst Resources and leasable minerals would be negligible. These programs are not analyzed further.

Effects from Travel Management

There are approximately 230 miles of existing BLM-managed trails within the White Mountains NRA. All BLM lands are required to be designated as Open, Closed or Limited to OHV use. No areas would be designated as Open within the White Mountains Subunit under any alternative. Limited designations would restrict motorized vehicles to either weight (Alternative A); width, weight, and designated routes (Alternatives B and C); or, width and weight (Alternative D and E). A Closed area designation would prohibit motorized vehicle travel year long. The term "summer use" refers to the period of time between May 1 and October 14. Effects would vary depending on how much a trail is used, the level of restriction placed on the trail, and whether the trail is wet or dry during a particular time of the year. Seasonal restrictions could be placed on particular trails to minimize damage to the trail.

Under all alternatives, non-motorized travel (e.g., pedestrian, equestrian, and mechanized uses such as mountain bikes) would continue on all BLM lands in the subunit (1,020,000 acres). There would be no change from current management, and opportunities would continue for visitors who access public lands by foot, horse, or bicycle.

Over-snow motorized travel (snowmobiles) would remain limited by weight and width within the White Mountains subunit, maintaining opportunities for visitors who travel by these modes of transportation. In Alternatives B, C, D and E, the weight restriction changes from 1,500 pounds GVWR to 1,000 pounds curb weight and 50" and less in width.The nomenclature changes essentially result in no change to the size and type of vehicles allowed, but is easier to determine, curb weight is typically more available within the manufacturers specifications, and is in line with rules imposed by the State of Alaska. Cross-country travel by snowmobiles is allowed under all alternatives, but is generally restricted to October 15 through April 30 when adequate snow covers the ground. The only areas closed to snowmobile use are the RNAs (12,600 acres) in all Alternatives A, B, C, and D). These RNAs are mostly inaccessible to snowmobiles regardless of designation.

Fixed-wing and helicopter access will remain largely unregulated on all BLM lands within the subunit unless specifically addressed through the development of a Recreation Activity Management Plan, ACEC/RNA management plan or through regulation.

Potential exists for minor access roads to gravel pit developments along the Nome Creek Road for maintenance purposes. Future requests for road proposals would be considered on a project-specific basis. If roads were developed, access opportunities for OHV users could increase.

Effects from Special Designations

Under all alternatives, the 111 miles of Beaver Creek WSR, as designated through ANILCA, would continue to be managed as a "wild" river pursuant to the WSRA. Management of "wild" rivers, per BLM guidance, would impact travel in Beaver Creek WSR Corridor where the construction of new roads, primitive roads, trails, or other provisions for overland motorized travel would not be permitted (BLM 8351 Manual). Beaver Creek is also designated as an anadromous fish stream. This could have impacts to travel-related decisions in the future.

4.7.2.3.2. Alternative A (No Action)

Effects from Wildlife

Under Alternative A, when land use actions are proposed, mitigating measures to avoid or minimize possible adverse effects are developed through the environmental assessment process. This sometimes results, in restriction or alteration of timing, location, and extent of a proposed land use activity in order to avoid or minimize adverse effects. Impacts to travel management include avoiding crucial wildlife habitat areas, as identified, and limiting use to specific timeframes or season of use. Areas currently open to OHV use under Alternative A generally avoid crucial wildlife habitat areas. There is a seasonal closure to motorized use to avoid peregrine falcon nesting areas, although they are no longer listed as threatened. Alternatives B and C are more restrictive to OHV use, and D is nearly the same as A.

Effects from Forest and Woodland Products

Under Alternative A, harvest of timber or other forest products would have a minimal effect on travel management. Forest products are reserved for local use only, no commercial timber harvest is permitted, and personal use of timber is allowed throughout the subunit. On the rare occasions that permits are issued, monitoring is done to ensure that the authorized harvest was not exceeded and that permit stipulations have been followed. Permit stipulations may include winter cutting and movement, maintaining a set distance from waterways, and lopping and scattering slash. Proliferation of trails or routes could occur from authorization of harvest, resulting in potential temporary closures, but stipulations for winter cutting or walk-in only would limit this impact.

Effects from Lands and Realty

There are two established transportation corridors in the White Mountains NRA (Map 19). Since the Nome Creek Road was constructed, the transportation corridor from Mile 42 Steese Highway appears redundant. There have been no ROW applications, outside of the BLM applying for ROWs on trails, for any specific uses or access and few are anticipated in the future. Acquisition of private lands within the NRA would be pursued if they become available. Lands outside the NRA including Wickersham Dome, the Cripple Creek Campground, the U.S. Creek withdrawal, and the Perhaps Creek withdrawal would remain under BLM's management. Access to three private inholdings would continue to be addressed through Title XI of ANILCA. Lands and Realty actions under this alternative would have no impact to travel management.

Effects from Recreation

The RSC setting provides a framework for identifying the types of recreation activities that the public might desire, which is directly related to transportation and travel management opportunities in those areas. The RSC setting for Alternative A would maintain approximately fifty percent (494,000 acres including Beaver Creek) of the NRA as Primitive. Under the old definition of Primitive, this area is available for non-motorized opportunities and snowmobiles, 1,500 pounds GVWR and less, in most of the area. The old Primitive class is approximately equivalent to the new Semi-Primitive and Backcountry classes (Table 2.5, "Recreation Setting Character Matrix for the Eastern Interior Planning Area") Approximately forty-eight percent of the NRA (482,000 acres Semi-Primitive Motorized) is classified as "limited" for motorized opportunities (1,500 pounds GVWR and less) and also allows a wide variety of recreation uses and activities including non-motorized activities. Since travel management decisions are applied to the same management units as the recreation setting character, impacts from recreation are expected to be minimal.

Effects from Travel Management

The current OHV designation for the White Mountains Subunit is Limited except for RNAs, which are Closed to OHV use (Map 48). Some trails are managed as non-motorized recreation trails and are closed to motorized use. This benefits non-motorized trail users by providing a place where only non-motorized use is allowed and not shared, but also limits motorized users' opportunities to travel in the same areas. Cross-country use of OHVs 1,500 pounds GVWR and less are allowed in the Semi-Primitive management zone. Cross-country use of snowmobiles is allowed except in closed areas. The use of GVWR for applying weight limitations has been confusing to the public and difficult to enforce as many manufacturers of OHVs do not necessarily provide this information or is not readily available.

Airboats and Hovercraft remain prohibited on Beaver Creek NWR which maintains the primitive characteristics of the nationally designated "wild" river and reduces impacts to float boaters.

Effects from Special Designations

Special designations may result in limitations on travel. The RNAs are closed to motorized use. Trails could be constructed outside of the RNA boundary to improve access. Hiking and hunting would be allowed. Impacts to motorized travel would be minimal since most of the RNAs are relatively inaccessible to this use, except in the winter. The RNAs cover approximately 1.2 percent of the planning area. There would be no impacts to non-motorized travel.

4.7.2.3.3. Alternative B

Effects from Wildlife

Same as Alternative A, but impacts to Travel Management would be greater because summer use of OHVs would be restricted to designated trails and therefore provide less opportunity for motorized use. Winter use of snowmobiles could be impacted by seasonal closures within winter caribou range. Snowmobile use numbers in the winter habitat area are generally very low, so impacts are expected to be low.

Effects from Forest and Woodland Products

Personal use of timber (e.g., house logs, firewood) and commercial harvest of forest and timber products would not be authorized within the White Mountains SRMA (1,016,000 acres). There would be no impact to travel management under Alternative B.

Effects from Lands and Realty

Effects would be the same as Alternative A with the addition of, the BLM would pursue a ROW for the Colorado Creek Trail as it crosses state lands. If the ROW is not granted, access to the Colorado Creek Trail as well as maintenance of the trail would be difficult. Additionally, under Alternative B, the White Mountains ACEC and RNAs would be designated as a ROW avoidance area and only one of the transportation corridors (Nome Creek) would be retained. Effects to travel management would essentially be the same as Alternative A because so few ROW are likely, these additional decisions would have little effect.

Effects from Recreation

The RSC setting provides a framework for identifying the types of recreation activities that the public might desire, which is directly related to transportation and travel management opportunities in those areas. The RSC setting for Alternative B would maintain approximately three percent (26,000 acres) of the subunit as Primitive (closed to motorized use year round). Approximately sixty-one percent of the subunit (483,000 acres Semi-Primitive, including Beaver Creek and 140,000 Backcountry) would be limited to winter use of snowmobiles (1,000 pounds curb weight and less). Approximately thirty-six percent (329,000 acres Middlecountry, and

39,000 acres Frontcountry) would limit summer OHV use to designated trails. Since Recreation Management Zones (RMZs) and Travel Management Zones (TMZs) are delineated with the same boundaries under each alternative and were designed to complement one another, impacts from recreation are expected to be minimal.

Under Alternative B, the RNAs would be limited to subsistence use of snowmobiles in the winter (October 15 – April 30) with adequate snow cover and by free-use permit only. The free-use permit would be; Free, widely available and easy to get (phone, email, office, mail), available to any federally qualified subsistence user, and does not have any stipulations. The RNA's would be closed to all other motorized use. There would be some conflict associated with this use. Existing snowmobile tracks into the RNA's will entice non-qualified users to travel into the RNA's which would create additional impacts to the resources from trenching through the snow and tearing vegetation from hill climbing and traversing the steep terrain typical of the RNAs in the White Mountains National Recreation Area. Conflicts would occur from disturbing non-motorized users that expect a primitive experience as prescribed for in the recreation management objectives. Conflict would also occur between user groups when one group is allowed access to an area while another group is not allowed access to the same area by the same means.

Effects from Travel Management

Under Alternative B, the OHV designation for the White Mountains Subunit would be Limited except for Primitive areas, which are Closed (Map 53). The RNAs would be closed to all other motorized use. Similar to Alternative A, some trails would be managed as non-motorized recreation trails and be closed to motorized use, including the Summit and Table Top trails. Cross-country use of snowmobiles by the general public would be allowed except in the RNAs where only subsistence use of snowmobiles would be allowed as described above.

OHV weight limitations would change under this alternative from GVWR to curb weight. This change makes it more understandable to the public; the information is more attainable from the manufacturers making it simpler to enforce and is more in line with regulations used by the State of Alaska on lands adjacent to the subunit. Summer use of OHVs in the Middle Country and Front Country TMZs would be changed from 1,500 pounds GVWR to 1,000 pounds curb weight and 50" and less in width. Winter use of snowmobiles would change from 1,500 pounds GVWR to 1,000 pounds curb weight and 50" and less in width.

Under this alternative, travel would be restricted to designated trails, as well as by weight and width of the vehicle (Table 4.21, "White Mountains: Comparison of OHV Designations"). A total of 139 miles of trails would be accessible for ATVs weighing 1,000 pounds curb weight and less (Map 53). Travel management decisions under Alternative B would reduce the amount of area allowable to operate an ATV compared to the other alternatives. The designated trails, however, are the same trails and same mileage that have generally existed in the White Mountains NRA for the past 15 or more years. The main difference is that OHVs would be required to stay on the trail. Proliferation of user made trails should be significantly reduced compared to Alternative A. Additional trails may be designated in the future, increasing available use areas.

Effects from Special Designations

Under Alternative B, 589,000 acres would be designated as the White Mountains ACEC (Map 64) to protect caribou and Dall sheep habitat. Impacts from ACEC management could include limits on seasonal use of trails and construction of additional trails. Effects from RNAs would be the same as Alternative A.

Fossil Creek (23 miles) would be recommended suitable for addition to the NWSR. Should Fossil Creek be designated, impacts to travel management are expected to be minimal since it would be designated as a "scenic" river and currently has trails and two cabins inside the corridor. The BLM could modify existing trails and develop new trails as needed.

4.7.2.3.4. Alternative C

Effects from Wildlife

Same as Alternative B.

Effects from Forest and Woodland Products

Under Alternative C, personal use of timber and commercial timber sales would not be allowed within the Beaver Creek WSR Corridor and the RNAs, but would be considered in other areas. Timber salvage sales would be considered throughout the subunit. If this use occurred, it could either result in trail development and a benefit to motorized uses, or it could result in degradation of existing trails due to heavy use for access to timber sales areas.

Commercial use of forest products would not be authorized within RNAs (12,600 acres), but would be allowed on the remaining lands. Impacts from this activity are expected to be low based on historical demand and usage. All harvest of timber and forest products fall under a discretionary permit and come with stipulations attached to minimize impacts.

Effects from Lands and Realty

Although no transportation corridors would be retained and there would be no ROW avoidance areas under Alternative C, effects would essentially be the same as Alternative B.

Effects from Recreation

Effects would be similar to Alternative B, except the RSC settings would be slightly different. The RSC setting for Alternative C (Map 54) would maintain approximately three percent (26,000 acres) of the subunit as Primitive (closed to motorized use year round). Approximately fifty-five percent (171,000 acres Semi-Primitive, including Beaver Creek and 382,000 Backcountry) would be limited to winter use of snowmobiles (1,000 pounds curb weight and less). Approximately forty-three percent (398,000 acres Middlecountry and 39,000 acres Frontcountry) would limit summer OHV use to designated trails. Compared to Alternative B, more area would be available for motorized uses under Alternative C. Impacts from Recreation would likely be minimal.

Effects from Travel Management

Under Alternative C, the OHV designation for the White Mountains Subunit would be Limited except for Primitive areas, which are Closed (Map 54). The RNAs would remain closed to casual use of snowmobiles, but limited to winter access for subsistence users, as in Alternative B. Similar to Alternative A, some trails would be managed as non-motorized recreation trails and generally be closed to motorized use, including the Summit and Table Top trails. Cross-country use of snowmobiles would be allowed except in Closed areas. Similar to Alternative B, travel would be restricted to designated trails, as well as weight and width of the vehicle under this alternative. A total of 139 miles of trails would be accessible for ATVs weighing 1,000 pounds curb weight and less.

Alternative C differs from Alternative B in that 27 miles of trails would be accessible for UTVs (Map 54) and OHVs weighing 1,000 pounds curb weight and less would be allowed to travel off trail to retrieve legally harvested game (see definition in Glossary). This alternative allows greater use of ATVs compared to Alternative B and allows the use of UTVs on some developed trails. Proliferation of user made trails should be significantly reduced compared to Alternative A, because ATVs are restricted to designated trails except for game retrieval; trail proliferation could be higher than under Alternative B because of the allowance for game retrieval. Off trail use would be minimal and dispersed resulting in fewer effects.

Effects from Special Designations

Management of RNAs would be the same as Alternative B, except that primitive camping and development of primitive hiking trails would be allowed. This alternative could benefit travel management because trails could be established to provide for easier travel through the RNA and users would be able to camp inside the RNA rather than having to travel greater distances outside the RNA to camp.

4.7.2.3.5. Alternative D

Effects from Wildlife

Same as Alternative A.

Effects from Forest and Woodland Products

Effects would be similar to Alternative C, although more area would be open to both personal and commercial uses of timber and forest products. These activities are discretionary and must be compatible with management of the NRA and other resources. Impacts would be minimized through the permitting process or the activity would be denied.

Effects from Lands and Realty

Same as Alternative C, except the Perhaps Creek recreation withdrawal would be available for conveyance to the State of Alaska. This parcel is surrounded by state land and conveyance would have minimal effects.

Effects from Recreation

Effects would be similar to Alternatives B and C, except the RSC settings would be slightly different. The RSC setting for the Alternative D would maintain less than one percent (12,600 acres) of the subunit as Primitive (closed to motorized use year round). Approximately fifty-one percent (69,000 acres Semi-Primitive, Beaver Creek, and 445,000 Backcountry) would be limited to winter use of snowmobiles (1,000 pounds curb weight and less). Approximately forty-eight percent (452,000 acres Middlecountry and 39,000 acres Frontcountry) would limit summer OHV use to designated trails. Alternative D would provide the greatest level of opportunity for motorized uses.UTVs would be allowed on 112 miles of designated trails. There is expected to be some conflict with other users. The trails were not designed for UTVs. The wider width of the UTV will force others off of the trails in order to pass. Impacts from recreation, however, would still be expected to be minimal.

Effects from Travel Management

Under Alternative D, the OHV designation for the White Mountains Subunit would be Limited. The RNAs (12,600 acres) would be managed the same as in Alternative B and C. There would not be a White Mountain Spine designated under Alternative D. Similar to Alternative A, some trails would be managed as non-motorized recreation trails and generally be closed to motorized use, including the Summit and Table Top trails. Cross-country snowmobile use would be allowed except in Closed areas.

Travel would be restricted to weight and width of the vehicle. Cross-country travel, using ATVs, 1,000 pounds curb weight and less, would be allowed. Substantially more miles of trail, 112 miles, would be accessible for UTVs (Map 55) Under Alternative D, Travel Management decisions would greatly increase the amount of area where OHVs can travel and expand the type of vehicles allowed compared to Alternatives B and C. This would create a greater impact on non-motorized travelers. None of the trails in the White Mountains National Recreation Area were designed for UTVs. Their use on 112 miles of trails will result in impacts to soils, and vegetation because the wider UTV will have to travel off trail to pass other trail users.

The RNAs would be limited to subsistence use of snowmobiles. The management and impacts would be described the same as in Alternatives B and C.

Effects from Leasing of Locatable Minerals

Impacts from leasing of locatable minerals could occur on 160,000 acres in Middle Country and Front Country RMZs. Access routes to leases could benefit other users if trails were constructed in the proper locations and use sustainable trail construction techniques. Cross-country travel is allowed under alternative D, however, the addition of more concentrated routes with multiple

passes over the same area would compact the soil and vegetation and create a permanent scar on the landscape. The access needs and infrastructure associated with mining activity will increase the proliferation of user-created trail networks in a heavily used area. User-created trails by four-wheelers are not typically sustainable because they tend to go straight up and straight down hills, which creates a path for water to accelerate and intensify erosion. User-made trails deteriorate over time. Mining activity is expected to occur adjacent to Backcountry and Semi-Primitive recreation management zones which are closed to the summer use of OHVs (May 1 through October 30). Mining access routes could attract more ATV users into these border areas where there is currently little to no motorized activity. Direct and cumulative effects of this action on travel and recreation are discussed in Appendix M.3.2.9.

Effects from Special Designations

Effects from RNAs would be the same as Alternative C.

4.7.2.3.6. Alternative E (Proposed RMP)

Effects from Wildlife

Same as Alternative B.

Effects from Forest and Woodland Products

Effects would be similar to Alternative C, although more area would be open to both personal and commercial uses of timber and forest products. These activities are discretionary and must be compatible with management of the NRA and other resources. Impacts would be minimized through the permitting process or the activity would be denied.

Effects from Lands and Realty

Same as Alternative C, except the Perhaps Creek recreation withdrawal would be available for conveyance to the State of Alaska. This parcel is surrounded by state land and conveyance would have minimal effects.

Effects from Recreation

Under Alternative E the delineations of Recreation Management Zones would be the same as described in Alternative C with a few use exceptions. The entire SRMA (1,016,000 acres) would be open to the use of snowmobiles with adequate snow cover, including within the RNAs. Another difference would be the allowance of the larger UTVs on approximately 27 miles of designated trails. UTVs would not be allowed off trail. The acreages would remain the same in each RMZ as in Alternative C. Use levels would be similar to Alternatives A and D except that opening of previously closed areas will attract some increased use in those areas as well as increased use overall.

RMZs were developed as part of the planning process for the White Mountains SRMA. By allowing use of snowmobiles in the RNAs (October 15 to April 30), the prescriptions for resource uses, activities, experiences and benefits would be lost. The primitive RMZs are designed to be managed for non-motorized use. These zones are managed for experiencing solitude, escaping crowds, having a greater connection with nature, a heightened awareness of the natural world, and enjoying scenery and the natural landscape. Opening the primitive areas to motorized use would be contradictory to the prescriptions BLM is managing for. There would be conflicts that occur

between non-motorized users and snowmobiles being operated where this use did not traditionally occur. The aforementioned areas have been officially closed to such use since 1986.

There is likely to be some user conflict between the ATV and UTV users. None of the trails in the White Mountains were developed with UTVs in mind. As the different use types encounter one another along the trail it will be difficult to pass. The majority of trails in the White Mountains SRMA are approximately 8' (96") wide, the UTVs that would be allowed under this alternative are well over half the width of the trail at 64" wide. Trails where UTVs will be allowed under Alternative E will have to be widened over the next 5 years and/or larger pull-offs and turn-arounds will have to be constructed as well as increased signing and public user education.

Effects from Travel Management

Under Alternative E, 100 percent of the White Mountains Subunit would be designated as Limited for OHV use. Winter motorized use of snowmobiles would be allowed on 100 percent of the subunit. The RNAs, closed in all other alternatives, would be opened to the use of snowmachines in winter (October 15 to May 1) with adequate snow cover.

Travel would be restricted to weight and width of the vehicle. Cross-country travel, using ATVs, 1,000 pounds curb weight and less, would be allowed. Approximately 27 miles of trail would be accessible for UTVs. Under Alternative E, Travel Management decisions would greatly increase the amount of area where OHVs can travel and expand the type of vehicles allowed compared to Alternatives B and C. This would create a greater impact on non-motorized travelers.

The prohibition for the use of airboats and hovercraft on Beaver Creek WSR would be lifted under Alternative E. There will be some conflicts associated with the use of these types of watercraft as Beaver Creek is a designated Wild and Scenic River. The river is noted for its primitive character and is mostly a one way, float boat river. It narrows in places to less than 12 feet in width, narrower in some areas due to overhanging sweepers, and can be extremely shallow. Often float boats will have to drag across shallow riffles. There are a few inboard and outboard motorboats that operate on the river, mainly from private inholdings along the river. They are generally on the river during the moose hunting season and only travel a few miles up and downstream of their inholding due to shallow water. Hovercraft and airboats can go over the shallowest of water, over gravel bars and up on the banks off the river. Airboats and hovercraft are more amphibious in nature than an outboard motorboat. There would be some safety concerns for float boaters that are travelling one way, as it will be difficult for them to get out of the way of motorized traffic. Airboats and hovercraft have to travel with some speed to be maneuverable which can be dangerous to float boaters. Once the airboat falls off step, it would be difficult to get back on step in shallow water. Every marsh and swamp adjacent to the river could have airboat and hovercraft traffic, especially during moose hunting season. The marshes would be targeted for access by these watercraft; trees would be cut to make trails to access the marshes, and vegetation would be compacted and torn. There are few limitations to where airboats and hovercraft can travel as long as the terrain is not too steep.

There is a 15 horse power limit for launching boats in the Nome Creek valley, so airboats and hovercraft will have to come up from the Yukon River, almost 200 miles to reach the designated portion of Beaver Creek WSR. It is unlikely that many would attempt to travel this distance. It is more likely that individuals with private inholdings along the river would attempt to get airboats or hovercraft to their property to expand their range along the river corridor. The decision to allow additional types of motorized watercraft on the river would likely result in attempts to

travel the shallow narrow channels, and as a result, more boats getting stuck, broken down, and abandoned on the river.

Noise from airboat and hovercraft use is in the range of 90 to 108dbA, similar to chainsaws at 110 dbA, and rock concerts 110 to 120 dbA. Noise levels of these types of craft will have a negative effect on recreational float boaters. although noise levels would appear to be temporary in nature as the vehicle passes by, in actuality a floater or anyone up on the hillside above the river will hear these watercraft from great distances due to the structure of the river valley.

It is likely that impacts resulting from the use of airboats and hovercraft could result in some changes to travel management in the area and additional restrictions such as size of watercraft, horsepower limitations, and noise restrictions.

The potential exists for summer use of OHVs within the Backcountry and Semi-Primitive RMZs, however, these decisions will be deferred to the travel management plan. The impacts of allowing this use will be analyzed in the NEPA document associated with the travel management plan.

Approximately 417,000 acres would be delineated as crucial caribou and Dall sheep habitat and management prescriptions include limitations to OHV use. Because these habitats overlap the management of the Middlecountry RMZ between Roy and Ophir creeks, interim rules would apply to this area until the travel management plan is completed.

Effects from Special Designations

Special designations may result in limitations on travel. The RNAs (1.2 percent of the subunit) would be closed to motorized use in the summer, but open to winter use of snowmobiles. Trails could be constructed outside of the RNA boundary to improve access. Hiking and hunting would be allowed. Impacts to motorized travel would be minimal since most of the RNAs are relatively inaccessible to this use, except in the winter. There would be minimal positive effects to motorized recreationists as there would be some additional acreage open to winter use of snowmobile use.

4.7.2.3.7. Cumulative Impacts

A large number of the trails that exist in the White Mountains NRA and are used in the summer by OHVs were built by prospectors to access or scout claims, by hunters using large tracked vehicles, or by seismic exploration activities; while other trails were constructed for trapping, or access from one village to another. Historically, trails were constructed via the path of least resistance for the vehicles or type of use at the time. These trails were not constructed on the best terrain with the best soils, and may not be sustainable. This will continue to effect travel and transportation management for years to come.

Use of the area has increased substantially since the White Mountains NRA was designated in 1980. Technology has advanced and more people own OHVs than ever before. Recreation use levels are expected to increase due to a ten to fifteen percent increase in population over the life of the plan. Surface-disturbing activities may contribute to route restrictions and alterations as some areas and existing routes and trails become more heavily traveled. New routes could increase access to remote areas that were previously inaccessible by motorized vehicles.

Increasing population would continue to put pressure on the BLM to adequately manage travel and transportation on public lands. Public use of existing routes and trails would continue to increase as population increases. Alaska Department of Natural Resources indicated over 13,800

ATVs registered in Interior Alaska in 2008, which is about twenty-five percent of all ATVs registered in Alaska. These numbers indicate a need for continuing effective transportation and travel management planning throughout the White Mountains NRA and in surrounding areas.

The adjoining lands to the south and west of the White Mountains NRA are managed by the State of Alaska. OHV rules on state lands are different than OHV rules on BLM lands. The State of Alaska Generally Allowed Uses restrict OHVs to 1,500 pounds curb weight and allow cross-country travel in most areas. This may lead to some confusion to the public. The public may not know that they have entered the NRA and that use restrictions are different, as in Alternatives B and C where OHV use is restricted to designated trails. A proliferation of user-made trails could occur along the management boundaries.

4.7.3. Special Designations

4.7.3.1. Wild and Scenic Rivers White Mountains Subunit

Summary of Effects

Under all alternatives the Beaver Creek WSR will continue to be managed to protect the free-flowing characteristics of the river, water quality and Outstandingly Remarkable Values. Outstandingly remarkable values for Beaver Creek are scenic, recreation, geologic, and fish and wildlife populations and habitat.

Management actions that protect the naturalness of the landscape such as wilderness characteristics, protection of fish and wildlife habitats, protection of vegetation, and recreation management that manages for more primitive experiences will help protect many of the Outstandingly Remarkable Values of river systems.

Alternative B is the only alternative where river segments are recommended for inclusion to the National Wild and Scenic River System (NWSR). Fossil Creek is recommended as “scenic” with outstandingly remarkable scenic and geologic values.

4.7.3.1.1. Alternative A (No Action)

Under Alternative A no additional river segments are recommended suitable for inclusion to the NWSR. The BLM would not recommend that Congress designate any river segments. Beaver Creek would continue to be managed to protect water quality, free-flowing characteristics and important river values.

4.7.3.1.2. Alternative B

In general, Alternative B anticipates the lowest level of resource development and is the only alternative where river segments are determined to be suitable for inclusion to the NWSR. The BLM would recommend that Congress designate one segment. This recommendation would influence the Congressional decision and increase the likelihood of permanent legislative protection. Decisions are evaluated for effect on identified Outstandingly Remarkable Values, free-flowing character and water quality.

Through the Wild and Scenic Rivers Inventory (Appendix E, *Wild and Scenic Rivers Inventory*) the BLM has determined which rivers and streams are suitable for inclusion in the NWSR. In the White Mountains Subunit, Fossil Creek was determined to be suitable for designation as "scenic," with outstandingly remarkable scenic and geologic values. Any segment determined to be suitable must be managed for the protection of its Outstandingly Remarkable Values and free-flowing nature until such time as Congress acts upon the determination finding and either designates the river segment or removes it from consideration. If the segment is removed from consideration by Congress, the BLM would manage the segment according to the management provisions of the RMP. The determination of suitable is a policy determination.

Effects from Air and Atmospheric Values

Protection and enhancement air resources that would continue to promote visually clear skies and maintain good visibility would protect outstandingly remarkable scenic values.

Effects from Cave and Karst Resources

The protection of cave resources located adjacent to or within the river corridor would protect outstandingly remarkable scenic and geologic values.

Effects from Cultural and Paleontological Resources

Surface-disturbing activities (e.g., site excavation) have the potential to directly and indirectly impact water quality and indirectly impact outstandingly remarkable scenic values.

Effects from Soil, Vegetation, and Water Resources

Management of soil resources, vegetative communities, and watersheds for a properly functioning condition within riparian zones, uplands, wetlands and aquatic areas would directly and indirectly enhance water quality and outstandingly remarkable scenic values.

Effects from Visual Resources

Scenic river segments would be managed as a VRM Class II with the objective to retain the existing character of the landscape. Management activities may be seen but should not attract the attention of a casual observer. Changes may occur but should repeat the basic elements of the surrounding landscape. This would help protect outstandingly remarkable scenic values.

Effects from Wilderness Characteristics

The maintenance of wilderness characteristics would directly protect outstandingly remarkable scenic values, the free-flowing characteristics, and water quality.

Effects from Wildlife

Management of a naturally functioning ecosystem would directly and indirectly protect outstandingly remarkable scenic values and enhance water quality.

Effects from Lands and Realty

Land use authorizations, such as leases and rights-of-way, could indirectly and directly impact outstandingly remarkable scenic and geologic values, directly impact free-flowing characteristics, and indirectly impact water quality if authorized across or along the river segment.

Effects from Recreation

Fossil Creek is located within the Backcountry Cache Mountain RMZ. Some facilities may occur within this RMZ and many visitors may come in groups that average up to seven people. These groups may visit the segment and may impact outstandingly remarkable scenic values through the development of social routes. Facilities may directly impact scenic quality and indirectly impact water quality, however they would be designed to blend with the surrounding landscape characteristics and to not adversely affect water quality.

Effects from Travel Management

Unrestricted non-motorized travel could directly impact outstandingly remarkable scenic values and water quality with the development of social travel routes. Unrestricted aircraft landings could indirectly impact water quality.

Restricted winter motorized overland travel by OHVs weighing 1,000 pounds curb weight and less could indirectly impact water quality by allowing motorized access to remote areas. Winter OHV use may directly impact outstandingly remarkable scenic values with the development of winter travel routes. Restricted motorized travel could directly and indirectly impact water quality by allowing motorized access to remote areas. Motorized use may directly impact outstandingly remarkable scenic values and indirectly impact outstandingly remarkable geologic values with the development of travel routes.

Effects from Special Designations

Fossil Creek, totaling 23 miles and 5,800 acres, would be recommended for designation to the NWSR. The designation of this river by Congress would provide for greater protection of overall river values and of outstanding remarkable river values specifically. The amount of protection is dependent on the classification of the river segment. Management of suitable rivers would be coordinated with the State of Alaska.

Designation and management of 589,000 acres as the White Mountains ACEC would also protect outstandingly remarkable scenic and geologic values in Fossil Creek and directly enhance water quality due to limitations and restrictions to development.

The management of Limestone Jags RNA would also protect outstandingly remarkable scenic and geologic values because of its designation as a right-of-way avoidance area and closure to off-road vehicles and camping. These management actions would also directly and indirectly enhance water quality.

Effects from Hazardous Materials

Environmental remediation activities such as the removal of surface or buried wastes from abandoned sites and removal of contaminated soils could enhance directly and indirectly water quality and outstandingly remarkable scenic values depending on the location of these activities.

4.7.3.1.3. Alternative C

Under Alternative C, no additional river segments are identified as suitable for inclusion in the NWSR. The BLM would not recommend that Congress designated any additional river segments.

4.7.3.1.4. Alternative D

Same as Alternative C.

4.7.3.1.5. Alternative E (Proposed RMP)

Same as Alternative C.

4.7.3.1.6. Cumulative Impacts

Past, present and reasonably foreseeable actions that are relevant to Wild and Scenic Rivers management include increases in motorized use on both water and adjacent lands, utility and transportation rights-of-way, recreation use, travel management, and use restriction to protect wildlife, fisheries and vegetative resources.

Cumulative effects will accrue from BLM management decisions in addition to activities on surrounding lands during and beyond the life of the plan. Much of the land surrounding the White Mountains is either state lands or other federal. State lands are generally subject to resource development activities which may have a direct impact on water quality and other river related values. Development of lands along waterways could have an indirect impact on other rivers by increasing the importance of river related values of free-flowing, water quality, scenic, recreation, geologic, fish and wildlife habitats and populations, cultural and historic on those other rivers.

Delineation and management of crucial caribou and Dall sheep habitat and maintenance of wilderness characteristics, as well as measures to protect other resource values on adjacent federal lands, would help protect lands within the region. Proposed and current management in these areas would limit development and help maintain a more natural ecosystem with benefits to water quality and other river related values.

Protection of river related values including outstandingly remarkable scenic, geologic and wildlife population and habitat values along the Beaver Creek WSR would continue. No rivers on other agency lands have been identified as having values of eligibility in the subunit. Protection of river related values along the proposed addition of Fossil Creek with outstandingly remarkable scenic and geologic values would continue if designated by Congress. The BLM could implement other means to protect river values if these segments are not included in the system.

4.7.3.2. Research Natural Areas White Mountains Subunit

4.7.3.2.1. Alternative A (No Action)

Under this alternative, scenic values would be maintained in Research Natural Areas (RNAs) with the assignment of Visual Resource Management Class II, by maintaining the closure for OHV use, camping, and mineral entry and mineral leasing. The assignment of a Primitive Recreational Opportunity Spectrum Class will also help maintain scenic values by setting management objectives that protect the natural setting characteristics. Scenic values could be impacted by the development of hiking trails within the RNAs.

4.7.3.2.2. Alternative B

Under Alternative B, scenic values would be impacted the same as Alternative A.

4.7.3.2.3. Alternative C

Under Alternative C, scenic values would be maintained in RNAs with the assignment of Visual Resource Management Class II, by maintaining the closure for OHV use, and mineral entry and mineral leasing. The assignment of a Primitive Recreational Opportunity Spectrum Class will also help maintain scenic values by setting management objectives that protect the natural setting characteristics. Scenic values could be impacted by allowing camping and with the development of hiking trails and user-created travel routes from camping locations within the RNAs.

4.7.3.2.4. Alternative D

Under Alternative D, scenic values would be impacted the same as Alternative C.

4.7.3.2.5. Alternative E (Proposed RMP)

Under Alternative E, scenic values would be maintained in RNAs with the assignment of Visual Resource Management Class II, by maintaining the closure for OHV use, and mineral entry and mineral leasing. The assignment of a Primitive Recreational Opportunity Spectrum Class will also help maintain scenic values by setting management objectives that protect the natural setting characteristics. Scenic values could be impacted by allowing camping and with the development of hiking trails, user-created travel routes from camping locations within the RNAs and by allowing cross-country winter OHV use.

4.7.4. Social and Economic

4.7.4.1. Economics White Mountains Subunit

Summary of Effects

An economic effect in the White Mountains Subunit continues to result from recreation oriented activities as a result of population growth in the region. Economic effects due to mining on Non-federal land and existing claims would also continue to be important to the region. Mineral leasing is allowed under Alternative D, and to very limited extent in Alternative E, and may have an economic effect.

4.7.4.1.1. Effects Common to All Alternatives

There are no effects common to all alternatives in the White Mountains subunit other than those discussed as common to all subunits in section 4.3.3.1.

4.7.4.1.2. Alternative A (No Action)

Effects would be limited to increase in currently allowed economic activities resulting from population growth.

Existing mining and new prospects non-federal land, particularly near Livengood would result in economic benefits to the Fairbanks North Star Borough. However, these would not be a result of BLM decisions in this RMP.

4.7.4.1.3. Alternative B

Economic effects would be limited to effects of population growth on recreation use. There would be no economic effect from leasable or locatable mineral as the subunit is closed to mining activity under this alternative.

4.7.4.1.4. Alternative C

Same as Alternative B.

4.7.4.1.5. Alternative D

Effects from Recreation and Locatable Minerals

An economic effect in the White Mountains Subunit continues to result from recreation oriented activities as a result of population growth in the region. Economic effects due to mining on non-federal land and on existing federal claims outside of the White Mountains NRA, but within the subunit, would also continue to be important to the region. There are federal, state, and patented mining claims in the Livengood area with ongoing mineral exploration. Exploration and leasing for placer gold and rare earth mineral exploration would result in positive economic effects from this subunit under Alternative D.

The following discussion is based on gold mining activities likely to occur on land leased for placer or suction dredge mining (Stebbins 2009). Section 4.4.4.1.2 Fortymile Subunit, Effects from Locatable Minerals of the Draft RMP/EIS (BLM 2012a) outlines the Stebbins models for small-and large-scale placer mines, life of mines, and a background discussion of the types of economic impacts and is incorporated by reference.

Economists consider three categories of employment and income in considering the effect of an activity such as mining. These three categories are: direct employment and income, including only employees of mining companies; Indirect employment and income such as employees of businesses providing goods and services to mining companies: and, induced employment and income occurring when jobs are created as a result of spending of direct and indirect income attributable to mining activity. All employment and income shown in this analysis is estimated using input and assumptions from BLM reports (Stebbins 2009, BLM 2009) and McDowell reports (2006 and 2009).

Opening the identified lands in the White Mountains NRA to hardrock mineral leasing under Alternative D is predicted to result in large and small-scale placer mining operations. Small-scale placer mining uses a bulldozer, and excavator and a mobile wash plant to excavate and process gold-bearing gravel. In this model, a two-man crew works 12 hours per day, seven days per week, during a 130-day season. The camp includes one support person and a cook; a total of four workers. Eleven small-scale placer mines are forecast to operate with employment of about four workers each.

Large-scale placer operations utilize excavation equipment larger than the small-scale model. In this model, 2 two-man crews moving material each work a 10-hour shift, seven days per week, during a 130-day season. Five additional employees, including a supervisor, skilled workers, and laborers; a total of nine workers are included in the model. Assuming two large-scale placer mines, the resulting employment is about eighteen workers.

Suction dredging would occur on about 11 new leases. These would employ approximately two workers per operation, for all phases.

In addition, the BLM development scenario indicates approximately four licensed placer exploration efforts. These are included in direct income calculations shown in Table 4.12, "Employment and Income Under Action Alternatives".

The total mining employment on BLM-managed lands would be estimated at 84 part-year workers. Data prepared by the State of Alaska uses full-time equivalents. The full-time equivalent in the White Mountain Subunit would be approximately 33 workers, based on the Stebbins (2009) models. Total employment by the Alaska minerals industry in 2012 was 4,366 full-time equivalent jobs (Athey 2013). The statistics indicate less than one percent of the industry employment on BLM-managed lands would occur at White Mountain operations. The DGGS reported the average monthly wage for mining in Alaska during 2010 at $8,345. White Mountains gold mining operations account for approximately $3 million in wages, annualized. Indirect income is estimated at approximately $2.7 million. Jobs data indicates maximum level of effect predicted to occur during the life of the plan. Development scenarios used as the basis for analysis do not contain time lines for development. Mineral exploration licenses or leases may not be issued for years after the plan is completed.

The BLM plans to open 11,000 acres of known deposits at the headwaters of Roy Creek to mineral leasing and predicts that it will eventually issue competitive leases for deposits of certain rare earth elements under 43 CFR part 3500 on these lands. The lease is offered competitively and a royalty may result. The BLM will charge fair and reasonable rental, determined at the time of licensing or leasing. These rentals are exclusive of royalties.

Exploration activities could include mapping and drilling or trenching in the lease area over a five year period. Income effects would depend upon the size of the initial operation, which may begin with as few as three personnel plus a helicopter crew, all based off site. It is fair to assume the minimum cost of exploration over a 120 day period would average approximately $2,000 to $2,500 per day. This is $240,000 to $300,000 per season in overall cost. The cost is essentially field personnel, helicopter contract, and fuel. Part of this cost would be attributed to the Fairbanks economy. Beyond the initial exploration, expansion of activities may occur, including further drilling and delineation, and eventual mining operation. Additional NEPA analysis will be necessary on a case-by-case basis for the BLM decision to lease for production.

There are no special recreation permits in the area of likely mineral development. No impacts to commercial recreation permits are anticipated (section 3.2.9). The likely economic effect in an area of little or no commercial recreational activity is zero.

Section 3.2.10 Subsistence reports: "Contemporary harvest data indicate little current use of White Mountains caribou and Dall sheep by rural subsistence hunters however use of these populations could increase in importance over the life of the plan and should not be discounted (Subsistence Resources, White Mountains Subunit, Draft RMP/EIS)." Given that there is little or no documented subsistence use in the White Mountains NRA, an economic effect is unlikely.

4.7.4.1.6. Alternative E (Proposed RMP)

Effects from Recreation and Locatable Minerals

An economic effect in the White Mountains Subunit continues to result from recreation oriented activities as a result of population growth in the region. Economic effects due to mining on non-federal land and on existing federal claims outside of the White Mountains NRA, but within the subunit, would also continue to be important to the region. There are federal, state, and patented mining claims in the Livengood area with ongoing mineral exploration.

New mining of locatable minerals is not allowed under this alternative.

A small economic effect may accrue to leasing of 4,000 acres for fluid leasable minerals and for solid leasable minerals in this subunit under this alternative.

4.7.4.2. Environmental Justice White Mountains Subunit

Summary of Effects

Communities most likely to be effected by any increased activity in the White Mountain Subunit generally do not qualify as environmental justice populations. Minority or low income populations near the subunit may benefit from employment in the recreation industry.

4.7.4.2.1. Effects Common to All Alternatives

Recreation activities would be slightly higher under all alternatives due to population growth in the region. Environmental justice effects to communities in the area may be positive if employment in guiding or associated activities accrues to local populations. Since the majority of the land in this subunit will be closed to leasing and mining no effects are likely to occur under any alternative.

4.7.4.2.2. Alternative A (No Action)

No environmental justice effects.

4.7.4.2.3. Alternative B

No environmental justice effects.

4.7.4.2.4. Alternative C

No environmental justice effects.

4.7.4.2.5. Alternative D

The number of Special Recreation Permits would be slightly higher under Alternative D than in any other alternative. Environmental justice effects to communities in the area may be positive if employment in guiding or associated activities accrues to local populations.

Communities most likely to be affected by increased activity in the White Mountains Subunit are (Fairbanks and Livengood) do not qualify as environmental justice populations. Minority or

low income populations in the Fairbanks area may benefit from employment in the recreation and mining industries.

Effects from Locatable Minerals

New mining leases and mineral exploration could result in additional employment accruing to local populations. Minority and low income populations would not be disproportionately impacted.

Possible negative impacts to environmental justice populations and the entire population of the area include loss of employment in another existing industry due to mining development. However, there are no commercial activities in the area potentially opened to mining under Alternative D providing employment that will be affected. All populations may benefit from expanded recreation industry employment as well as mining employment within the White Mountains Subunit. This includes additional land outside of the White Mountains NRA.

Loss of subsistence resources or opportunity may be considered. However, the extent of subsistence use of the specific areas likely to be affected must be demonstrated before there is an attributable and measurable impact. Current data indicate little subsistence activity in these areas. The Fairbanks North Star Borough is also classified as a non-rural community as such, residents of the borough do not quality to fish or hunt under federal subsistence regulations.

4.7.4.2.6. Alternative E (Proposed RMP)

Mineral exploration on existing mining claims could result in additional employment accruing to local populations. Minority and low income populations would not be disproportionately impacted. Effects from mining under this alternative will be approximately the same as under Alternative B, as acreage near Livengood where the existing ANCSA withdrawal would be lifted is currently under valid mining claims. Exploration on these claims will continue in either case.

Possible negative impacts to environmental justice populations and the entire population of the area include loss of employment in another existing industry due to mining development. All populations may benefit from expanded recreation industry employment as well as mining employment within the White Mountains Subunit. This includes additional land outside of the White Mountains NRA.

Loss of subsistence resources or opportunity may be considered. However, the extent of subsistence use of the specific areas likely to be affected must be demonstrated before there is an attributable and measurable impact. Current data indicate little subsistence activity in these areas. The Fairbanks North Star Borough is also classified as a non-rural community as such, residents of the borough do not quality to fish or hunt under federal subsistence regulations.

4.7.4.3. Social Conditions White Mountains Subunit

Summary of Effects

Most impacts to individuals and groups are minor to moderate in part because other opportunities exist for the activities within the planning area on nearby State of Alaska or a Native corporation lands. While it is possible for impacts of multiple resources to adversely affect individuals and groups in a cascading fashion, nearby communities exhibit sufficient resiliency to adapt to change.

All individual programs would have minimal net positive or negative effect to social conditions and are not analyzed further. For further discussion, see Effects Common To All Alternatives in all Subunits.

4.7.4.4. Subsistence White Mountains Subunit

Summary of Effects

Primary impacts on subsistence resources and uses in the White Mountains Subunit would be from decisions on recreation and travel management. Impacts include user conflicts, displacement of subsistence users, and potential declines in resource availability due to disturbance in critical habitats or during critical times (e.g., calving periods). Alternative D, which would allow the most latitude to OHV use and for mining (leasing of locatables), would have the highest negative impacts on subsistence. Alternative B, which would limits use of OHV the most, would confer the highest levels of protection to subsistence resources and uses. In Alternatives B–D areas where summer use of OHV would not be allowed, such as in Semi-Primitive and Backcountry Recreation Management Zones, federally qualified subsistence users participating in subsistence activities would need a permit for summer OHV use. The permit requirement would be considered a "reasonable regulation" under ANILCA Title VIII Section 811(b).

Alternatives B and E include designation of the White Mountains ACEC to protect caribou calving and post-calving habitat and Dall sheep habitat. The additional protection of these habitats would benefit subsistence resources. Many resource decisions, such as those for soil, water, air, wildlife, Special Status Species, and fish, would benefit subsistence resources (section 4.3.3.4 Impacts Common to All Subunits Subsistence.)

Little or no subsistence fishing occurs on BLM-managed lands in the White Mountains Subunit. In general, land use activities permitted in the area, such as development of transportation corridors and salable mineral deposits, would affect water quality at downstream locations, fish spawning or rearing areas, and indirectly impact subsistence fisheries harvested off BLM-managed lands. Stipulations to mitigate impacts to water quality and fish spawning and rearing areas would be attached to land use permits.

In general, land use activities permitted in the area, such as development of transportation corridors and salable mineral deposits, would affect water quality at downstream locations, fish spawning or rearing areas, and indirectly impact subsistence fisheries harvested off BLM-managed lands. Stipulations to mitigate impacts to water quality and fish spawning and rearing areas would be attached to land use permits.

No rights-of-way applications for roads, other than those from the BLM, have been received and it would be anticipated that none would occur over the life of the plan.

Measures to mitigate the impacts of any form of land use actions on subsistence resource and uses would be attached as stipulations to the authorizing documents. An ANILCA Section 810(a) evaluation and finding would be conducted for each action to assure no significant restrictions to subsistence uses would occur. A finding of "may significant restrict" would result in a public hearing as required in Section 810(a) (1) and (2).

The White Mountains NRA is currently closed to all locatable mineral entry. Several acres of valid existing mining claims would continue to be developed around the Livengood area. No impacts to subsistence fishery resources or uses are expected from the alternatives.

Leasing of locatable minerals under Alternative D was analyzed in a supplement to the DRMP/DEIS and is not included in this section. Appendix M includes a complete copy of the Supplement.

The only community in this subunit is Livengood, which is also the only community within a 50 mile radius of the center of the White Mountains NRA. No data on subsistence land use patterns are available for this area. The communities of Stevens Village, Minto, Beaver, Birch Creek, Central, Circle and Fort Yukon are within a 100-mile radius. Only those villages within or bordering the planning area were included in the affected communities, therefore data for land use patterns for Minto was not included. However, many other rural communities participate in subsistence activities on the BLM-managed lands within the planning area.

Black and brown bear, caribou, moose, sheep, furbearers, ptarmigan, grouse, and small game are recognized as subsistence wildlife resources in the White Mountains subunit. Lifetime use of these resources by federally qualified subsistence users is documented by Sumida (1988, 1989) and in the CATG land use mapping project (preliminary 2015).

No subsistence use of specific resources on BLM-managed lands within the subunit has been documented; however, the Beaver Tribal Council includes the Mount Schwatka area and a portion of the Victoria Creek drainage in the designated subsistence area for Beaver (Sumida 1989). Oral history accounts and archeological findings documented by Caulfield (1983) indicate that bands of the Birch Creek people, Dendu Gwich'in, lived in the foothills of the White Mountains using primarily caribou and sheep. The Birch Creek bands also moved seasonally to Birch Creek, the Yukon River and many lakes and creeks to harvest fish, moose, waterfowl and other resources (Caulfield 1983) (Maps 102 and 103).

Ethnographic reports for residents of the Circle area document no subsistence use of BLM-managed lands within the subunit; however, Circle residents have been documented through harvest ticket and permit returns as hunting in the area. Little or no use of subsistence wildlife resources by other qualified users has been documented in ethnographic studies. However, based on registration permit and harvest ticket reports residents of other communities designated as rural by the Federal Subsistence Board participate in harvest activities in the subunit, including Tok, Circle, Central, Clear, Delta Junction, Fort Yukon, Manley Hot Springs, Anderson, Nenana, Glennallen, Cantwell, Fort Greely, Wrangell, Dillingham, Willow, Kodiak, Petersburg, Haines, Adak, Nome, Gustavus, Barrow, Manley Hot Springs, Tooksook Bay, Ninilchik, and Coldfoot.

Some land use decisions under the alternatives would impact vegetative communities and indirectly impact subsistence fish and wildlife resources harvested off BLM-managed lands. These are discussed by alternative in the following sections. Forest resources used for subsistence purposes on BLM-managed lands may also be impacted; however, little or no subsistence use of wood or forest products occurs on BLM-managed lands in this subunit. Subsistence resource availability and opportunity have declined in many areas across the planning area and subsistence use would be expected to increase in the subunit over the life of the plan.

4.7.4.4.1. Effects Common to Alternatives A–E

Effects from the alternatives in the White Mountains Subunit, based on reasonably foreseeable subsistence activity in the subunit, are common to all alternatives for the resources discussed in this section.

Effects from Fish and Aquatic Species

Alternatives B – E include Nome Creek as a High Priority Restoration Watershed and varying numbers of Riparian Conservation Areas (RCA). Managing areas as Restoration Watersheds and RCAs would protect and restore fish in watersheds and indirectly wildlife habitat in the White Mountains Subunit to the benefit of subsistence resources and uses.

Effects from Forest and Woodland Products

Decisions for the management of forest and woodland products vary widely over the alternatives for the White Mountains Subunit. Ethnographic studies document little subsistence use of these resources on BLM-managed lands in the subunit. Harvest of these resources would typically be closer to communities. Requests for free-use permits for personal use have been rare and no requests for free-use permits for subsistence harvest have been documented over the past 20 years.

Saw timber within the area is not considered marketable due to the remote location of stands of suitable trees. Harvest of timber for biomass projects could become economically viable over the life of the plan and result in applications for commercial timber permits. Impacts to subsistence resources or uses from commercial applications would be analyzed and mitigation measures developed to protect all resources and uses, including subsistence resources and uses.

Effects from Land and Realty Actions

Disposal or acquisition of lands would have minimal beneficial impacts to subsistence resources.

Rights-of-way for transportation, other than those for BLM rights-of-way, are not likely to occur within the White Mountains NRA. BLM proposed rights-of-way would be analyzed at the project level, and measures to mitigate impacts would be attached to authorizing permits.

Effects from Leasable Minerals

The lands managed by BLM in the White Mountains subunit would be closed to all leasable minerals in Alternatives A-C and to all but 4,000 acres in Alternative E. In Alternative D, 44 percent of the 1,020,000 acres of BLM-managed lands would be open to leasable minerals.

Due to lack of high potential oil and gas resources on lands managed by BLM, no activity would be expected over the life of the plan under any of the alternatives. Therefore, no impacts would occur to subsistence uses or resources from oil and gas exploration, drilling, development or related activities in the White Mountains Subunit.

No impacts would occur to subsistence uses or resources from exploration or development of solid leasable minerals or related activities in the White Mountains Subunit. No high potential coal lands occur in the subunit (Map 87).

Effects from Locatable Minerals

The White Mountains NRA is closed to locatable minerals in all alternatives except Alternative D. Impacts to subsistence uses and resources are discussed in the White Mountains supplemental EIS (Appendix M).

Approximately 4,000 acres of valid existing claims occur in the Livengood area and have been actively mined for decades. No new impacts to subsistence uses from decisions to continue mining in the area would be expected.

Effects from Salable Minerals

Some or all BLM lands in the subunit would be open to disposal of salable minerals in all alternatives. Existing material sites are located near highways, roads or other developments and near the end use. Demand for gravel and other salable materials is predicted to yield additional authorizations over the life of the plan. It is anticipated that most demand would be met on state land. Development of future sites would likely be concentrated near projects, highways and roads and be used locally. Even though effects would likely be limited, site-specific measures to protect healthy, functioning watersheds, riparian areas, and associated fish and wildlife habitats, would mitigate impacts on subsistence resources.

Effects from Recreation

Management of recreation areas through recreation setting character (RSC) classes would set the stage for the level of protection or development afforded an area. The size and location of Recreation Management Zones, and therefore RSC settings would change with each alternative and would be reflected in the decisions for travel management and related activities. Impacts to subsistence are discussed under these other resource uses.

Effects from Travel Management

The White Mountains Travel Management Plan decisions, and therefore impacts to subsistence, vary widely across the alternatives. The range of allowed uses includes areas of non-motorized access only, size and weight limits of motorized vehicles, winter cross-country, designated trails, summer cross-country, permits for other uses and combinations of each. Conflicts between user groups, displacement of wildlife, disturbance of wildlife during critical times, and degradation of fish and wildlife habitat are potential impacts from travel management that would affect subsistence resources and use.

For Alternatives B – D, in areas closed to OHV use, federally qualified subsistence users, subject to reasonable regulation and with a free permit, would be able to use snowmobiles or other means of surface transportation while participating in subsistence activities as allowed under ANILCA Section 811 (see section 2.5 ANILCA Access and Use Considerations). The subsistence priority in these areas would be further protected since enforcement would be possible based on possession of a permit. Managers would be able to gain understanding of use and impacts of the use in areas that have been closed to summer OHV for the past three decades from permits issued. Knowledge of use would enhance protection of sensitive subsistence resources and habitats important to those resources.

Obtaining a free use permit for motorized access on BLM-managed lands where access would be limited would not be a significant burden or impact on subsistence users. Assumptions for the analysis of impacts to federally qualified subsistence hunters from the process of getting an access permit are in section 4.2.1.5 of this chapter. The permits would be readily available and free. They would be in addition to the licensing and permitting requirements for all residents who harvest resources in the White Mountains subunit, including hunting, trapping and fishing licenses, registration permits for hunting caribou, and harvest tickets for other hunts or game species. In cases where a federally qualified subsistence user would be a designated hunter for another federally qualified subsistence user, a federal subsistence designated hunter permit would also be required. Licenses, permits and harvest tickets must be carried in the field when harvesting fish and wildlife resources, including the OHV permit.

Travel management decisions for Alternative E are discussed in section 4.7.4.4.2 Alternative E (Proposed RMP).

Effects from Special Designations

Under Alternative B, the White Mountains ACEC would be 589,000 acres and benefit subsistence resources and uses because the designation confers additional protection to Dall sheep habitat and core White Mountains caribou calving and postcalving habitat. The ACEC was developed based on areas known to be valuable to wildlife and the affects would be beneficial to subsistence uses and resources. Although no ACEC is designated in Alternatives C (Map 65) and D (Map 66), similar management would occur on caribou and Dall sheep habitats within Wildlife Conservation Areas to protect these wildlife resources. In Alternative E the area would again be designated as an ACEC and have the same management prescriptions and benefits for subsistence resources and uses as Alternative B, although it would be smaller (417,000 acres).

4.7.4.4.2. Alternative E (Proposed RMP)

Alternative E (Proposed RMP) differs from Alternative C (Draft RMP Preferred Alternative) by the addition of one riparian conservation area, allowing fluid and solid leasable mineral development on 4,000 acres, changing RNAs from closed to motorized vehicles to limited to snowmobile use, lifting prohibition on airboats and hovercraft, and deferral of the Travel Management Plan with adoption of Alternative A (No Action Alternative) as interim management.

Effects from Fish and Aquatic Species

The addition of a riparian conservation area (total 14) would protect and restore fish in watersheds and indirectly wildlife habitat in the White Mountains Subunit to the benefit of subsistence resources and uses. This is the same as Alternative B.

Effects from Leasable Minerals

In Alternative E 4,000 acres would be open to leasable minerals. The lands open are around Livengood. Leasable mineral occurrence and development potential is low in this area. The area has not been identified as critical or important habitat for subsistence resources and no impacts from any mineral development to subsistence resources or uses would be expected.

Effects from Travel Management

In Alternative E travel management would be the same as for Alternative A with the following exceptions. Winter motorized use (snowmobiles) would be allowed in RNAs, UTVs would be allowed on designated trails (section 2.10.2.2.2.6 Travel Management), use of airboats and hovercraft would be allowed on Beaver Creek WSR, a 1,000 pound curb weight and 50 inches width limitation on snowmobiles would replace the 1,500 pound GVWR limitation, and a 1,000 pound curb weight and 50 inches width limitation on ATVs would replace the 1,500 pound GVWR limitation.

In Alternatives A and E 563,000 acres, including Beaver Creek WSR, would be limited to no summer OHV use. Federally qualified rural residents would also observe this limit on summer OHV use. Interim management in Alternative E differs from Alternative C in that RMZs open to summer OHV would not be limited to designated trails. Although limitation of OHV to designated trails would reduce the benefit of cross-country travel for all users, including federally qualified subsistence users, it would protect habitat and resources important to all users.

Impacts from cross-country use by all users would be expected to increase as described in the assumptions for analysis as population trends are projected to increase and OHV technology continues to advance. Rural hunters frequently have testified at the Eastern Interior RAC meetings that the influx of nonlocal hunters and the impact of that hunting pressure force local hunters to move farther away and hunt in new places (EIRAC 2014). Travel management in Alternative E, like Alternative A, would perpetuate the displacement of local hunters, which would result in higher costs to federal subsistence hunters in lost opportunity and in obtaining wild game. Although impacts would occur they would not be expected to significantly restrict subsistence use or resources in the White Mountains National Recreation Area.

Research Natural Areas (RNAs) are established and maintained for the primary purpose of research and education (43 CFR Part 8200). The areas are to be used in a manner that is nondestructive and consistent with the purpose of the RNA. Winter OHV use with adequate snow cover would generally cause limited impact to soils, vegetation and wildlife habitat. Most of the RNAs are highland areas subject to wind that can result in snow free areas. Some of the RNAs, such as Mount Prindle RNA, are habitat for the White Mountains Dall sheep population and caribou. The RNA is within historic Fortymile caribou calving habitat. Use of snowmobiles in RNAs, which have been selected because of outstanding values, could impact habitat and wildlife populations important to subsistence users especially in low or no snow conditions. Although impacts would occur they would not be expected to significantly restrict subsistence use or resources in the White Mountains National Recreation Area.

As with Alternatives B – D, all users, including federally qualified subsistence users, would be limited to 1,000 pound curb weight and under for snowmobiles and summer OHV. The limit would protect habitat of subsistence resources and benefit users.

Little use of airboats and hovercraft would be expected from the lifting of the prohibition in the Beaver Creek NWR. Launching of boats with motors exceeding 15hp would still be prohibited in the Nome Creek Valley, which would require access to be from the Yukon River and the mouth of Beaver Creek (section 4.2.1.3.8 Travel Management).

4.7.4.4.3. Cumulative Effects

Demand for recreational use is anticipated to increase over the life of the plan as populations in the state increase and technological advancements in recreation equipment occur. Demands for resources important for subsistence would be expected to increase as fish and wildlife resources decline in other portions of the planning area or as opportunities to harvest wildlife and fish resources becomes limited by changing access, allocations or means for recreational hunting and fishing. Conflicts between federally qualified subsistence users and other resource users would increase, which would result in displacement of subsistence users to less familiar and more marginal areas. The cumulative case is developed further in the ANILCA Section 810 evaluation and finding (Appendix J).

Chapter 5. Consultation and Coordination

5.1. Introduction

This chapter describes public outreach and participation opportunities throughout the development of the Eastern Interior Proposed Resource Management Plan/Final Environmental Impact Statement (Proposed RMP/Final EIS) and coordination and consultation efforts with tribes, government agencies, and other stakeholders. Appendix L lists both comments and the BLM's response to comments.

BLM land use planning activities are in accordance with NEPA requirements, CEQ regulations, and DOI and BLM policies and procedures implementing NEPA. NEPA and associated laws, regulations, and policies require the BLM to seek public involvement early and throughout the planning process to while developing the range of reasonable alternatives and preparing environmental documents that disclose potential impacts of those proposed alternatives. Public involvement and agency consultation and coordination, have been at the heart of the planning process leading to this Proposed RMP/Final EIS and was achieved through *Federal Register* notices, public comments on the Draft RMP/EIS and Supplement to the Draft RMP/EIS, public and informal meetings, government-to-government consultation, individual contacts, media releases, planning newsletters, and the Eastern Interior RMP Website online at: http://www.blm.gov/ak/eirmp.

5.2. Public Outreach

Active involvement by the public helps the BLM to ensure that alternatives address the diversity of public interests, build trust between the agency and the public, helps people better understand eventual management decisions and establishes a working relationship through the implementation of those management decisions.

5.2.1. Scoping Process

Scoping is an early and open process designed to determine the extent or scope of issues for the BLM to address in the plan. The BLM initiated scoping for the Eastern Interior Draft RMP/EIS by publishing a Notice of Intent in the *Federal Register* on February 29, 2008. This notice announced the BLM's intent to revise the RMPs for the Steese National Conservation Area and White Mountains NRA, to revise the Fortymile MFP, and to develop an RMP for the Black River area.

The BLM used other opportunities to inform the public about the Eastern Interior scoping process, including flyers and newsletters before and during scoping in October 2007 and April 2008. The Fortymile newsletter also distributed information about the planning process.

The BLM provided information about the planning process to attendees at an exhibit booth at the Fairbanks Winter Trade shows in September 2007 and 2008; and at the Fairbanks Outdoor shows in April 2008 and April 2009. The BLM also notified interested parties about the planning process at regularly scheduled meetings for various special interest groups or advisory councils including the BLM Alaska Resource Advisory Council, the Alaska Miners Association, the Eastern Interior Federal Subsistence Regional Advisory Council, the Yukon River Drainage Fisheries Association, the Upper Black River Working Group, and the Council of Athabascan Tribal Governments meetings and gatherings.

In 2006–2008, the BLM conducted visitor use surveys through the University of Alaska Fairbanks in the White Mountains NRA, Steese National Conservation Area, and along the Taylor Highway. Between October 23 and November 4, 2008, the University hosted three focus group meetings to obtain more input. The results of these studies and meetings helped the BLM to develop a range of recreational opportunities in the planning area.

The Eastern Interior Field Office hosted eight public meetings during the scoping period (Table 5.1, "Public Meetings Held During Scoping"). News releases to local and regional media sources advertised the times and locations of these meetings. Agencies and the public were encouraged to submit oral and/or written comments regarding management of public lands in the planning area. Initially, the formal scoping period was to end on July 1, 2008 (approximately 90 days). The field office later extended the scoping period until August 15, 2008, to ensure adequate time for comment submission. The BLM compiled, reviewed, organized, and analyzed all comments the agency received by the September 22 deadline into the Eastern Interior RMP/EIS Scoping Report (BLM 2008b). In January 2009, the scoping report was posted on the project website. In February 2009, the BLM published and distributed its Eastern Interior RMP newsletter to announce the availability of the scoping report.

Table 5.1. Public Meetings Held During Scoping

Meeting Date	Meeting Location	Number in Attendance
April 10, 2008	Campbell Creek Science Center, Anchorage	11
April 16, 2008	Tok School, Tok	11
April 17, 2008	Delta Junction Community Center, Delta Junction	8
April 22, 2008	Fairbanks North Star Borough Assembly Chambers, Fairbanks	49
May 8, 2008	Red Men Hall, Eagle	11
May 20, 2008	Community Hall, Chalkyitsik	7
May 22, 2008	Steese Roadhouse, Central	9
June 24, 2008	Miner's Hall, Chicken	16

5.2.2. Website

The BLM established the Eastern Interior RMP website in March 2008. The purpose of this website is to provide the public with information about the planning process, schedule, public meetings, and planning area; to post maps and planning documents when they become available; and, to provide the public with contact information and ongoing status updates on the planning process. The BLM continuously updates the website with information, documents, and announcements. This website can be accessed online at http://www.blm.gov/ak/eirmp.

5.2.3. Newsletters and Other Mailings

The BLM maintains and continually updates a mailing list of individuals, businesses, interest groups, and federal, state, tribal, and local government representatives interested in the Eastern Interior RMP/EIS. The mailing list grew from approximately 350 names and addresses during scoping, to 550 currently for the Proposed RMP/Final EIS.

To inform the public, the BLM issued newsletters and other mailings. Between 2009–2015, the BLM published and distributed four issues of the Eastern Interior News. These newsletters announced the availability of the scoping report, Draft RMP/EIS, Supplement to the Draft RMP/EIS, and Proposed RMP/Final EIS. The Fortymile News provided early notification of the

upcoming planning process in 2007 and provided an update to the planning process in 2009. Postcard mailings also announced the times and locations of public meetings.

5.2.4. Other Outreach Efforts

The BLM used other available opportunities to inform the public about the Eastern Interior planning process, such as booths at trade shows and the Alaska Federation of Natives Convention. BLM staff regularly attended scheduled meetings to provide RMP updates for various advisory councils, and tribal, industry, or special interest groups to provide updates on the RMP. BLM staff provided planning updates and solicited comments throughout the planning process at biannual meetings of various advisory councils including the BLM Alaska RAC, Eastern Interior Federal Subsistence Regional Advisory Council, and Citizen's Advisory Commission on Federal Areas.

5.3. Consultation and Coordination

Throughout the planning process, the BLM coordinated and collaborated with key federal, state, and local agencies. Members of the planning team also consulted both formally or informally with numerous agencies, groups, and individuals. Consultation, coordination, and public involvement also occurred due to meetings, briefings, and updates on , the Draft RMP/EIS and Supplement to the Draft RMP/EIS and public scoping, with Section 810 subsistence hearings, State of Alaska, USFWS, tribal or local government, interest groups, and through individual contacts.

Cooperating agency status provides a formal framework for governmental agencies to actively collaborate with a federal agency to implement NEPA (42 U.S.C. 4321, et seq.) NEPA requirements. State agencies or local and tribal governments may qualify as cooperating agencies because of "jurisdiction by law or special expertise" (40 CFR 1501.6 and 1508.5). The State of Alaska, the Gwichyaa Zhee Gwich'in Tribal Government, and Chalkyitsik Village Tribal Government are cooperating agencies for the RMP/EIS. The BLM is also working closely with the Yukon Flats National Wildlife Refuge, but the Refuge is not in a formal cooperating agency status for this planning process.

The Proposed RMP/Final EIS is consistent with plans and policies of other relevant jurisdictions to the maximum extent possible and consistent with the purposes, policies, and programs of federal laws and regulations applicable to public lands (such as FLPMA).

5.3.1. Tribes

In recognition of the government-to-government relationship between tribes and the federal government, the BLM contacted the federally recognized tribes listed below in 2008 about the planning process and to initiate government-to-government consultation. The BLM invited tribal representatives to the public scoping meetings held in the planning area during the spring of 2008. Tribes were again contacted to participate near the end of the scoping period.

1. Beaver Village
2. Birch Creek Tribe
3. Chalkyitsik Village
4. Circle Native Community
5. Gwichyaa Zhee Gwich'in Tribe (formerly Native Village of Fort Yukon)
6. Healy Lake Village

7. Native Village of Eagle
8. Native Village of Stevens
9. Native Village of Tanacross
10. Native Village of Tetlin
11. Northway Village
12. Village of Dot Lake

Early in the planning process when initiating government-to-government consultation, the BLM initially invited all federally recognized tribes in the planning area to become cooperating agencies. Out of those tribes, only the Gwichyaa Zhee Gwich'in and Chalkyitsik Village tribal governments followed up and developed memoranda of understanding with the BLM.

During scoping, the BLM also sent letters requesting input on issues and concerns to Doyon, Limited, the Tanana Chiefs Conference, and Alaska Native corporations. On May 14, 2008, the BLM briefed the Council of Athabascan Tribal Governments on the Draft RMP/EIS at their Fort Yukon meeting. The BLM invited tribal leaders attending this meeting to participate in the planning process through government-to-government consultation. The BLM also offered to hold scoping meetings in any villages upon request by the tribes.

The BLM held a listening session during the Alaska Federation of Natives meeting in Anchorage on October 22, 2008. The Fairbanks District Manager spoke with the various tribal chairs about the Eastern Interior RMP/EIS and cooperating agency options.

In February 2012, the BLM again contacted and provided copies to tribes, native organizations, and native corporations when the agency released the Draft RMP/EIS for public comment. The BLM held public meetings on the Draft RMP/EIS in Birch Creek, Circle, Central, Chalkyitsik, Chicken, Eagle, Fort Yukon, Fairbanks, and Anchorage in April and May 2012. Section 810 subsistence hearings were held in conjunction with these public meetings in Birch Creek, Circle, Chalkyitsik, Eagle, and Fort Yukon.

When the BLM released a Supplement to the Draft RMP/EIS in January 2013, the tribes, native organizations, and native corporations were once again contacted and provided a copy of the Supplement. In March 2013, the BLM held public meetings to take comments on both the Supplement and the Draft RMP/EIS in Anchorage, Chalkyitsik, Eagle, Fairbanks, and Fort Yukon, again with Section 810 subsistence hearings held in conjunction with these public meetings in all communities except Anchorage.

Consultation with Chalkyitsik Village

On May 20, 2008, the BLM held a scoping meeting in the village of Chalkyitsik at the request of the Chalkyitsik Tribal Government. On November 18, 2008, the BLM consulted with tribal representatives on a government-to-government basis to discuss cooperating agency status and to develop a formal agreement on how to conduct government-to-government consultation for the planning process. At that time, Chalkyitsik decided not to become a cooperating agency and the draft memorandum of understanding was not finalized.

The BLM held two public meetings in Chalkyitsik in 2012 and 2013. The BLM Fairbanks District Manager and Deputy State Director for Resources visited Chalkyitsik in June 2013 and took a river trip up the Black River with tribal representatives.

In September 2014, the BLM established a memorandum of understanding with Chalkyitsik Village. This agreement formalized the government-to-government consultation process and gave the tribe cooperating agency status. Under this agreement, Chalkyitsik Village reviewed and provided comments on the Preliminary Proposed RMP/Final EIS. The village submitted their comments in a package with the Gwichyaa Zhee Gwich'in, as summarized below. In a February 25, 2015, teleconference, the BLM consulted with the tribe about their comments on the Preliminary Proposed RMP/Final EIS. We again consulted with the tribe March 21, 2016.

Consultation with Gwichyaa Zhee Gwich'in

On July 8, 2011, the BLM consulted with the Gwichyaa Zhee Gwich'in Tribal Government to discuss a memorandum of understanding on how to conduct government-to-government consultation during the planning process. The memorandum of understanding was approved in October 2011 and amended on September 19, 2014, to provide cooperating agency status. Additionally, the BLM also consulted with the Gwichyaa Zhee Gwich'in Tribal Government on May 22, 2012, March 6, 2013, June 24, 2014, January 13, 2015, June 2, 2015, March 16, 2016 and April 7, 2016.

At the May 2012 consultation meeting, the Gwichyaa Zhee Gwich'in Tribal Government formally requested or commented. The BLM responded to these requests in writing on August 12, 2012 (see Appendix L3.1.). These requests and comments from the Gwichyaa Zhee Gwich'in Tribe include:

- Support Alternative B of the Draft RMP/EIS.
- Designate the Upper Black, Kandik, Salmon, Grayling and Wood rivers as wild and scenic rivers.
- Retain all ANCSA 17(d)(1) withdrawals in the Upper Black River Subunit until further study is done.
- Conduct cultural and biological documentation/research before removing any withdrawals and opening areas to mining.
- Continue to consult with the Gwichyaa Zhee Gwich'in Tribal Government.
- Provide a written response on why the Draft RMP/EIS identified a preferred alternative (before public comment period).
- Allow the Gwichyaa Zhee Gwich'in Tribe be a signatory and participate on any working group for any future environmental impact assessment in the Eastern Interior region.
- Allow the Gwichyaa Zhee Gwich'in Tribe be part of the Record of Decision working group for the Eastern Interior RMP/EIS.
- Designate the entire Upper Black River Subunit as an area of critical environmental concern (ACEC). The cultural/fish values of the Upper Black River are substantial and of more than local importance.
- Provide a copy of the Draft RMP/EIS to the Gwich'in in Canada for comment.
- Reconsider the Section 810 finding of no significant restriction in the Upper Black River subunit.
- Schedule a meeting between the BLM Alaska State Director and the Gwichyaa Zhee Gwich'in Tribal Government.
- Enter all tribal government comments and questions into the official record for the RMP/EIS.

Concerns of Chalkyitsik Village and Gwichyaa Zhee Gwich'in Tribal Governments

The BLM provided the Gwichyaa Zhee Gwich'in and Chalkyitsik Village tribal governments copies of the preliminary alternatives for the Proposed RMP/Final EIS for their review in October 2014. The two tribes submitted joint comments to the BLM in January 2015 and again in April and May 2016. Major concerns from their comment letters are listed below. The BLM response to their comments is included in Appendix L.3.1

1. Tribal consultation was inadequate.

2. Unsupported finding of no significant impact on subsistence. Failure to provide ANILCA Section 810 hearing and make Section 810(a) determinations concerning impacts on subsistence.

3. Lack of clarity in narrative text and maps regarding withdrawals accompanying State-selected and Native-selected lands.

4. Premature decisions relating to ANCSA withdrawals and mineral development without knowing which of the selected lands will be conveyed or how State and Native entities will use the conveyed lands.

5. Geographic scope of proposed Salmon Fork ACEC is too small. ACEC designation should include entire upper Black River watershed. The ACEC decision fails to take into account traditional and local knowledge regarding fish, wildlife, subsistence, historic, and cultural resources.

6. Several important watersheds, including the mainstem Black River, Grayling Fork, Bull Creek, Wood River and their tributaries are not included in RCA designations. Additional traditional knowledge provided in support of Bull Creek RCA.

7. Allowing locatable and leasable mineral development outside of the Salmon Fork ACEC and RCAs would result in excessive degradation.

8. Tribes support the proposal to allow personal use of timber throughout subunit. Allowing commercial timber sales, however, is inconsistent with RCA designations and would allow excessive degradation. Allowing commercial salvage logging and forest products throughout entire subunit would allow excessive degradation.

9. Allowing gravel mining and other salable mineral development throughout entire subunit is inconsistent with ACEC and RCA designations and would allow excessive degradation.

10. Allowing road corridors poses threat of direct impacts as well as indirect impacts due to facilitation of mining and other extractive development. Right-of-way avoidance areas should be established.

11. The BLM deemed Salmon Fork eligible and suitable and tentatively classified it as "wild." The Draft RMP/EIS does not provide a good reason not to recommend its designation as a wild and scenic river in the preferred alternative.

12. The BLM has declined to recommend Black River and its tributaries for designation under Wild and Scenic Rivers Act based on inadequate data, especially through failure to gather adequate traditional and local knowledge.

13. Proposed management standards relating to preservation of wilderness are weak and allow too much degradation

The BLM discussed the comments listed above with the Chalkyitsik Village tribal representatives by teleconference on February 24, 2015 and with the Gwichyaa Zhee Gwich'in tribal representatives in person on June 2, 2015. BLM engaged in additional government-to-government consultation on the Proposed RMP with both tribes in April and May 2016. As a result of this government-to-government consultation, the Proposed RMP recommends retaining ANCSA withdrawals in the Salmon Fork ACEC, RCAs, and the Black River watershed until new FLPMA withdrawals from the mining laws can be enacted. Additionally the RMP would close these areas to the mineral leasing laws.

Consultation with Native Corporations

The BLM notified Alaska Native corporations with lands within the planning area of the planning process and included them in mailings regarding the RMP/EIS, including distribution of the scoping report, Draft RMP/EIS, Supplement to the Draft RMP/EIS, and Proposed RMP/Final EIS. Several corporations participated in the process by submitting comments during public comment periods.

Cook Inlet Regional Native Corporation contacted the BLM in early 2015 with comments on proposed ACECs in the Fortymile Subunit. The BLM sent Cook Inlet a letter on March 11, 2015, initiating consultation and offering to meet with the corporation, but did not receive a response.

The Doyon, Limited Regional Native Corporation provided comments on the Draft RMP/EIS, Supplement to the Draft RMP/EIS, and proposed areas of critical environmental concern. The BLM consulted with Doyon, Limited on May 12, 2015, on their comments.

5.3.2. Local Governments

The BLM contacted the Fairbanks North Star Borough during scoping and invited the Borough to become a cooperating agency because the planning area includes the eastern half of the borough. There are very few BLM-managed lands within the borough, however, and no cooperating agency relationship was established. Notice of the Draft RMP/EIS and Supplement to the Draft were provided to the Borough Planning Department and the cities of Fairbanks, North Pole, and Delta Junction. The Borough and the City of North Pole commented on the Draft RMP/EIS. Comment response is included in Appendix L.

5.3.3. State Agencies

With the high percentage of State lands within the planning area, the BLM has involved the State of Alaska from the beginning of this planning process. A staff position was created at the Alaska Department of Natural Resources (ADNR), to serve as a liaison between the State of Alaska and the BLM. This approach has worked effectively in facilitating information exchanges and reviews of draft materials by state personnel. The ADNR acts as a state clearinghouse for the BLM by soliciting and coordinating planning input from 15 state agencies, including the Alaskan

State Historic Preservation Office. In addition, the ADNR provides technical and consistency reviews of draft documents. The State has both reviewed and provided comments on BLM's draft alternatives, preliminary Draft RMP/EIS, the public Draft RMP/EIS, the Supplement to the Draft RMP/EIS, and the preliminary Proposed RMP/Final EIS. On several occasions, the BLM Eastern Interior Field Office met with ADNR to discuss state comments and concerns.

Initial coordination with the State is through an Interagency Agreement. In March 2014 the agencies developed a memorandum of understanding, identifying the State as a cooperating agency.

5.3.4. Federal Agencies

Consultations with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) is required under Section 7 of the Endangered Species Act (ESA), prior to initiation of any project by the BLM that may affect any federally listed or endangered species or its habitat. This RMP/EIS is considered to be a major federal project and thus consultation is required.

The BLM initiated informal consultation with the USFWS in 2008. The USFWS concluded that there were no listed species in the planning area and that further consultation under Section 7 of the ESA is not necessary at this time (USFWS 2008d).

In 2011, the BLM consulted with the Yukon Flats National Wildlife Refuge for input into the preliminary Draft RMP/EIS. Upon release of the Draft RMP/EIS the BLM provided a briefing to the USFWS. The USFWS submitted comments on the Draft RMP/EIS during the public comment period.

The NMFS is responsible for the administration of the Endangered Species Act as it applies to listed cetaceans and pinnipeds in Alaska, including seven species of whales and Steller sea lions. The BLM requested a species list from NMFS on March 24, 2008. Since the planning area does not include any coastal areas and is located several hundred miles inland, there are no listed species.

5.3.5. Interest Groups and Advisory Councils

The BLM Alaska Resource Advisory Council (RAC) is an advisory panel that provides advice and recommendations to the BLM on resource and land management issues in Alaska. Membership includes Alaskans from around the state who represent the energy industry, tourism, commercial recreation, environmental interests, archaeological interests, elected officials, Alaska Native organizations, and the public-at-large. The RAC was briefed on the RMP/EIS progress at their quarterly meetings from 2007 to present.

The Eastern Interior Federal Subsistence Regional Advisory Council (Regional Council) provides advice and recommendations to the Federal Subsistence Board about subsistence hunting, trapping, and fishing issues on federally managed public lands. The BLM updated the Regional Council on the status of the RMP/EIS at their semi-annual meetings throughout the entire planning process. The Regional Council submitted written comments on the Draft RMP/EIS.

The Citizen's Advisory Commission on Federal Areas-Alaska is an advisory group to the Governor of Alaska. The commission was initially created after passage of ANILCA in 1980

and operated until 1999, when state funding was eliminated. In 2007, the Commission was reestablished by House Bill 87. The Commission is responsible for identifying potential negative impacts on Alaska and its citizens from federal actions on federal lands. Citizen appointees must represent the diversity of users and uses of federal lands in Alaska. The BLM briefed the Commission on the status of the RMP/EIS at their regularly scheduled meetings. The Commission provided oral comments at meetings and written comments on the Draft RMP/EIS.

Several interest groups and individuals formed an Upper Black River Working Group to provide comments and oversee progress on the Eastern Interior RMP/EIS. The BLM met with this group and briefed them on the status of the RMP in February 2009 and January 2010.

The BLM also periodically updated the Fortymile Miners Association and the Alaska Miners Association at their regular meetings. The Alaska Miners Association provided written comments on the Draft RMP/EIS.

5.4. Distribution and Availability of the Draft RMP/EIS

5.4.1. Draft RMP/EIS

Public comment on the Eastern Interior Draft RMP/EIS was initiated on March 2, 2012, when the Notice of Availability published in the *Federal Register*. The notice announced the availability of the Draft RMP/EIS for public review and comment. The initial public review period was set for 150 days. This review period was later extended pending release of a supplement to the Draft RMP/EIS. The public comment period on the Draft RMP remained open until April 11, 2013, for an approximate 13-month comment period.

Upon publication of the Notice of Availability, the BLM made the Draft RMP/EIS available on the Eastern Interior website in two formats (Adobe PDF and an interactive document). The document was also available on CD or in printed form upon request. Printed and CD copies were mailed to all tribal governments and Native corporations. The BLM notified approximately 400 individuals and interest groups on the mailing list of the availability of the Draft RMP/EIS via a newsletter. A media release was also issued and distributed to a statewide media group.

BLM staff also presented information on the Draft RMP/EIS to various groups including the Alaska Congressional delegation, Alaska Miners Association, Citizen's Advisory Commission on Federal Areas, BLM Alaska Resource Advisory Council, Eastern Interior Regional Advisory Council, Fairbanks Chamber of Commerce, and U.S. Fish and Wildlife Service.

The Eastern Interior Field Office hosted 13 public meetings for the Draft RMP/EIS. News releases to local and regional media sources advertised the times and locations of these meetings. Agencies and the public were encouraged to submit oral and/or written comments regarding management of public lands in the planning area.

Table 5.2. Public Meetings Held on the Draft RMP/EIS

Meeting Date	Meeting Location	Number in Attendance
April 9, 2012	Morris Thompson Cultural Center, Fairbanks	53
April 11, 2012	Tribal Hall, Fort Yukon	27
April 16, 2012	Circle Community Hall, Circle	4
April 23, 2012	Eagle School, Eagle	8
April 24, 2012	Tribal Hall, Eagle Village	14
May 7, 2012	Mining Museum, Central	6
May 9, 2012	Campbell Creek Science Center, Anchorage	13
May 16, 2012	Tok School, Tok	10
May 17, 2012	Delta Junction Community Center, Delta Junction	6
May 29, 2012	Community Hall, Chalkyitsik	9
May 31, 2012	Post Office, Birch Creek	5
June 1, 2012	Miner's Hall, Chicken	
November 19, 2012	Tok School, Tok	5

5.4.2. Supplement to the Draft RMP/EIS

Public comment on the Hardrock Mineral Leasing in the White Mountains National Recreation Area, Supplement to the Eastern Interior Draft RMP/EIS (Supplement) was initiated with a Notice of Availability published in the *Federal Register* on January 11, 2013. This notice announced the availability of the Supplement for public review and comment. The purpose of the Supplement was to analyze and obtain public comment on opening part of the White Mountains National Recreation Area to a hardrock mineral leasing program. The public comment period on the Supplement closed April 11, 2013.

Upon publication of the Notice of Availability, the BLM made the Supplement available on the BLM Eastern Interior RMP website in two formats: Adobe PDF and an interactive document. The document was available on CD or in printed form upon request. Printed and CD copies were mailed to all tribal governments. The field office sent out a post card mailing and newsletter to notify approximately 500 individuals and interest groups on the mailing list about the availability of the Draft RMP/EIS. The BLM also issued a media release and distributed it to a statewide media group.

The Eastern Interior Field Office hosted six additional public meetings during the public comment period for the Supplement. News releases to local and regional media sources advertised the times and locations of these meetings. Agencies and the public were encouraged to submit oral and/or written comments regarding management of public lands in the planning area.

Table 5.3. Public Meetings Held on the Supplement to the Draft RMP/EIS

Meeting Date	Meeting Location	Number in Attendance
February 13, 2013	Morris Thompson Cultural Center, Fairbanks	95
February 19, 2013	Campbell Creek Science Center, Anchorage	12
March 5, 2013	Morris Thompson Cultural Center, Fairbanks	50
March 6, 2013	Tribal Hall, Fort Yukon, Government-to-Government Consultation	31
March 11, 2013	Eagle School, Eagle	4
March 12, 2013	Tribal Hall, Eagle Village	3
March 19, 2013	Community Hall, Chalkyitsik	22

5.4.3. Areas of Critical Environmental Concern

BLM planning regulations require the BLM to notify the public of proposed Areas of Critical Environmental Concern (ACECs) and specify the resource use limitations that would occur if the ACECs were formally designated. Based on public comment on the Draft RMP/EIS, the BLM considered changing the boundary of the proposed Fortymile ACEC and designating a new ACEC on the Mosquito Flats, also in the Fortymile region. These specific proposed ACEC boundaries were not considered in the Draft RMP/EIS. Thus, the BLM published an additional notice in the *Federal Register* on January 2, 2015, to provide a 60-day public comment period for these two proposed ACECs.

The BLM posted a summary document describing the two ACECs on the project website on January 2, 2015. A news release to the local and regional media advertised the availability of this additional information on ACECs and the 60-day public comment period. The BLM mailed a postcard to the RMP/EIS mailing list with information on how to comment on the ACECs. The BLM considered these public comments on the proposed ACECs when formulating Alternative E of the Proposed RMP and summarized the comments in Appendix L.

5.5. Summary of Comments

The BLM received more than 590 comment submissions from organizations, government agencies, tribes, and individuals during the various comment periods. In addition the BLM received approximately 22,400 form letters generated by several organizations. Because of the duplicative nature of these form letter submissions, each of the six unique form letters represent only one comment submission. Most of the written submissions contained multiple comments on different topics. Information the BLM received through these comments has been evaluated, verified, and incorporated into the Proposed RMP/Final EIS, as appropriate.

The BLM compiled and summarized all public comments on the Draft RMP/EIS, the Supplement, and the ACEC notification. Appendix L documents public comments and responses.

5.6. Distribution and Availability of the Proposed RMP/Final EIS

The BLM notified all entities (approximately 500) on the RMP/EIS mailing list of the availability of the Proposed RMP/Final EIS. Copies of the Proposed RMP/Final EIS are available for public inspection at the following locations:

- BLM Fairbanks District Office, Fairbanks, Alaska
- BLM Alaska State Office, Public Room, Anchorage, Alaska

The Proposed RMP/Final EIS is available electronically online at https://www.blm.gov/ak/eirmp. Paper or CD copies of the Proposed RMP/Final EIS have been distributed to the organizations, agencies, and individuals who requested them, or as required by regulation or policy.

Concurrent with the distribution of the Proposed RMP/Final EIS, a Notice of Availability is published by the Environmental Protection Agency in the *Federal Register*, marking the beginning of the protest period. The BLM also published a Notice of Availability in the *Federal Register* announcing the availability of the Proposed RMP/Final EIS for protest and governor's consistency review. A news release issued and distributed to a statewide media group announced the availability of the Proposed RMP/Final EIS.

5.7. List of Preparers

The Eastern Interior Proposed RMP/Final EIS was prepared by an interdisciplinary team of specialists from the Eastern Interior Field Office and the BLM Alaska State Office. Technical review and support were provided by the State of Alaska, U.S. Fish and Wildlife Service, BLM Fairbanks District Office, BLM Alaska State Office, and BLM Washington Office.

Table 5.4. List of Preparers of the Eastern Interior Proposed RMP/Final EIS

Name	Area of Responsibility	Participation
Rob Brumbaugh	Mineral Potential Reports, RFD, Leasable Minerals	Author
Jeanie Cole	RNAs, Renewable Energy, Grazing, Purpose and Need, Consultation and Coordination	Project Lead, Author
Collin Cogley	Forestry, Recreation White Mountains, and Beaver Creek Wild and Scenic River	Author
Kevan Cooper	Fortymile River, Realty	Author, Reviewer
Tom Coulter	Air Resources and Climate Change	Author, Reviewer
Tim Dupont	Cave and Karst Resources	Author
Chel Ethun	Recreation, Wilderness Characteristics	Reviewer, Supervisor
Michael Gibson	Minerals, Lands and Realty	Reviewer, Supervisor
Rob Ellefson	Sand and Gravel	Author, Reviewer
Ruth Gronquist	Subsistence and Non-native Invasive Species	Author
Lenore Heppler	Field Office Manager	Oversight, Supervisor
Jim Herriges	Wildlife, Special Status Species and Vegetation	Author
Rebecca Hile	Hazardous Materials and Abandoned Mine Lands	Author
John Hoppe	Mineral Potential Reports, Locatable and Salable Minerals	Author
Mike Kasterin	Economics and Environmental Justice	Author
Ben Kennedy	Soil, Water and Air Resources, Climate	Author
Karen J. Laubenstein	Editor	Editing and publishing
Dave Maxwell	Air Resources and Climate Change	Author, Reviewer
Craig McCaa	Public Affairs	Editing, public outreach
Holli McClain	Recreation and Travel Management Steese, Wild and Scenic Rivers, Visual Resource Management and Wilderness Characteristics	Author
Stacie McIntosh	Environmental Justice	Author
Robin Mills	Cultural and Paleontological Resources	Author
Craig Nicholls	Air Resources and Climate Change	Reviewer
Darla Pindell	Social Systems	Author
Jason Post	Fish and Special Status Fish	Author
Tom St. Clair	Wildland Fire Ecology and Management	Author
Serena Sweet	Planning and Environmental Coordinator, Alaska State Office	Reviewer
Skip Theisen	Wildland Fire Ecology and Management	Author
Matt Varner	Fish and Aquatic Species, Watershed Inventory	Author, Reviewer
Victor Wallace	Realty and Land Tenure, Withdrawals	Author
Eric Yeager	Recreation and Travel Management, White Mountains	Author

Appendix A. Standard Operating Procedures and Fluid Mineral Leasing Stipulations

A.1. Introduction

The BLM has developed guidelines to protect resources called "Standard Operating Procedures" (SOPs) and "Fluid Mineral Leasing Stipulations" (Leasing Stipulations) as part of this planning process. These guidelines were guided by the standards and guidelines included in the Alaska Statewide Land Health Standards (IM AK 2004-023) and by the goals outlined in this RMP/EIS. The SOPs are requirements, procedures, management practices, or design features that the BLM will use to protect resources. Leasing Stipulations are requirements to reduce impacts to natural resources from fluid mineral exploration and development. The SOPs and Leasing Stipulations generally do not restate requirements that already exist in regulations or laws, including state laws. Regulations or laws may require conditions that are more stringent than those presented in this section. The Chapter 6 of the *Analysis of the Management Situation for the Eastern Interior RMP* (BLM 2009) includes a list of mandates and authorities pertaining to federal lands.

A.1.1. How to Read this Appendix

This appendix includes a list of all the SOPs considered in the Draft RMP/EIS, Supplement to the Draft RMP, and Proposed RMP/Final EIS. In the Draft RMP/EIS, these guidelines were referred to as Required Operating Procedures (ROPs). In this Proposed RMP/Final EIS document these measures are renamed as Standard Operating Procedures (SOPs). Section A.1.2 describes what SOPs are and how they apply to BLM authorized actions. Section A1.3 describes what Fluid Mineral Leasing Stipulations are and what the process is for exceptions, modifications, or waivers to the stipulations.

Section A.2 lists the SOPs considered in the Draft RMP/EIS which are applicable to Alternatives B–D. Section A.3 lists additional SOPs considered in the Supplement to the Draft RMP/EIS. These apply only to Alternative D. The assumption for impact analysis in the Final EIS is that these SOPs would apply to Alternatives B–D.

Section A.4 lists SOPs considered in the Proposed RMP/Final EIS applicable to **Alternative E (Proposed RMP)** . The assumption for impact analysis in the Final EIS is that these SOPs would apply to Alternative E.

Section A.5 lists Fluid Mineral Leasing Stipulations applicable to all action alternatives in both the Draft RMP/EIS and Proposed RMP/Final EIS. Lastly section A.6 lists Hardrock Mineral Leasing Stipulations that were considered in the Supplement to the Draft RMP and are applicable to Alternative D only.

A.1.2. Standard Operating Procedures

Standard Operating Procedures (SOPs) apply to all actions, whether implemented by the BLM or authorized by the BLM and implemented by another individual, organization or agency on public land. These were based on the best information available during development of the RMP/EIS.

The BLM will apply the SOPs to BLM actions and BLM-authorized activities including, but not limited to: FLPMA leases and permits; Special Recreation Permits; oil and gas activities; renewable energy activities; mining Plans of Operation; and, authorizations for rights-of-way. For fluid mineral leasing activities, SOPs would apply in addition to the Standard Lease Terms and Leasing Stipulations. Only those SOPs concerning resources that are potentially affected by the action will be applied to authorized permits and authorizations. For example, SOPs protecting caribou habitat would not apply to projects that are not located in caribou habitat. The SOPs may be modified through site-specific analysis of subsequent authorizations, but still must meet the goals and objectives of the RMP. SOPs will continue to evolve as better resource information is gained and/or changes in technology become available. Modifications to SOPs may be appropriate if other measures are taken to protect resources that would result in the same or reduced impact.

SOPs are considered during the site-specific analysis that occurs during activity level planning and if adopted, are applied as conditions of approval to land use authorizations and permits. SOPs are not selected as a condition of the permitted activities if the applicant has included them as part of the proposal or has identified an alternative, such as adoption of an acceptable best management practice (BMP) to meet stated resource management objectives. Applicants are encouraged to consider alternative methods, best management practices, and/or design features for BLM's consideration during the permitting process. If an applicant does not include alternatives for agency consideration, the SOPs identified will be incorporated into an approval for a proposed activity.

The Authorized Officer (AO) or their representative is responsible for ensuring that the intent of the SOPs presented in this RMP/EIS are followed and that permittees comply with the conditions of their authorization. Non-compliance will be documented and a notice will be sent to the permittee, along with corrective actions and a time frame in which the actions are to be completed.

A.1.3. Fluid Mineral Leasing Stipulations

Fluid Mineral Leasing Stipulations (Leasing Stipulations) are specific to fluid mineral activity, including exploration, development, and production. These Leasing Stipulations are included in a lease in addition to the Standard Lease Terms. Fluid minerals include oil and gas, geothermal, and coal bed natural gas. Leasing Stipulations constitute significant restrictions on the conduct of operations under a lease.

Additional site-specific Leasing Stipulations may be added, if determined necessary, through further analysis. Since no fluid leasing is assumed during the life of this plan, leasing may only occur following additional NEPA analysis. Additional stipulations may be developed at that time.

Leasing Stipulations may be excepted, modified or waived by the AO pursuant to 43 CFR 3101.1-4 and WO-IM-2008-032. The environmental analysis prepared for fluid mineral development (such as Applications for Permit to Drill or sundry notices) will address proposals to except, modify, or waive a Leasing Stipulation. To except, modify, or waive a stipulation, the environmental analysis would need to show that: 1) the circumstances or relative resource values

in the area had changed following issuance of the lease; or 2) less restrictive requirements could be developed to protect the resource of concern; or 3) operations could be conducted without causing unacceptable impacts; or 4) the resource value of concern does not occur within the lease area. An exception exempts the holder of a lease from the Leasing Stipulation on a one-time basis. A modification changes the language or provisions of a Leasing Stipulation, either temporarily or for the term of the lease. A waiver permanently exempts the Leasing Stipulation.

Compliance with Leasing Stipulations is monitored by the AO or their representative. Non-compliance may result in monetary fines or operation shut-down.

A.1.4. Standard Lease Terms

All fluid mineral leases will include the Standard Lease Terms contained in BLM Form 3100-11, Offer to Lease and Lease for Oil and Gas, U.S. Department of the Interior, BLM, October 1992 or later addition. The Standard Lease Terms provide the lessee the right to use the leased land to explore for, drill for, extract, remove, and dispose of fluid mineral deposits located under the leased lands. The Standard Lease Terms also require that operations be conducted in a manner that minimizes impacts to the land, air, water, cultural, biological, and visual elements of the environment, as well as other land uses or users.

A.2. Standard Operating Procedures Considered in the Draft RMP

The following standard operating procedures were considered in the Draft RMP and would apply to Alternatives B–D.

A.2.1. Cultural and Paleontology

SOP C-1 For permitted activities, cultural resource protection and conservation will be consistent with 1) "Sections 106" [historic property protection, see 54 USC 306108], "Section 110" [inventory, see 54 USC 306102(b)(1)], and "Section 101d" [assisting Indian tribes, see 54 USC 302701]of the National Historic Preservation Act (1966, as amended); 2) procedures under BLM's 2012 National Programmatic Agreement for Section 106 compliance or its successor agreement; and, 3) the 2014 Protocol for Managing Cultural Resources in Alaska between BLM Alaska and the Alaska State Historic Preservation Officer (SHPO) or its successor agreement.

SOP C-2 Mitigation measures will be considered for all actions that may potentially affect cultural resources. If the AO determines mitigation measures are necessary to protect and conserve known cultural resources, a SHPO approved mitigation plan will be implemented by the AO. Mitigation plans will be reviewed per "Section 106" of the National Historic Preservation Act [54 USC 306108] for National Register of Historic Places eligible or listed properties. The extent and nature of recommended mitigation will be commensurate with the significance of the cultural resource involved and the anticipated extent of the damage. Costs for mitigation will be borne by the land use applicant.

SOP C-3 The BLM will evaluate the impacts of proposed actions to known paleontological resources. If damage to known significant paleontological resources cannot be avoided, the applicant (or the BLM for internal actions) will perform scientific examination of the impacted

significant paleontological resources followed by mitigation approved by the AO. This may include the professional collection and analysis of significant specimens by scientists.

A.2.2. Fish and Aquatic Species

SOP FA-1 No road crossings will be permitted in priority fish species spawning habitat, unless no feasible alternative exists.

SOP FA-2 New, replacement, and reconstructed stream crossing structures (such as bridges and culverts) will be designed to:

- Accommodate a 100-year flood event, including bedload and debris;
- Maintain fish and aquatic organism passage;
- Maintain channel integrity;
- Accommodate mean bankfull channel widths; and,
- Incorporate adjacent reclamation (such as willow cuttings, wattles, brush layering) on the disturbed areas up and downstream of the abutments.

SOP FA-3 Application of pesticides and other toxicants will occur in a manner that does not prevent or retard attainment of desired conditions or adversely impacts priority aquatic species.

SOP FA-4 Drilling is prohibited in fish-bearing rivers and streams, as determined by the active floodplain; and fish-bearing lakes, except where the applicant can demonstrate on a site-specific basis that impacts would be minimal or it is determined by the AO that there is no feasible or prudent alternative.

SOP FA-5 When feasible, all water intakes will be screened and designed to prevent fish intake.

SOP FA-6 Reclamation plans for the rehabilitation of fish habitat as required under 43 CFR 3809.420(b)(3)(ii)(E) will focus on three objectives. Typically, these requirements would be satisfied through the development of a site-specific reclamation plan and on achievement of reclamation objectives. Bond release would be based on meeting specific measurable objectives outlined in a monitoring plan (43 CFR 3809.401(b)(3)). These objectives are:

1. Provide a stable channel form that is in balance with the surrounding landform such that channel features are maintained and the stream neither aggrades nor degrades. To achieve this, it will be necessary to design a post-mining stream channel using morphological characteristics of the pre-disturbance channel and floodplain (such as bankfull and floodprone dimensions, meander patterns, design flows and velocities, riffle-to-pool ratios, substrate particle sizes, and so on); which could be derived from field surveys of the area, remotely sensed information, and/or information from adjacent watersheds that exhibit similar characteristics as the watershed proposed for mining.
2. Provide sufficient riparian vegetation or anchored rocks/logs to effectively dissipate stream energy, prevent soil erosion, stabilize streambanks, provide essential nutrient input, and maintain water quality and floodplain function.
3. Provide instream habitat complexity similar to that of pre-disturbance levels through the use of instream structures (such as vortex rock weirs, cross-vane structures, and installation of root wads).

SOP FA-7

Within Riparian Conservation Areas and the Salmon Fork ACEC, baseline hydrological data adequate to characterize the seasonal flow patterns and discharge will be required prior to surface-disturbing activities with the potential to affect stream channel integrity; reduce riparian functioning condition; or, reduce the Watershed Condition Rating. The BLM will be available to advise operators on the exact type of information and detail needed to meet this requirement. Reclamation plans will be designed to result in rehabilitation of habitats within an accelerated time frame (such as less than three years) and will focus on active revegetation and streambank stabilization techniques as the basis for reclamation design.

A.2.3. Forestry

SOP Forest-1 Timber sale authorizations will require the proper site preparation to ensure natural regeneration of timber stands.

SOP Forest-2 Timber sales will include buffers to prevent disturbance of priority fish species habitat and sedimentation into streams. Buffer widths will be dependent on harvest method, season of harvest, equipment used, slope, vegetation, and soil type. Winter operations will be considered in order to avoid the need for road building and reduce impacts to soils, vegetation, and riparian areas.

A.2.4. Hazardous Materials and Waste Management

SOP Hazmat-1 Areas of activities will be left clean of all debris to minimize environmental contamination from solid waste.

SOP Hazmat-2 All solid wastes, including incinerated ash, will be removed by the permittee from public lands and disposed of within an Alaska Department of Environmental Conservation (ADEC) approved facility, unless otherwise specified. Solid waste combustibles may be incinerated in a contained and controlled manner, however, burn restrictions may apply during high-risk wildland fire seasons. Burial of solid waste is not authorized on public lands.

SOP Hazmat-3 Wastewater should be managed in accordance with Title 18 Alaska Administrative Code, Chapter 72, (18 AAC 72) Wastewater disposal. Wastewater can be defined as human wastes (sewage) and gray water (wastewater from a laundry, kitchen, sink, shower, bath or other domestic sources). Pit privies are authorized in accordance with 18 AAC 72.020(b)(c)(i), 72.030 and all applicable updates. If these standards cannot be met, then special authorization may be given by the AO. Gray water may not be released in any waterbody, without authorization under the Alaska Pollutant Discharge Elimination System (APDES). Gray water may be filtered and released to the surface so as not to cause erosion, and the grey water released must maintain compliance with the ADEC's guidance.

SOP Hazmat-4 All hazardous materials and petroleum, oil, and lubricants (POLs) will be stored in containers that are compatible to the material being stored. Containers will be labeled with the responsible party's name, contents of the container, the date the product was purchased, and the date the container was filled.

SOP Hazmat-5 Transportation and storage of POLs will be handled in a safe manner to avoid impacts to the environment and human health. The storage area for any POLs must be approved by the AO.

SOP Hazmat-6 POLs that are transferred to remote locations for operations are to be stored within a containment area constructed to contain 110 percent of the volume of the largest container. The containment area must be lined with an impermeable liner which is free of cracks or gaps, compatible with the contents to be stored, and sufficiently impervious to contain leaks or spills. The containers shall be covered to eliminate the collection of rainwater within the containment area throughout the storage period.

SOP Hazmat-7 All hazardous materials/toxic substances must be disposed of in accordance with EPA and ADEC regulations at the time of disposal.

SOP Hazmat-8 Transfer of POLs to equipment will be completed in a secure manner to minimize the possibility of contamination to the surrounding environment. At a minimum, POL-type absorbent pads will be placed under the transfer location to catch overflow or assist the operator in containing a spill. If refueling cannot be avoided within riparian habitat, 500 feet of fish-bearing waterbodies, or 100 feet of non-fish bearing waterbodies; the responsible party must exercise caution while refueling to ensure no release of POLs into the waterbody. Equipment that has been identified as having a fluid leak must have a drip basin placed under the leak area to ensure no release to the surrounding environment or collection of rain water.

SOP Hazmat-9 Equipment maintenance by the responsible party may be allowed if it is necessary to operate equipment as described in the authorization. Equipment maintenance that has the potential to release fluids should be completed over an impermeable liner to ensure fluid migration to the environment does not occur.

SOP Hazmat-10 A Spill Prevention, Control and Countermeasure Plan (SPCC) will be written for all sites which have the potential to store 1,320 gallons or more of POLs. SPCCs will follow the requirements in 40 CFR 112 and state regulations.

SOP Hazmat-11 All spills will be contained and cleaned up in accordance with ADEC guidance as soon as the release has been identified, unless health and safety of personnel is at risk. ADEC discharge notifications and reporting requirements are outlined in AS 46.03.755 and 18 AAC 75 Article 3. The release of POLs to any waterbody must be immediately reported to ADEC, as soon as the person has knowledge of the release. The responsible party will contact the AO within 48 hours of a spill on public lands. Notifying the EPA may be required for discharges of oil, as required by 40 CFR 112.4.

A.2.5. Mineral Materials

SOP MM-1 Use existing upland material sources that meet suitability and economic needs whenever possible. Using material from wetlands, lakes, and active or inactive floodplains will be avoided, unless no feasible upland alternative exists. Sales or permits for in-stream gravel extraction within an active channel will not be allowed in priority fish species spawning habitat.

SOP MM-2 When authorizing mineral material sale sites, avoid habitats critical to local fish or wildlife populations (such as fish spawning and overwintering, calving areas, or raptor nesting sites). Avoid key geomorphic features, such as the river cut banks and associated riparian zones; springs; active channels of small, single channel rivers;, and, wetlands.

SOP MM-3 When authorizing mineral material sale sites, avoid priority plant species and communities. If sales are authorized in vegetated areas all overburden, vegetation mats and debris

will be saved and appropriately stored for use during site reclamation to facilitate vegetative recovery.

SOP MM-4 When scraping gravel in active or inactive floodplains, maintain buffers that will constrain active channels to their original locations and configurations.

A.2.6. Soils

SOP Soils-1 Save all organic material in a separate area from overburden (defined in 43 CFR 23.3 (d)) for future use.

SOP Soils-2 Stockpiled soil and overburden will be spread over mine tailings and stabilized to minimize erosion. The shape of contoured tailing and overburden should approximate the shape of surrounding terrain.

SOP Soils-3 Roadways will be ditched on the uphill side. Culverts or low water crossings will be installed at suitable intervals. Spacing of drainage devices and water bars will be appropriate for the road gradient and soil erodibility of the site.

SOP Soils-4 Design roads and trails for minimal disruption of natural drainage patterns.

SOP Soils-5 Roads and trails should avoid areas with unstable or fragile soils.

SOP Soils-6 Water bars will be placed across reclaimed roads. Spacing will be dependent on road gradient, soil erodibility, and other site-specific factors.

SOP Soils-7 Snow and ice bridges will be removed, breached, or slotted before spring break-up. Ramps and bridges will be substantially free of soil and debris.

SOP Soils-8 Overland moves and heavy equipment use:

- Whenever possible, overland moves that are a part of permitted operations will occur during winter when frost and snow cover is sufficient to minimize vegetation and soil disturbance and compaction. The AO will determine the date when sufficient frost and snow cover exists and no overland moves should occur until these conditions are met.
- Design and locate winter trails and ice roads for overland moves to minimize compaction of soils and breakage, abrasion, compaction, or displacement of vegetation.
- Clearing of drifted snow is generally allowed, to the extent that vegetative ground cover is not disturbed.
- Offsets of winter trail/ice road locations may be required to avoid using the same route or track each subsequent year.
- When access is required in snow-free months, routes that utilize naturally hardened sites will be selected to avoid trail braiding and wetlands will be avoided. The permittee will employ vehicle types and methods that minimize vegetation and soil disturbance, such as use of air or water craft, utilizing existing roads or trails, or use of low ground pressure vehicles.
- The use of heavy machinery in saturated soil conditions will be limited to low ground pressure designated machinery.

A.2.7. Special Status Species

SOP SS-1 The planning area may contain or be identified with Special Status Species or their habitats. The BLM may require actions to avoid or minimize impacts to Special Status Species, pursuant to BLM policy and Endangered Species Act consultation.

SOP SS-2 Where practical, use may be redirected to protect Special Status Species habitat; to enhance indigenous animal population; or, to otherwise maintain public land health through avoidance of sensitive habitat. If impacts to Special Status Species (populations and habitats) cannot be avoided, the applicant (or the BLM for internal actions) will develop mitigation measures to reduce impacts.

SOP SS-3 Where populations or individual sensitive status plant species are located, take measures to protect these populations or individuals through site-specific buffers or management prescriptions. Route new roads and trails away from known sensitive plant communities, with minimum 100-foot buffers; and minimize summer cross-country OHV travel where there are sensitive plants.

A.2.8. Subsistence

SOP Sub-1 For externally generated actions, the BLM may require applicants to provide information to potentially affected subsistence communities regarding the timing, siting, and scope of a proposed activity; and to consult with the potentially affected subsistence communities about ways to minimize impacts to subsistence. If these consultations occur, the applicant may be required to provide documentation of their consultation efforts to the BLM.

A.2.9. Vegetation and Non-Native Invasive Species

SOP Veg-1 All vegetation treatments and revegetation of surface disturbance will require an approved site-specific plan designed to prevent the introduction of non-native invasive plants (invasive plants), and achieve desired conditions. These plans should describe current vegetative conditions: including plant community composition, structure, cover, seral stages, soil descriptions, age class distribution if applicable, and presence of invasive plants, desired vegetative conditions (based on the ecological capability of the site), treatment methods, measures for preventing introduction and spread of invasive plants, and monitoring actions. Whenever possible, treatments will use native vegetation and seed. Non-native vegetation and seed may be used with specific approval from the AO, and in the following cases (1) where native species are not available in sufficient quantities; (2) where native species are incapable of maintaining or achieving the objectives; or, (3) where non-native species are essential to the functional integrity of the site. Seed must meet Alaska certification standards (11 AAC 34.020 Prohibited and Restricted Noxious Weeds) and any amendments to the existing seed laws or new seed legislation.

SOP Veg-2 Existing roads and trails will be utilized for access where feasible, rather than creating new roads and trails. All road or trail construction must include a plan for reclamation similar to a vegetation treatment plan in SOP Veg-1 above. It should also include best management practices for revegetation of cuts and fills and minimize off-site sediment transport impacts. Construction of road or trails in wetlands and floodplains will be avoided.

SOP Veg-3 Destruction of the vegetative mat and associated vegetation will not be be authorized, unless the AO determines that no feasible alternative exists. In those cases the AO will require that the vegetative mat and topsoils be salvaged and appropriately stored and used for reclamation. If the AO decides that vegetative mat and topsoils cannot be salvaged, other measures to protect vegetation and soils will be considered. Plans for revegetation of surface disturbances will be clearly addressed during authorization of an action.

SOP Veg-4 Design and locate permanent facilities to minimize the development footprint.

SOP NIS-1 To eliminate, minimize, or limit the spread of noxious and non-native invasive plants, only feed and mulch (hay cubes, hay pellets, or straw, for example) certified as weed-free through the Alaska Weed-Free Forage certification program (or other programs with approval of the AO) will be authorized on BLM lands. Where Alaska certified sources are not available, locally produced forage and mulch may be used with approval from the AO. If no certified weed-free or local sources are available, other products may be used with the approval of the AO.

SOP NIS-2 To eliminate, minimize, or limit the spread of noxious and non-native invasive plants, only gravel and material certified as weed-free through the Alaska Weed-Free Gravel certification program will be authorized on BLM lands. Where weed-free gravel and materials are not available other sources may be used, with the approval of the AO.

SOP NIS-3 Fire management actions, including prescribed fire operations, wildland fire suppression and fire rehabilitation efforts, will protect burned and adjacent areas from the introduction and spread of non-native invasive plants. Protection may include the use of washing stations with a containment system.

SOP NIS-4 Employ measures outlined in the most current Alaska Aquatic Nuisance Species Management Plan (ADF&G 2002a) and the most current Interim Fire Operations Guidance to Prevent Spread of Aquatic Invasive Species (USFS 2011) to reduce the introduction and spread of Aquatic Nuisance Species.

SOP NIS-5 All actions implemented or authorized by the BLM will include measures to prevent the introduction and spread of non-native invasive species, if applicable to the site.

A.2.10. Visual Resource Management

SOP VRM-1 To the extent practicable, all facilities and activities will be located away from visually sensitive areas, rivers, trails, and other transportation features; using distance to reduce the facility's visual impact along travel corridors.

SOP VRM-2 All facilities and activities will be designed to meet the visual resource management class, using proper siting and location so that natural features of vegetation and landforms provide screening from travel corridors and other key observation points, and to blend with the natural surroundings.

SOP VRM-3 The modification or disturbance of landforms and vegetative cover will be minimized. Facilities and activities will be designed to reduce unnecessary disturbance.

SOP VRM-4 Facilities and activities will be designed so their shapes, sizes, colors, and textures harmonize with the scale and character by repeating the elements of line, form, color and texture of the surrounding landscape, where possible.

SOP VRM-5 In panoramic landscapes, development will be located in the opposite direction from the primary scenic views, key observation points and located using natural or artificial screening, where feasible.

A.2.11. Water, Riparian, and Wetlands

SOP Water-1 Where instream operations are authorized, streams must be diverted using an appropriately sized bypass channel.

SOP Water-2 In mining operations and fluid mineral leasing operations, all process water and ground water seeping into an operating area must be treated appropriately (i.e., use of settling ponds) prior to re-entering the natural water system.

SOP Water-3 Settling ponds will be cleaned out and maintained at appropriate intervals to comply with state and federal water quality standards. Fine sediment captured in the settling ponds will be protected from washout and left in a stable condition at the end of each field season to prevent unnecessary or undue degradation to the environment during periods of non-operation.

SOP Water-4 Streams altered by channeling, diversion, or damming will be restored to a condition that will allow for proper functioning of the riparian zone and stream channels. Active streams will be returned to the natural water course or a new channel will be created at its lowest energy state (valley bottom) that approximates the old natural channel in shape, gradient, and meander frequency using a stable channel design.

SOP Water-5 All permitted operations will be conducted in such a manner to not block any stream or drainage system.

SOP Water-6 Structural and vegetative treatments in riparian and wetland areas will be compatible with the capability of the site, including the system's hydrologic regime, and will contribute to maintenance or restoration of proper functioning condition.

SOP Water-7 Projects requiring the withdrawal of water will be designed to maintain sufficient quantities of surface water and contributing groundwater to support fish, wildlife, and other beneficial uses.

SOP Water-8 State-designated stream crossings will be used where possible for vehicle travel. Stream crossings are online at http://www.habitat.adfg.alaska.gov/gpvehstreamxings.php, noted under the General Permits Index-Authorized Vehicle Stream Crossings

SOP Water-9 Rivers and streams will be crossed by vehicles at shallow riffles from point bar to point bar, where possible.

SOP Water-10 When a stream must be crossed, the crossing will be as close to possible to a ninety degree angle to the stream. Stream crossings will be made at stable sections in the stream channel, based on Rosgen channel type evaluations.

SOP Water-11 Disturbed stream banks will be recontoured and revegetated (or other protective measures will be taken) to prevent soil erosion into adjacent waters.

A.2.12. Wildland Fire Management

SOP FM-1 Permittees and casual users will be held financially responsible for any actions or activity that results in a wildland fire. Costs associated with wildland fires include (but are not limited to) damage to natural or cultural resources and costs associated with any suppression action taken on the fire.

SOP FM-2 The BLM will not be held responsible for protection of permittees' structures or their personal property from wildland fire. It is the responsibility of permittees and lessees to mitigate and minimize risk to their personal property and structures from wildland fire, following the conditions in their permit.

SOP FM-3 Gas-powered equipment must be equipped with manufacturer approved and functional spark arrestors.

SOP FM-4 To avoid the potential impacts to aquatic life, the BLM prohibits the use of fire retardant, except when necessary to protect human life, permanent year-round residences, national historic land-marks, structures listed as eligibile for the National Register of HIstoric Places, government facilities, other designated sites or structures, or high-value resources on adjacent lands. Water will be used instead of fire retardant where possible or appropriate. The use of fire suppressant foam is prohibited. Fisheries staff will be involved with decisions to deliver chemical retardant, additives to, or grey water discharge into surface waters.

SOP FM-5 The use of tracked or off-road vehicles in wildland fire suppression or management activities will be conducted in a manner that minimizes erosion, riparian area damage, water quality or fish habitat degradation, or contributes to stream channel sedimentation.

SOP FM-6 Off-road use of heavy equipment and other motorized vehicles requires approval of the AO.

SOP FM-7 Rehabilitate burned areas in accordance with wildland fire-specific rehabilitation plan provided by the Field Office to the suppression agency.

SOP FM-8 Firelines to mineral soil will not be built in or around riparian areas; unless they are needed to protect life, property, and/or wetland resources. Use natural features as preferred firebreaks over firelines constructed to mineral soil. When possible, use hand crews to establish firelines within (or adjacent to) riparian areas.

SOP FM-9 To the extent practicable, select the location for bases, camps, helibases, and so on to avoid riparian areas.

A.2.13. Wildlife

SOP Wild-1 Design pipelines and roads to allow the free movement of wildlife and the safe, unimpeded passage of the public while participating in traditional subsistence activities. The currently accepted design practices are: 1) Above-ground pipelines will be elevated a minimum of seven feet, measured from the ground to the bottom of the pipeline at vertical support members, to facilitate human and wildlife movement under the pipe; 2) In areas where facilities or terrain may funnel caribou movement, ramps over pipelines or buried pipelines may be required; and, 3) Where feasible, maintain a minimum distance of 500 feet between above-ground pipelines and roads.

SOP Wild-2 Prior to development of large facilities, the AO may require development of an ecological land classification map of the development area. The map will integrate geomorphology, surface form, and vegetation at a scale, level of resolution, and level of positional accuracy adequate for detailed analyses of development alternatives and facility siting options. The map will be prepared in time to plan one summer season of ground-based wildlife or vegetation surveys, if deemed necessary by the AO, before approval of exact facility location and facility construction.

SOP Wild-3 Whenever possible, operations that require vegetation removal will avoid the migratory bird nesting period of May 1 to July 15 (USFWS Advisory: Recommended Time Periods for Avoiding Vegetation Clearing in Alaska to Protect Migratory Birds. September 2007). If NEPA analysis reveals that this would unacceptably compromise project objectives or logistical feasibility, potential impacts must be identified, and mitigation applied that are appropriate to the magnitude and duration of expected effects. Assessments would focus on species of concern, priority habitats, and key risk factors. Permittees/project proponents will be reminded that it is their responsibility to comply with provisions of the Migratory Bird Treaty Act.

SOP Wild-4 Employ industry accepted best management practices to prevent raptors and other birds from colliding with or being electrocuted by utility lines, alternative energy structures, towers, and poles (APLIC 2006, http://www.aplic.org/). If possible bury utility lines in important bird areas. Where raptors are likely to nest in human-made structures (such as cell phone towers) and such use could impede operation or maintenance of the structures or jeopardize the safety of the raptors; equip the structures with either (1) devices engineered to discourage raptors from building nests, or (2) nesting platforms that will safely accommodate raptor nests without interfering with structure performance.

SOP Wild-5 Guy-wired apparatus, regardless of purpose, will be marked in accordance with the guidance provided by the USFWS Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers, dated September 14, 2000, or a more current or contemporaneous version of that guidance.

SOP Wild-6 To minimize the potential for disease transmission to wildlife, the use of domestic sheep, goats, alpacas, llamas, and other similar species will not be authorized in conjunction with BLM-authorized activities in Dall sheep habitat.

SOP Wild-7 Activities will not be authorized between May 15 and July 15 if the activity will interfere with caribou calving and postcalving activities or Dall sheep lambing (May 10 through June 1). However, ongoing mineral production activities will be allowed throughout these time periods. In these areas and time periods, aircraft associated with activities that require BLM authorization will maintain an altitude of at least 1,500 feet above ground level (except for takeoffs and landings), unless doing so would endanger human life or violate safe flying practices. These seasonal restrictions can be modified based on actual caribou or Dall sheep occupancy of the area.

SOP Wild-8 Within the Fortymile and White Mountains caribou calving and postcalving ranges (Map 84), mineral exploration activities will not be authorized from May 15 through July 15 unless the AO determines that caribou no longer occupy the specific area of the proposed operations. This seasonal restriction can be modified based on actual caribou occupancy of area.

SOP Wild-9 All reasonable precautions will be taken to avoid attracting wildlife to food and garbage. Garbage from all BLM-authorized activities will be removed and properly disposed to prevent habituation of wildlife or alteration of populations. The BLM may require food and

garbage to be stored in bear-proof containers or by methods that make it unavailable to bears or other wildlife.

SOP Wild-10 From May 1 through August 31, avoid sustained human activity within one-quarter mile of trumpeter swan nests and rearing ponds. No activity will commence prior to May 15 and, if necessary, qualified personnel will conduct a preliminary site survey within the two-week period prior to the projected start date of the activity to determine trumpeter swan presence. If present, short-term activities will be delayed until after nesting trumpeter swans and cygnets have left the habitat. Exceptions may be granted by the AO, following NEPA analysis, if no feasible alternative exists.

SOPs Specific to Areas of Critical Environmental Concern

The following four SOPs apply to the Steese, Fortymile, and White Mountains ACECs and the White Mountains Wildlife Conservation Area. They are not applicable to the Salmon Fork ACEC

SOP Wild-11[1] Applicants proposing to conduct surface-disturbing activities or other intensive activities will, at the determination of the AO, be required to submit an approved plan (Caribou and Dall Sheep Impact Assessment and Mitigation Plan) describing methods to minimize impacts to caribou and Dall sheep and their habitat. This plan must describe the proposed project, the design and mitigation alternatives considered, the amount and quality of habitat to be affected, the mitigation and restoration to be applied, the residual impacts predicted, and the monitoring to be undertaken to confirm mitigation success.

SOP Wild-12[1] Permanent roads will generally not be allowed (although long-term temporary roads may be) and roads will generally not be open to the public. Roads will be of the lowest practical profile. Road use may be restricted during caribou calving, postcalving, or Dall sheep lambing. Road construction will not be permitted if other means of access is practical (such as aircraft or winter ice-road). Facilities within ACECs that require year-round access will be located in forested areas where practical. Permitted aircraft will follow a minimum flight level of 1,500 feet above ground level, except at landing and takeoff and when it would compromise safety. The AO may allow exceptions to these access requirements where impacts to caribou and Dall sheep are adequately minimized and where other resource considerations are of higher priority.

SOP Wild-13[1] To minimize habitat loss, the surface disturbance and the aerial extent of facilities will be minimized. The amount of cumulative vegetation clearing and surface disturbance will be minimized through an integrated review of planned disturbance between all land users.

SOP Wild-14[1] Reclamation and revegetation of disturbed areas will be required to meet performance standards set in site-specific reclamation plans, such as a required plant cover (percent) within a certain number of years before a performance bond is released.

Priority Raptor SOPs

Priority raptor species are peregrine falcon, gyrfalcon, bald eagle, and golden eagle. Nesting seasons are defined as: From April 15 through August 15 for bald eagles, golden eagles, and peregrine falcons; and, from March 15 through July 20 for gyrfalcons. Nesting season dates apply to SOP Wild-16 through SOP Wild-20.

[1] Applicable to the Steese, Fortymile, and White Mountains ACECs and the White Mountains Wildlife Conservation Area.

SOP Wild-15 To minimize the direct loss of priority raptor foraging habitat, all reasonable and practicable efforts will be made to locate permanent facilities as far from priority raptor nests as feasible and to minimize habitat loss to the extent feasible. Of particular concern for avoidance are ponds, lakes, streams, wetlands, and riparian habitats.

SOP Wild-16 To minimize disturbance to nesting priority raptors, aircraft authorized by the BLM are required to maintain an altitude of at least 1,500 feet above ground level when within one-half mile of priority raptor nesting sites during nesting season. This protection is not intended to restrict flights necessary to conduct wildlife surveys satisfying wildlife data collection requirements.

SOP Wild-17 To reduce disturbance to nesting priority raptors, campsites authorized by the BLM, including short- and long-term camps and agency work camps, must be located at least 500 meters from any known priority raptor nest site during the nesting season. Exceptions may be granted by the AO if no feasible alternative exists.

SOP Wild-18 Authorized human activity within 500 meters of priority raptor nest sites will be minimized during the nesting season. The cumulative number of authorized visits (defined as each day in which work is done within 500 meters of a nest site) to any nest site per nesting season, by all authorized users, must be limited to three visits per nest site. Exceptions may be granted by the AO if no other feasible alternative exists.

SOP Wild-19 To reduce disturbance impacts to priority raptors, motorized ground-vehicle use must be minimized within one mile of any known priority raptor nest during the nesting season. Such use is prohibited within one-half mile of nests during the nesting season, unless an exception is granted by the AO.

SOP Wild-20 Construction within one-half mile of known priority raptor nests is prohibited during the nesting season. No facilities that will be used or accessed during the nesting period (including the area of associated human activity by facility users) can be constructed within one-half mile of known priority raptor nesting sites. Exceptions may be granted by the AO if no feasible alternative exists.

A.3. Additional Standard Operating Procedures Considered in the Supplement

In addition to the SOPs in section A.2 above, the following new or modified SOPs were considered in the Supplement to the Draft EIS for Hardrock Mining in the White Mountains. Modifications to SOPs from the Draft RMP are highlighted in grey. These SOPs apply under Alternative D only.

A.3.1. Fish and Aquatic Species

SOP FA-6 Reclamation plans for the rehabilitation of fish habitat as required under 43 CFR 3809.420(b)(3)(ii)(E) (Performance standards in part 3809 will also be used for hardrock mineral leasing operations in the White Mountains NRA) will focus on three objectives. Typically, these requirements would be satisfied through the development of a site-specific reclamation plan and on achievement of reclamation objectives. Bond release would be based on meeting specific measurable objectives outlined in a monitoring plan (43 CFR 3809.401(b)(3)). These objectives are:

1. Provide a stable channel form that is in balance with the surrounding landform such that channel features are maintained and the stream neither aggrades nor degrades. To achieve this, it will be necessary to design a post-mining stream channel using morphological characteristics of the pre-disturbance channel and floodplain (such as bankfull and floodprone dimensions, meander patterns, design flows and velocities, riffle-to-pool ratios, substrate particle sizes, and so on); which could be derived from field surveys of the area, remotely sensed information, and/or information from adjacent watersheds that exhibit similar characteristics as the watershed proposed for mining.
2. Provide sufficient riparian vegetation or anchored rocks/logs to effectively dissipate stream energy, prevent soil erosion, stabilize streambanks, provide essential nutrient input, and maintain water quality and floodplain function.
3. Provide instream habitat complexity similar to that of pre-disturbance levels through the use of instream structures (such as vortex rock weirs, cross-vane structures, and installation of root wads).

SOP FA-7

Within Riparian Conservation Areas, the Salmon Fork ACEC, and areas open to hardrock mineral leasing in the White Mountains baseline hydrological data adequate to characterize the seasonal flow patterns and discharge will be required prior to surface-disturbing activities with the potential to affect stream channel integrity; reduce riparian functioning condition; or, reduce the Watershed Condition Rating. The BLM will be available to advise operators on the exact type of information and detail needed to meet this requirement. Reclamation plans will be designed to result in rehabilitation of habitats within an accelerated timeframe (such as less than three years) and will focus on active revegetation and streambank stabilization techniques as the basis for reclamation design.

A.3.2. Recreation

SOP R-1 No mining activity within one-half mile of Crowberry and Richards cabins.

SOP R-2 No mining activity within 200 feet of BLM-managed recreational trails.

SOP R-3 No utilization of public use cabins for purposes of mining activity.

A.3.3. Wildlife

SOP Wild-21 Post mining rehabilitation of fish and wildlife habitat will be required. Reclamation and revegetation of disturbed areas will be required to meet performance standards set in site-specific reclamation plans, such as required plant cover (percent) within a certain number of years before a performance bond is released.

A.4. Standard Operating Procedures Considered in the Proposed RMP

The following is a complete list of the SOPs that would apply under Alternative E, which is the BLM's Proposed RMP. These were revised from those in the Draft RMP/EIS based on public comment and internal review. Section A.2 lists the SOPs that would apply under Alternatives B–D.

A.4.1. Cultural and Paleontology

SOP C-1 This SOP was dropped because it restates existing laws, policy, and regulations.

SOP C-2 Mitigation measures will be considered for all actions that may potentially affect cultural resources. If the AO determines mitigation measures are necessary to protect and conserve known cultural resources, a mitigation plan will be approved by SHPO and implemented by the AO. Mitigation plans will be reviewed as part of Section 106 consultation for National Register of Historic Places eligible or listed properties. The extent and nature of recommended mitigation will be commensurate with the significance of the cultural resource involved and the anticipated extent of the damage. Costs for mitigation will be borne by the land use applicant.

SOP C-3 If damage to known significant paleontological resources cannot be avoided, the applicant (or the BLM for internal actions) will perform scientific examination of the impacted significant paleontological resources followed by mitigation approved by the AO. This may include the professional collection and analysis of significant specimens by scientists.

A.4.2. Fish and Aquatic Species

SOP FA-1 No low water crossings (fords) will be permitted in priority fish species spawning habitat, during times of active spawning and when immobile life stages of fish are present (eggs and alevins) unless it is determined that impacts would be neglible.

SOP FA-2 New, replacement, and reconstructed stream crossing structures (such as bridges and culverts) will be designed to:

- Convey flood flows consistent with the purpose and period of use of the structure (e.g. seasonal or year-round) under natural conditions consistent with BLM manual 9112;
- Preserve or improve fish passage;
- Maintain channel integrity;
- Provide slope protection e.g. riprap) on both the inlet and outlet end of culverts and on approach embankments of bridges; and,
- Incorporate adjacent reclamation (such as willow cuttings, wattles, brush layering) on the disturbed areas up and downstream of the abutments.

SOP FA-3 Application of pesticides and other toxicants will occur in a manner that does not measurably inhibit the attainment of desired conditions or adversely impacts priority aquatic species.

SOP FA-4 This SOP was dropped because is covered by the Fluid Mineral Leasing Stipulations in Table A.1.

SOP FA-5 All water intakes will be screened and designed to prevent fish intake and mortality.

SOP FA-6 Streams altered by channeling, diversion, or damming will be restored to a condition that maintains or improves aquatic and riparian habitats to pre-disturbance levels. (the objective previously described in this SOP are in section 2.6.2.3 Fish and Aquatic Species, Management Common to All Alternatives and Subunits).

SOP FA-7 Baseline geomorphic and hydrologic data will be required prior to surface-disturbing activities with the potential to affect stream channel integrity; reduce riparian functioning condition; or, reduce the Watershed Condition Rating. The BLM will be available to advise operators on the exact type of information and detail needed to meet this requirement.

A.4.3. Forestry

SOP Forest-1 Commercial timber sale authorizations will require the proper site preparation to ensure natural regeneration of timber stands.

SOP Forest-2 For commercial timber sales and personal use timber permits the requirement for a buffer will be considered to prevent disturbance of priority fish species habitat, sedimentation into streams, impairment of visual resource qualities, or to protect outstandingly remarkable values of wild and scenic rivers. Buffer widths will be determined on a case-by-case basis.

SOP Forest-3 For commercial timber sales and personal use timber permits the requirement for winter only operations will be considered in order to avoid construction of new roads and to reduce impacts to soils, vegetation, and riparian areas.

A.4.4. Hazardous Materials and Waste Management

SOP Hazmat-1 This SOP was dropped because it is covered by SOP Hazmat-2.

SOP Hazmat-2 All solid wastes, including incinerated ash, will be removed by the permittee from public lands and disposed of within an Alaska Department of Environmental Conservation (ADEC) approved facility, unless otherwise specified. Solid waste combustibles may be incinerated in a contained and controlled manner, however, burn restrictions may apply during high-risk wildland fire seasons. Burial of solid waste is not authorized on public lands.

SOP Hazmat-3 Pit privies must be at least 100 feet from any water body. The AO may require a larger separation distance in order to protect high-value resources. No septic system will be installed without AO approval. Gray water must be filtered before being released to the surface and must be discharged in a way that does not cause erosion. Gray water may not be released to any water body.

SOP Hazmat-4 All hazardous materials and petroleum, oil, and lubricants (POLs) will be stored in containers that are compatible to the material being stored. Containers will be labeled with the responsible party's name, contents of the container, the date the product was purchased, and the date the container was filled.

SOP Hazmat-5 Storage of POLs at any site will require secondary containment. The containment area must be constructed to hold at least 110 percent of the largest container, lined with an impermeable liner that is free of cracks or gaps, compatible with the contents stored, and sufficiently impervious to contain leaks, or spills. The containment area must be covered to eliminate the collection of rainwater within the containment area. The AO may also require a Spill Prevention and Contingency Plan.

SOP Hazmat-6 This SOP was combined with SOP Hazmat-5.

SOP Hazmat-7 This SOP was dropped because it restates both state and federal regulations.

SOP Hazmat-8 If refueling cannot be avoided within the riparian zone or within 100 feet of a water body, a catch basin and POL-type absorbent pads will be utilized to collect any overflow.

SOP Hazmat-9 Leaking equipment must have a drip basin placed under the leak area and the basin must be protected from the collection of rain water to ensure no release to the surrounding environment. When maintenance to equipment has the potential to release fluids, an impermeable liner must be utilized to ensure that spills are contained.

SOP Hazmat-10 This SOP was combined with SOP Hazmat-5.

SOP Hazmat-11 All spills will be contained and cleaned up upon discovery. Spills that are reportable to ADEC will also be reported to the AO in the same time frame.

A.4.5. Mineral Materials

SOP MM-1 Use existing upland material sources that meet suitability and economic needs whenever possible. Sales or permits for in-stream gravel extraction within an active channel will not be allowed in priority fish species spawning habitat.

SOP MM-2 When authorizing mineral material sale sites, avoid habitats critical to local fish or wildlife populations (such as fish spawning and overwintering, calving areas, or raptor nesting sites). Avoid key geomorphic features, such as the river cut banks and associated riparian zones; springs; active channels of small, single channel rivers; and, wetlands.

SOP MM-3 When authorizing mineral material sale sites, avoid priority plant species and communities. If sales are authorized in vegetated areas all overburden, vegetation mats and debris will be saved and appropriately stored for use during site reclamation to facilitate vegetative recovery.

SOP MM-4 When scraping gravel in active or inactive floodplains, maintain buffers that will constrain active channels to their original locations and configurations.

A.4.6. Soils

SOP Soils-1 This SOP was dropped because it restates regulations.

SOP Soils-2 Stockpiled soil and overburden will be spread over mine tailings and stabilized to minimize erosion. The shape of contoured tailing and overburden should approximate the shape of surrounding terrain.

SOP Soils-3 Roadways will be ditched on the uphill side. Culverts or low water crossings will be installed at suitable intervals. Spacing of drainage devices and water bars will be appropriate for the road gradient and soil erodibility of the site.

SOP Soils-4 Design roads and trails for minimal disruption of natural drainage patterns.

SOP Soils-5 Roads and trails should avoid areas with unstable or fragile soils.

SOP Soils-6 This SOP was dropped because it is not needed. In reclaimed roads, the road bed is removed and the road cut is reclaimed to match the surrounding terrain thus water bars are not needed.

SOP Soils-7 This SOP was dropped because it is unlikely to be feasible in the planning area due to climactic conditions and is better dealt with during the permitting process.

SOP Soils-8 Overland moves and heavy equipment use:

- Whenever possible, overland moves that are a part of permitted operations will occur during winter when frost and snow cover is sufficient to minimize vegetation and soil disturbance and compaction. The AO will determine the date when sufficient frost and snow cover exists and no overland moves should occur until these conditions are met.
- Design and locate winter trails and ice roads for overland moves to minimize compaction of soils and breakage, abrasion, compaction, or displacement of vegetation.
- Clearing of drifted snow is generally allowed, to the extent that vegetative ground cover is not disturbed.
- Offsets of winter trail/ice road locations may be required to avoid using the same route or track each subsequent year.
- When access is required in snow-free months, routes that utilize naturally hardened sites will be selected to avoid trail braiding and wetlands will be avoided. The permittee will employ vehicle types and methods that minimize vegetation and soil disturbance, such as use of air or water craft, utilizing existing roads or trails, or use of low ground pressure vehicles.
- The use of heavy machinery in saturated soil conditions will be limited to low ground pressure designated machinery.

SOP Soils-9 At sites where stockpiled soil quantities are insufficient to distribute over the entire disturbed area, specific areas in each zone should be selected, to receive organic material. Use organic material from adjacent areas if practicable. At sites where organic material is not available, stockpiles of fine inorganic material may be used in place of the organics.

SOP Soils-10 Prudent use of erosion control measures, including diversion terraces, riprap, matting, temporary sediment traps, and water bars will be employed as necessary to control soil erosion. The type and location of sediment control structure, including construction methods, will vary by site-specific characteristics.

SOP Soils-11 Areas disturbed during project operation or construction will be restored to as near pre-project conditions as practical. Wetland topsoil will be selectively handled. Mulching, erosion control measures, and fertilization may be required to achieve acceptable stabilization of surface materials. Inter-seeding, secondary seeding, or staggered seeding may be required to accomplish revegetation objectives. Follow-up seeding or corrective erosion control measures may be required on areas of surface disturbance which experience reclamation failure. Corrective erosion control measures could include, but are not limited to, broadcasting woody debris, planting viable portions of live shrubs (sprigging), and transplanting live vegetation from adjacent areas.

SOP Soils-12 The BLM recognizes that there may be more than one correct way to achieve successful reclamation of soil and water resources, and a variety of methods may be appropriate to the varying circumstances. The BLM will continue to allow applicants to use their own expertise in recommending and implementing construction and reclamation projects. These allowances still hold the applicant responsible for final reclamation standards of performance. The BLM will

review the applicants reclamation plan and if needed, incorporate conditions of approval to enhance success and mitigate impacts.

SOP Soils-13 Reclamation of disturbed soils is expected to be accomplished as soon as possible after the disturbance occurs with efforts continuing until the site is stabilized.

SOP Soils-14 Reduce disturbance of soils by minimizing footprint of surface-disturbing activities, consolidating access to minimize the number of routes, and requiring prompt implementation of methods to mitigate soil erosion.

SOP Soils-15 Where practicable and feasible, avoid disturbance of the vegetative mat and permafrost soil areas.

SOP Soils-16 Natural revegetation of disturbed sites is the generally preferred method for restoration/stabilization of disturbed soils. Where erosion is problematic or rapid establishment of plant cover is desired, utilize a combination of seeding, planting, and transplanting of adult plants or vegetation mats, and/or fertilizing as necessary to mitigate soil erosion.

SOP Soils-17 When developing travel management plans, minimize impacts through appropriate restrictions on cross-country OHV use. Monitor soils for impacts that may be caused by OHVs.

SOP Soils-18 For long-term storage of soil stockpiles provide protective cover such as organic mulch, herbaceous vegetation, jute matting, or other erosion-preventative fabric.

A.4.7. Special Status Species

SOP SS-1 This SOP was dropped because it restates regulations and policy.

SOP SS-2 This SOP was dropped because it restates a decision in section 2.6.2.7 Management Common to All Subunits and Action Alternatives, Special Status Species.

SOP SS-3 This SOP was dropped because it restates a decision in section 2.6.2.7 Management Common to All Subunits and Action Alternatives, Special Status Species.

A.4.8. Subsistence

SOP Sub-1 This SOP was dropped because requirements for government-to-government consultation are spelled out in BLM and Department of the Interior policies.

A.4.9. Vegetation and Non-Native Species

SOP Veg-1 All vegetation treatments and revegetation of surface disturbance will require an approved site-specific plan designed to achieve desired conditions and prevent the introduction of non-native invasive plants (invasive plants). These plans should describe current vegetative conditions: including plant community composition, structure, cover, seral stages, soil descriptions, age class distribution if applicable, and presence of invasive plants, desired vegetative conditions (based on the ecological capability of the site), treatment methods, measures for preventing introduction and spread of invasive plants, and monitoring actions. Whenever possible, treatments will use native vegetation and seed. Non-native vegetation and seed may be used with specific approval from the AO, and in the following cases (1) where native species are

not available in sufficient quantities; (2) where native species are incapable of maintaining or achieving the objectives; or, (3) where non-native species are essential to the functional integrity of the site. Seed must meet Alaska certification standards (11 AAC 34.020 Prohibited and Restricted Noxious Weeds) and any amendments to the existing seed laws or new seed legislation.

SOP Veg-2 This SOP was dropped because the intent is met by other SOPs (such as Soils-4, -5, -10, -11, -14, -16, and SOPs in Section A.4.13 Wetlands and Floodplains).

SOP Veg-3 This SOP was dropped because it is replaced with a decision in section 2.6.2.8 Management Common to All Subunits and Action Alternatives, Vegetative Communities.

SOP Veg-4 This SOP was dropped because it restates a decision in section 2.6.2.8 Management Common to All Subunits and Action Alternatives, Vegetative Communities. Additionally the intent of this SOP is achieved by SOP Soils-14.

SOP NIS-1 To eliminate, minimize, or limit the spread of noxious and non-native invasive plants, only feed and mulch (hay cubes, hay pellets, or straw, for example) certified as weed-free through the Alaska Weed-Free Forage certification program (or other programs with approval of the AO) will be authorized on BLM lands. Where Alaska certified sources are not available, locally produced forage and mulch may be used with approval from the AO. If no certified weed-free or local sources are available, other products may be used with the approval of the AO.

SOP NIS-2 To eliminate, minimize, or limit the spread of noxious and non-native invasive plants, only gravel and material certified as weed-free through the Alaska Weed-Free Gravel certification program will be authorized on BLM lands. Where weed-free gravel and materials are not available other sources may be used, with the approval of the AO.

SOP NIS-3 Fire management actions, including prescribed fire operations, wildland fire suppression and fire rehabilitation efforts, will protect burned and adjacent areas from the introduction and spread of non-native invasive plants. Protection may include the use of washing stations with a containment system.

SOP NIS-4 This SOP was dropped because it restates a decision in section 2.6.2.4.

SOP NIS-5 All actions implemented or authorized by the BLM will include measures to prevent the introduction and spread of non-native invasive species, if applicable to the site. Operators shall prevent and control invasive and non-native plant and noxious weed introduction or spread. Operators will be responsible for control and/or eradication of new infestations of non-native plants or noxious weeds and are advised to conduct a pre-disturbance site assessment of the presence of non-native plants or noxious weeds.

A.4.10. Visual Resource Management

SOPs VRM-1, -2, -3, -4, -5 were dropped because they are a restatement of policy standards for visual resource management (VRM) classes. All activities would be evaluated to determine if mitigation measures are needed to maintain VRM classifications.

A.4.11. Water, Riparian, and Wetlands

SOP Water-1 Where instream operations are authorized, streams must be diverted using an appropriately sized bypass channel that is stable and resistant to erosion.

SOP Water-2 In mining operations and fluid mineral leasing operations, all process water and ground water seeping into an operating area must be treated appropriately (i.e., use of settling ponds) prior to re-entering the natural water system.

SOP Water-3 Settling ponds will be cleaned out and maintained at appropriate intervals to comply with state and federal water quality standards. Fine sediment captured in the settling ponds will be protected from washout and left in a stable condition at the end of each field season to prevent unnecessary or undue degradation to the environment during periods of non-operation.

SOP Water-4 This SOP was dropped because this objective is achieved through SOP FA-6.

SOP Water-5 All permitted operations will be conducted in such a manner to not block any stream or drainage system, or inhibit fish passage.

SOP Water-6 Structural and vegetative treatments in riparian and wetland areas will be compatible with the capability of the site, including the system's hydrologic regime, and will contribute to maintenance or restoration of proper functioning condition.

SOP Water-7 Projects requiring the withdrawal of water will be designed to maintain sufficient quantities of surface water and contributing groundwater to support fish, wildlife, and other beneficial uses.

SOP Water-8 State-designated stream crossings will be used where possible for vehicle travel. Stream crossings can be found on the Alaska Department of Fish and Game website under the General Permits Index-Authorized Vehicle Stream Crossings

SOP Water-9 Rivers and streams will be crossed by vehicles in locations that minimize impacts to stream channels, stream banks, and riparian vegetation.

SOP Water-10 When a stream must be crossed, the crossing will be as close to possible to a ninety degree angle to the stream. Stream crossings will be made at stable sections in the stream channel, which have low sensitivities to disturbance and low streambank erosion potential.

SOP Water-11 Disturbed stream banks will be recontoured and revegetated (or other protective measures will be taken) to prevent soil erosion into adjacent waters and provide stream bank stability. Active stream bank revegetation or other stabilization techniques (e.g., ADF&G 2005) will be required for all erosion-prone areas (such as stream bank and near stream areas) and active seeding and/or fertilization will be required for sites with little to no organic content (i.e., essentially bare mineral soil).

SOP Water-12 Streams altered by channeling or diversion will be restored to a condition that will allow for proper functioning of stream channels, riparian zones, wetlands and watersheds. Active streams will be returned to their natural watercourse or a new channel will be created that approximates the old natural channel.

SOP Water-13 To the extent feasible and practicable, channeling, diversion, or damming that will alter the natural hydrological conditions will be avoided. This is not intended to preclude activities which by nature must occur within floodplain-riparian areas, such as placer mining.

SOP Water-14 Structural and vegetative treatment in riparian and wetland areas will be compatible with the capability of the site, including the system's hydrologic regime, and will contribute to maintenance or restoration of proper functioning condition.

A.4.12. Wetlands and Floodplains

The following SOPs were added to Alternative E based on public and internal comments on the Draft RMP/EIS.

SOP Wetland-1 Protect, restore, and maintain wetland-floodplain, ecosystems to achieve a healthy and proper functioning condition that assures physical and biological diversity, productivity, and sustainability.

SOP Wetland-2 Coordinate, cooperate, and consult with federal, tribal, state, and local agencies, private landowners, and stakeholder organizations in order to foster a unified, science-based adaptive management approach to wetland-floodplain management in a watershed/ecosystem context.

SOP Wetland-3 Provide a unified framework for BLM's science-based watershed approach to management of wetland-floodplain systems consistent with federal and state assessment methods, including monitoring, sampling, and reporting protocols.

SOP Wetland-4 Promote stewardship, conservation, and appreciation of wetland-floodplains through educational and outreach programs.

SOP Wetland-5 Wetland-floodplain sites vary in physical, chemical, and biological characteristics, resource conditions, and local use impacts. Therefore, the objectives and management designed for an area shall be tailored to the conditions, conflicts, capability and improvement potential, and land use considerations on a watershed-specific basis. Wetland-floodplain mitigation measures developed using an interdisciplinary approach should be achievable, specific, and measurable.

SOP Wetland-6 Management actions should permit the natural functions of streams, including flood energy dissipation, bank building, stream-channel maintenance, filtration of sediment and other contaminants, water-storage, and aquifer recharge to operate without significant alteration. To accomplish these actions or functions, it is necessary to evaluate the interrelationships between wetland-floodplain systems and the hydrologic and geomorphic processes of the watershed.

SOP Wetland-7 Structural and vegetative treatment in floodplains, riparian zones and wetland areas will be compatible with the ecological capability of the site, including the system's hydrologic regime, and will contribute to the maintenance or restoration of natural and proper functioning conditions.

SOP Wetland-8 Avoid overland heavy equipment moves through wetlands in spring and summer. Stipulations and mitigating measures are provided on a case-by-case basis to ensure wetland conservation and practical management.

SOP Wetland-9 Identify, encourage, and support research and studies needed to ensure that floodplain-wetland area management objectives can be properly defined and met. Incorporate research finding into the planning and management of floodplain-wetland ecosystems.

A.4.13. Wildland Fire Management

SOP FM-1 This SOP was deleted because it restated regulations.

SOP FM-2 The BLM will not be held responsible for protection of permittees' structures or their personal property from wildland fire. It is the responsibility of permittees and lessees to mitigate and minimize risk to their personal property and structures from wildland fire, following the conditions in their permit.

SOP FM-3 Gas-powered equipment must be equipped with manufacturer approved and functional spark arrestors.

SOP FM-4 To avoid the potential impacts to aquatic life, the application of fire chemicals including retardant will be avoided within 300 feet of waterbodies. Deviations are acceptable when life or property is threatened and fire chemicals reasonably expected to alleviate the threat. The AO may approve a deviation if potential damage to natural resources outweighs the impact to aquatic resources.

SOP FM-5 This SOP was deleted because it is covered by fire policy (Alaska Interagency Wildland Fire Management Plan 2010) and by the Wildland Fire Decision Support System process.

SOP FM-6 This SOP was deleted because it is covered by fire policy.

SOP FM-7 This SOP was deleted because it is covered by fire policy.

SOP FM-8 This SOP was deleted because it is covered by fire policy.

SOP FM-9 To the extent practicable, select the location for incident bases, camps, helibases, and so on to avoid riparian areas.

A.4.14. Wildlife

SOP Wild-1 Design pipelines and associated roads to allow the free movement of wildlife and the safe, unimpeded passage of the public while participating in traditional subsistence activities. The currently accepted design practices are: 1) Above-ground pipelines will be elevated a minimum of seven feet, measured from the ground to the bottom of the pipeline at vertical support members, to facilitate human and wildlife movement under the pipe; 2) In areas where facilities or terrain may funnel caribou movement, ramps over pipelines or buried pipelines may be required; and, 3) Where practicable, maintain a minimum distance of 500 feet between above-ground pipelines and roads.

SOP Wild-2 Prior to development of large facilities, the AO may require development of an ecological land classification map of the development area. The map will integrate geomorphology, surface form, and vegetation at a scale, level of resolution, and level of positional accuracy adequate for detailed analyses of development alternatives and facility siting options. The map will be prepared in time to plan one summer season of ground-based wildlife or vegetation surveys, if deemed necessary by the AO, before approval of facility location and construction.

SOP Wild-3 Whenever possible, operations that require vegetation removal will avoid the migratory bird nesting period of May 1 to July 15 (USFWS Advisory: Recommended Time Periods for Avoiding Vegetation Clearing in Alaska to Protect Migratory Birds. September 2007). If NEPA analysis reveals that this would unacceptably compromise project objectives or logistical feasibility, potential impacts must be identified, and mitigation applied that are appropriate to the

magnitude and duration of expected effects. Assessments would focus on species of concern, priority habitats, and key risk factors. Permittees/project proponents will be reminded that it is their responsibility to comply with provisions of the Migratory Bird Treaty Act.

SOP Wild-4 Employ industry accepted best management practices to prevent raptors and other birds from colliding with or being electrocuted by utility lines, alternative energy structures, towers, and poles (APLIC 2006, http://www.aplic.org/). If possible bury utility lines in important bird areas. Where raptors are likely to nest in human-made structures (such as cell phone towers) and such use could impede operation or maintenance of the structures or jeopardize the safety of the raptors; equip the structures with either (1) devices engineered to discourage raptors from building nests, or (2) nesting platforms that will safely accommodate raptor nests without interfering with structure performance.

SOP Wild-5 Guy-wired apparatus, regardless of purpose, will be marked in accordance with the guidance provided by the USFWS Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers, dated September 14, 2000, or a more current or contemporaneous version of that guidance.

SOP Wild-6 This SOP was dropped because it restates a decision in section 2.6.2.13.

SOP Wild-7 Activities will not be authorized between May 15 and July 15 if the activity will interfere with caribou calving and postcalving activities (May 10 through June 1 for Dall sheep lambing). However, ongoing mineral production activities will be allowed throughout these time periods. In these areas and time periods, aircraft associated with activities that require BLM authorization will maintain an altitude of at least 1,500 feet above ground level (except for takeoffs and landings), unless doing so would endanger human life or violate safe flying practices. These seasonal restrictions can be modified when caribou or Dall sheep do not occupy the area.

SOP Wild-8 Within the Fortymile and White Mountains caribou calving and postcalving ranges (Map 84), mineral exploration activities will not be authorized from May 15 through July 15 unless the AO determines that caribou no longer occupy the specific area of the proposed operations. This seasonal restriction can be modified based on actual caribou occupancy of area.

SOP Wild-9 All reasonable precautions will be taken to avoid attracting wildlife to food and garbage. Garbage from all BLM-authorized activities will be removed and properly disposed to prevent habituation of wildlife or alteration of populations. The BLM may require food and garbage to be stored in bear-proof containers or by methods that make it unavailable to bears or other wildlife.

SOP Wild-10 This SOP was dropped because most known trumpeter swan habitat is closed to mining in Alternative E. Appropriate mitigation measures can be developed for other on a case-by-case basis.

SOP Wild-11 To prevent the entrapment of small animals, particularly birds, all hollow pipes or tubes that are 2 to 10" in diameter will be filled or capped prior to installation (unless fixed horizontally).

SOPs Specific to Areas of Critical Environmental Concern

SOPs Wild-11, -12, -13, and -14 were dropped because they are included in Alternative E as ACEC or wildlife conservation area management decisions. These decisions are listed in sections 2.7.2.4.3.1, 2.8.2.4.3.1, and 2.10.2.4.1.6.

Priority Raptor SOPs

Priority raptor species are peregrine falcon, gyrfalcon, bald eagle, and golden eagle. Nesting seasons are defined as: From April 15 through August 15 for bald eagles, golden eagles, and peregrine falcons; and, from March 15 through July 20 for gyrfalcons. Nesting season dates apply to SOP Wild-16 through SOP Wild-20. Exceptions to these raptor SOPs may be applied by the AO in situations where no practicable alternative exists; disturbance is adequately mitigated by site characteristics such as topography or vegetation, or by known tolerance of nesting birds to activities at the location; or where raptors establish nests near previously constructed facilities.

SOP Wild-15 To minimize the direct loss of priority raptor foraging habitat, all reasonable and practicable efforts will be made to locate permanent facilities as far from priority raptor nests as practicable and to minimize habitat loss. Of particular concern for avoidance are ponds, lakes, streams, wetlands, and riparian habitats

SOP Wild-16 To minimize disturbance to nesting priority raptors, aircraft authorized by the BLM are required to maintain an altitude of at least 1,500 feet above ground level when within one-half mile of priority raptor nesting sites during nesting season. This protection is not intended to restrict flights necessary to conduct wildlife surveys satisfying wildlife data collection requirements.

SOP Wild-17 To reduce disturbance to nesting priority raptors, campsites authorized by the BLM, including short- and long-term camps and agency work camps, must be located at least 500 meters from any known priority raptor nest site during the nesting season.

SOP Wild-18 Authorized human activity within 500 meters of priority raptor nest sites will be minimized during the nesting season. The cumulative number of authorized visits (defined as each day in which work is done within 500 meters of a nest site) to any nest site per nesting season, by all authorized users, must be limited to three visits per nest site.

SOP Wild-19 To reduce disturbance impacts to priority raptors, motorized ground-vehicle use must be minimized within one mile of any known priority raptor nest during the nesting season. Such use is prohibited within one-half mile of nests during the nesting season.

SOP Wild-20 Construction within one-half mile of known priority raptor nests is prohibited during the nesting season. No facilities that will be used or accessed during the nesting period (including the area of associated human activity by facility users) can be constructed within one-half mile of known priority raptor nesting sites.

A.5. Fluid Mineral Leasing Stipulations

The following leasing stipulations would be applied to any lease sales in the Eastern Interior Planning Area and were considered in both the Draft RMP/EIS and the Proposed RMP/Final EIS. These would apply under all action alternatives (B-E).

Table A.1. Fluid Mineral Leasing Stipulations

Stipulation	Areas where Stipulations Apply	Exception, Modification, Waiver
Goal: Prevent avoidable damage from proposed land uses to habitats supporting Special Status Species animals and plants, and their habitats.		
Stipulation 1: The lease area may contain or be identified with Special Status Species or their habitats. BLM may require applicants to avoid or minimize impacts to these species pursuant to BLM policy and Endangered Species Act consultation.	Areas open to fluid mineral leasing	**Exception:** None **Modification:** None **Waiver:** None
Goal: When authorizing fluid leasable minerals actions ensure that goals to protect other resource values in the planning area are met to the extent possible.		
Stipulation 2: Upon abandonment or expiration of the lease, all fluid mineral-related facilities will be removed and sites rehabilitated as near to the original condition as practicable, subject to the review of the AO.	Areas open to fluid mineral leasing	**Exception:** The AO determines that it is in the best interest of the public to retain some or all facilities. **Modification:** None **Waiver:** None
Stipulation 3: Exploratory drilling will be limited to temporary facilities such as ice pads, ice roads, ice airstrips, and temporary platforms.	Areas open to fluid mineral leasing	**Exception:** The AO may grant an exception if the lessee demonstrates that construction of permanent facilities such as gravel airstrips, storage pads, and connecting roads are environmentally preferable or that exploring from temporary facilities is not practical or economically feasible. **Modification:** None **Waiver:** None
Goal: Maintain and protect aquatic habitat to support populations of well-distributed native fish populations.		
Stipulation 4: Drilling is prohibited in fish-bearing lake and rivers and streams within the active floodplain.	Fish bearing rivers, streams, and lakes	**Exception:** The AO may grant an exception if the lessee demonstrates that impacts would be minimal or there is no feasible or prudent alternative. **Modification:** None **Waiver:** None
Goal: Minimize impacts to wildlife species from BLM-authorized activities.		

Stipulation	Areas where Stipulations Apply	Exception, Modification, Waiver
Stipulation 5: No exploration activities from May 10 through June 1 in Dall sheep habitats and from May 15 through July 15 in caribou calving/postcalving habitat. Construction of production facilities and production activities may occur (no work over rigs).	Identified caribou calving/postcalving and Dall sheep habitats	**Exception:** The AO may grant an exception if the lessee demonstrates that calving caribou or Dall sheep are not currently using the area. **Modification:** Season may be shortened or extended based on actual occupancy of the area. **Waiver:** This stipulation may be waived if caribou migratory patterns change and the areas are no longer used for calving.
Stipulation 6: No exploration or development activities within 500 meters of active priority raptor nests from April 15 through August 15 (only March 15 through July 20 for gyrfalcon nests).	Areas open to fluid mineral leasing	**Exception:** The AO may grant an exception if the lessee demonstrates that impacts would be minimal or there is no feasible or prudent alternative. **Modification:** Season may be adjusted based on actual nest occupancy. **Waiver:** None
Stipulation 7: No motorized ground-vehicle use or facility construction within a half mile of any known priority raptor nests from April 15 through August 15 (only March 15 through July 20 for gyrfalcon nests).	Areas open to fluid mineral leasing	**Exception:** The AO may grant an exception if the lessee demonstrates that impacts would be minimal or there is no feasible or prudent alternative. **Modification:** Season may be adjusted based on actual nest occupancy. **Waiver:** None

A.6. Hardrock Mineral Leasing Stipulations

The following leasing stipulations were considered in the Supplement for Hardrock Mineral Leasing in the White Mountains and apply to Alternative D only.

Table A.2. Hardrock Mineral Leasing Stipulations

Stipulation	Areas where Stipulations Apply	Exception, Modification, Waiver
Goal: Prevent avoidable damage from proposed land uses to habitats supporting Special Status Species animals and plants, and their habitats.		
Stipulation 1: The lease area may contain or be identified with Special Status Species or their habitats. The BLM may require applicants to conduct inventories for Special Status Species and to avoid or minimize impacts to these species pursuant to BLM policy and Endangered Species Act consultation.	Areas open to hardrock mineral leasing	**Exception:** None **Modification:** None **Waiver:** None
Goal: Ensure that goals to protect other resource values in the planning area are met to the extent possible when authorizing hardrock mineral leasing activities.		

Stipulation	Areas where Stipulations Apply	Exception, Modification, Waiver
Stipulation 2: Upon abandonment or expiration of the lease, all hardrock mineral-related facilities will be removed and sites rehabilitated as near to the original condition as practicable, subject to the review of the AO.	Areas open to hardrock mineral leasing	**Exception:** The AO determines that it is in the best interest of the public to retain some or all facilities. **Modification:** None **Waiver:** None
Goal: Minimize impacts to wildlife species from BLM-authorized activities.		
Stipulation 5: No exploration activities from May 10 through June 1 in Dall sheep habitats and from May 15 through July 15 in caribou calving/postcalving habitat. Construction of production facilities and production activities may occur.	Identified caribou calving/ postcalving and Dall sheep habitats	**Exception:** The AO may grant an exception if the lessee demonstrates that calving caribou or Dall sheep are not currently using the area. **Modification:** Season may be shortened or extended based on actual occupancy of the area. **Waiver:** This stipulation may be waived if caribou migratory patterns change and the areas are no longer used for calving.
Stipulation 6: No exploration or development activities within 500 meters of active priority raptor nests from April 15 through August 15 (only March 15 through July 20 for gyrfalcon nests).	Areas open to hardrock mineral leasing	**Exception:** The AO may grant an exception if the lessee demonstrates that impacts would be minimal or there is no feasible or prudent alternative and after consultation with the U.S. Fish and Wildlife Service. **Modification:** Season may be adjusted based on actual nest occupancy. **Waiver:** None
Stipulation 7: No motorized ground-vehicle use or facility construction within a half mile of any known priority raptor nests from April 15 through August 15 (only March 15 through July 20 for gyrfalcon nests).	Areas open to hardrock mineral leasing	**Exception:** The AO may grant an exception if the lessee demonstrates that impacts would be minimal or there is no feasible or prudent alternative. **Modification:** Season may be adjusted based on actual nest occupancy. **Waiver:** None

Appendix B. Travel Management Planning

B.1. White Mountains

In the Eastern Interior Draft RMP/EIS the BLM considered development of a comprehensive travel management plan for the White Mountains NRA. Based on both public comments and internal concerns, the decision in the Proposed RMP (Alternative E) is to defer the Travel Management Plan for the White Mountains NRA to an activity level plan. Interim travel management is described in section 2.10.2.2.2.6 of this document.

Travel management is the process of planning for, and managing access and travel systems on, public lands. Comprehensive travel management planning should address all resource use aspects, such as recreational, traditional, casual, commercial, and educational, and accompanying modes and conditions of travel on public lands, not just motorized or off-highway vehicle activities (BLM Land Use Planning Handbook 1601-1, Appendix C). This includes travel needs for all resource management programs administered by the BLM, including but not limited to the mineral industry and recreation.

In areas where the identification of a comprehensive travel management network would be deferred to a Travel Management Plan, interim management would be applied. Once the RODs are signed, additional data needed to identify the travel management network would be collected and a Travel Management Plan developed. The Travel Management Plan would consider multi-modal travel including travel by motorized, non-motorized, and mechanized means. The Travel Management Plan may result in further limitations on OHV use than implemented during interim management, but would be consistent with the OHV Area Designations approved in the RODs. In Limited area designations, limitations imposed by travel management planning may include: vehicle weight, vehicle width, season of use, existing trails, designated trails, and game retrieval options. Travel Management Plans would be developed using a public process, allowing for additional public and agency input. Additional NEPA analysis would be completed at that time.

B.2. Upper Black River Travel Management Plan

Introduction

Located approximately 180 miles northeast of Fairbanks and encompassing 2.6 million acres of BLM managed lands, the Upper Black River Subunit is undeveloped and very remote. The lands have had very limited intrusion due to the remoteness and lack of access. There are no roads, although there are likely a few winter trails, especially near the village of Circle. ANCSA 17(b) Easements are indicated around Circle and in the south east portion of the subunit but they have not been inventoried. Remote cabins along various rivers are generally used as season dwellings for subsistence fishing camps. There are a few Native allotments located primarily along rivers. Other facilities found in the southern portion of the subunit include three unimproved airstrips on private lands and brushed lines that remain from past oil and gas exploration. The limited evidence of human use is substantially unnoticeable and the area has been affected primarily from the forces of nature and has retained its primeval character.

Use of the lands in the Upper Black River is primarily for subsistence purposes. Hunting, fishing, trapping and gathering of edible plants and berries for the adjacent villages of Fort Yukon,

Chalkyitsik, and to some degree the village of Circle. Most use occurs in in the fall and winter months. Access is by river, airplane or snowmobile. Some OHV use occurs and the OHVs are typically brought in by boat access which limits the size and weight of the OHVs. Aircraft are generally unrestricted in the Upper Black River Subunit and use would generally occur on gravel bars, ridge tops and winter snows.

Scoping and Public Participation

Alternative development for the Upper Black River travel management decisions were conducted as part the Easter Interior Resource Management Plan process. The RMP planning process included scoping meetings in Fairbanks, Anchorage, Central, Fort Yukon and Chalkyitsik. Comments received indicated a concern about continued access for subsistence resources.

Travel Management Decisions

The Off Highway Vehicle Area Designation for the Upper Black River Subunit per 43 CFR 8342.1 criteria is LIMITED.

No route designations were made for the Upper Black River Subunit due to the remote nature of the subunit, lack of connective trails and lack of access. Primary travel is for subsistence purposes. The typography, permafrost, soil types and limited access are best served with dispersed cross country travel. Limitations for weight and width would reduce potential for impacts to soil, water, vegetation, fish, and wildlife throughout the subunit in the event that OHV use increased over the life of the plan.

All forms of non-motorized use would be allowed.

Cross-country winter use (October 15 through April 30) of snowmobiles 50 inches or less in width, and weighing 1,000 pounds curb weight and less would be allowed throughout the entire subunit.

Cross-country summer use (May 1 through October 14) of vehicles up to 64 inches or less in width and weighing 1,500 pounds curb weight and less would be allowed throughout the entire subunit.

Aircraft use would be unrestricted, with the following provisions: Minimal clearing of rocks, downed logs, and brush would be allowed; construction or formal improvement of landing areas would occur by permit only; and, use of gravel bars and winter snow areas would be allowed, subject to reasonable provisions to protect resource values.

Use of motorized boats would be unrestricted.

A permit or approved Plan of Operations would be required for all other vehicle use.

New restrictions could be developed for the purposes of site protection, visitor safety, and/or maintaining an unconfined and primitive type of recreation consistent with the existing wilderness characteristics.

Sign Plan

Given the geographic location of the subunit, lack of foreseeable use beyond subsistence and lack of designated routes, no formal sign plan will be developed for the Upper Black River Subunit.

Education Plan

Upon completion, supplementary rules pertaining to weight and width limitations will be posted on the BLM's website, at the Fairbanks District Office and mailed to affected villages, the Gwichyaa Zhee Gwich'in Tribal Government (formerly Native Village of Fort Yukon), and Chalkyitsik Village Tribal Government.

Rehabilitation

There are no designated travel networks in the Upper Black River Subunit. All existing user created trails will be considered for use. As such, no rehabilitation plan for closed trails is needed.

Maps

See Map 58

Roadside and Dispersed Camping Considerations

There are no roads in the Upper Black River Subunit and a plan for roadside camping considerations in not needed. Dispersed camping would occur in the subunit and is allowable with no restrictions. The area is not designated as Special Recreation Management Area. Recreation management in the Upper Black River Subunit is limited to custodial actions only.

Monitoring, Evaluation and Enforcement

Monitoring will occur with overflights during high use periods such as hunting. Observations will include type of mechanized travel and proliferation of routes intensities. Enforcement actions will be issued for use of vehicles over the weight and width limitations.

The area may see an increase in hunt guide activities. These activities would utilize aircraft and require a Special Recreation Permit and subject to NEPA analysis. These activities will have stipulations to mitigate any impacts.

Temporary Closures and Restrictions

Where OHV activities are causing considerable adverse effects upon soil, vegetation, wildlife, wildlife habitat, cultural resources, historical resources, threatened or endangered species, wilderness sustainability, other authorized uses, or other resources, temporary closures can be implemented under the authority of 43 CFR 8341.2 and 8364.1 The purpose of a temporary closure and restriction are to protect public health and safety, or prevent undue or unnecessary resource degradation due to unforeseen circumstances and will not be used in lieu of permanent closures.

ANILCA provides specific guidance on access for the use of snowmobiles, motorboats and other means of surface transportation traditionally used for subsistence purposes by local residents on all federal public lands (Section 811). See ANILCA Section 102 (3) for the definition of "public lands". ANILCA also provides specific guidance on the use of snowmobiles, motor boats, airplanes and non-motorized surface transportation methods for traditional activities on

conservation system units, national recreation areas, and national conservation areas (Section 1110).

Pursuant to ANILCA Sections 811 and 1110, such uses are subject to reasonable regulation. The NPS and USFWS have developed regulations to implement Section 811 of ANILCA. While the BLM has not developed similar regulations, a process similar to those promulgated by NPS and USFWS will be followed.

The BLM will ensure that rural residents engaged in subsistence uses shall have reasonable access to subsistence resources (ANILCA Section 811(a)) and will implement restrictions and closures to the use of snowmobiles, motorboats, and other means of surface transportation traditionally employed for subsistence purposes by local rural residents (ANILCA Section 811(b)) only if the Authorized Officer determines that such use is causing or is likely to cause an adverse impact on public health and safety, resource protection, protection of historic or scientific values, subsistence uses, conservation of endangered or threatened species, or other purposes, values, and uses for which the lands are being managed under FLPMA or designated by ANILCA (e.g. Wild and Scenic River, National Recreation Area, National Conservation Area, if applicable).

The BLM will follow the regulations implementing Section 1110 of ANILCA, as found in 43 CFR Part 36. The BLM will implement restrictions and closures to use of snowmobiles, motorboats, aircraft, and non-motorized surface transportation methods (e.g. domestic dogs, horses, and other pack or saddle animals, etc.) for traditional activities only if the Authorized Officer makes a finding, pursuant to 43 CFR 36.11(h), that such use would be detrimental to the resource values of the area.

Supplementary Rules

Decisions in the Eastern Interior RMP for travel management in the Upper Black Subunit will be listed as "Proposed" Supplemental Rules. The BLM will undertake the following supplementary rule making process:

- Publish and provide notice of proposed Supplemental Rules in the *Federal Register* and other formats and locations reasonably calculated to inform residents in the affected vicinity.
- Allow a minimum of 60-days for the public comment period on the proposed Supplemental Rules.
- Hold public hearings in the affected vicinity and other locations as deemed appropriate by the BLM.
- Respond to comments and publish the final Supplemental Rules in the *Federal Register*.
- Make the final Supplemental Rules known by the following methods (at a minimum):
- Supplemental Rules and maps with relevant information will be available for public inspection at the BLM office and at other places convenient to the public, and locations and formats reasonably calculated to inform residents in the affected vicinity.
- Signs will be posted at appropriate sites.
- BLM brochures and websites will list Supplemental Rules and show relevant maps.

The process outlined in 43 CFR36 and the Supplemental Rules process will be followed to address any travel management plan decisions that are covered by sections 811 and 1110 of ANILCA.

Appendix C. Evaluation of ACEC Nominations

C.1. Introduction

An area of Critical Environmental Concern (ACEC) is an area where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources; or other natural systems or processes; or to protect human life and safety from natural hazards (43 CFR 1601.0-5; BLM Manual 1613 ACECs). The identification of a potential ACEC will not, of itself, change or prevent change of the management or use of public lands. ACECs must meet the relevance and importance criteria in 43 CFR 1610.7-2(a) and must require special management (43 CFR 1601.0-5(a)) to protect:

- the area and prevent irreparable damage to resources or natural systems
- human life; and, promote safety in areas where natural hazards exist.

The Federal Land Policy and Management Act (FLPMA) requires that priority be given to the designation and protection of ACECs. ACECs are identified, evaluated, and designated through the land use planning process. An ACEC designation is the principal BLM designation for public lands where special management is required to protect important natural, historic, cultural, and scenic resources, or to identify natural hazards.

The regulation in 43 CFR 1610.7-2 outlines the process for designation of ACECs. The inventory data will be analyzed to determine whether there are areas containing resources, values, systems or processes, or hazards eligible for further consideration for designation as an ACEC. In order to be a potential ACEC, both of the following criteria must be met:

1. Relevance—There must be a significant historic, cultural, or scenic value; a fish or wildlife resource or other natural system or process; or natural hazard present.
2. Importance—The above-described value, resource, system, process, or hazard must have substantial significance and value. This generally requires qualities of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern. A natural hazard may be important if it is a significant threat to human life or property.

An area meets the relevance criterion if it contains one or more of the following:

- A significant historic, cultural, or scenic value (including but not limited to rare or sensitive archaeological resources and religious or cultural resources important to Native Americans).
- A fish or wildlife resource (including but not limited to habitat for endangered, sensitive, or threatened species, or habitat essential for maintaining species diversity).
- A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities which are terrestrial, aquatic, or riparian; or rare geological features).
- Natural hazards (including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action may meet the relevance criteria if it is determined through the resource management planning process that it has become part of the natural process.

The value, resource, system, process, or hazard identified under the relevance criterion must have substantial significance and values in order to meet the "importance" criteria. This generally

means that the value, resource, system, process, or hazard is characterized by one or more of the following:

- Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
- Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
- Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA.
- Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare.
- Poses a significant threat to human life and safety or to property.

To be designated as an ACEC, an area must require special management attention to protect the important and relevant resources (BLM Manual 1613). "Special management attention" refers to management prescriptions developed during preparation of an RMP expressly to protect the important and relevant values of an area from the potential effects of actions permitted by the RMP, including proposed actions deemed to be in conformance with the terms, conditions, and decisions of the RMP. There are management measures which would not be necessary and prescribed if the critical and important features were not present. A management prescription is considered to be special if it is unique to the area and includes terms and conditions specifically to protect the important and relevant value(s) in that area. For example, a seasonal use stipulation on permits or other use authorizations may be prescribed specifically to protect an ACEC value. Management prescriptions providing special management attention will include more detail than prescriptions for other areas and should establish priority for implementation.

C.2. Nominations

External Nominations

During the public scoping period for the Eastern Interior RMP, the BLM received one ACEC nomination from the public for the Black River watershed (Map 59). In addition, the BLM received recommendations that the boundaries of three existing Research Natural Areas (RNAs) be reviewed to determine if the designated RNAs are of sufficient size to maintain the values for which they were designated. Since RNAs are a type of ACEC, these recommendations are handled as ACEC nominations.

During public review of the Draft RMP/EIS the Mosquito Flats area was nominated as an ACEC. The BLM evaluated the area and determined it met the relevance and importance criteria and should be considered as a potential ACEC. On January 2, 2015, BLM published a notice in the *Federal Register* beginning a 60-day public review of the Mosquito Flats ACEC. The public comment period closed on March 3, 2015.

The areas reviewed for ACEC status in this document include:

1. Upper Black River watershed
2. Big Windy Hot Springs RNA expansion
3. Mount Prindle RNA expansion
4. Limestone Jags RNA expansion
5. Mosquito Flats

Internal Nominations

The BLM may internally nominate areas for ACEC designation. The following areas were nominated internally and reviewed for ACEC status.

- Caribou calving/postcalving habitat and Dall sheep habitat in the Fortymile Subunit;
- Caribou calving/postcalving habitat and Dall sheep habitat in the Steese National Conservation Area; and
- Caribou calving/postcalving habitat and Dall sheep habitat in the White Mountains NRA.

C.3. Evaluations of Nominated Areas

Potential ACECs must meet the criteria of relevance and importance, as established in 43 CFR 1610.7-2. The following tables outline the evaluations for each nominated area.

Big Windy Hot Springs Existing Research Natural Area and Proposed Expansion (Map 59))			
Big Windy Hot Springs RNA is 160 acres. Scoping comments recommended that the BLM reevaluate the area to ensure that it was an adequate size to protect the integrity of hot springs systems. The rationale provided was that it is small and susceptible to disturbances and that a much larger area (12,700 acres) was originally considered for designation in the Steese Proposed RMP/Final EIS (BLM 1984).			
Area Evaluated: The area identified in Alternatives B and C of the Steese National Conservation Area Proposed RMP/Final EIS (BLM 1984).			
General Location	**General Description**	**Acreage**	**Values Considered**
Steese National Conservation Area, South Unit, south of Birch Creek. FM, T. 4-5N., R. 16E.	undisturbed, medium-grade hot geothermal seeps and pools	12,700	cultural, wildlife, fish, natural system, scenic
Does the proposed ACEC contain one or more relevant values?			
Relevant Values	**Yes/No**	**Rationale for Determination**	
1. A significant historic or cultural value	No	No known historic or cultural sites.	
2. A Significant scenic value	Yes	Scenic value is high with the scenic quality (Class A rating) of the area having high values in natural landscape characteristics of landform, vegetation, water, color, influence of adjacent scenery, scarcity and no impacts from cultural modifications.	
3. A fish or wildlife resource	Yes	Dall Sheep habitat, ungulate mineral licks, and escape terrain which allows use; Fortymile caribou herd year-round habitat.	
4. A natural process or system	Yes	A natural, undisturbed hot springs system	
5. Natural hazards	No	No known natural hazards	
Does the Proposed ACEC contain one or more of the important values?			
Important Values	Yes/No	Rationale for Determination	
More than locally significant	Yes	Natural systems: All other hot springs in central Alaska are either developed or have been modified in a way that has substantially disturbed natural geologic features and vegetation. Big Windy Hot Springs is undisturbed. The hot springs area supports several disjunct populations of plant and animal taxa. Wildlife: Dall sheep are very limited in distribution in Interior Alaska, and the Yukon Tanana Uplands in particular. The hot springs and adjacent area is heavily used by Dall sheep. Mineral licks are important habitat for Dall sheep. Scenic: This area is unique in landform (narrow cliff system), vegetation (unique plants), water (fast water in a boulder field and canyon) and color (vivid colors from vegetation against rock face and water) from the surrounding landscape.	

Big Windy Hot Springs Existing Research Natural Area and Proposed Expansion (Map 59))		
Is fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change	Yes	Natural systems: Only remaining undisturbed hot springs in central Alaska. Travertine structures at the hot springs are fragile. Unique habitats created are very limited in area. Wildlife: Mineral licks are rare habitats. Sheep are vulnerable to predation and sensitive to disturbance in area due to little rugged escape habitat. Scenic: This area was identified as having Outstandingly Remarkable Scenic Values for Big Windy Creek under the Wild and Scenic Rivers Act.
Has been recognized as warranting protection	Yes	Natural systems: The hot springs system is designated as an RNA. Wildlife: Mineral licks are rare and important habitat for Dall sheep and warrant protection. Scenic: The scenery is exemplary and has high value.
Has qualities which warrant highlighting to satisfy management concerns about safety and public welfare	No	None identified
Significant threat to human life/safety or property	No	None identified
Summary of Important Values: Wildlife, natural system and scenic.		
Does the area require special management to protect important and relevant resources?		
Wildlife: Yes. See Steese ACEC nomination. Natural System: Yes. Special management is required to protect the natural hot spring system. Scenic: Yes. Special management is required to protect the scenic quality of the natural hot spring system.		
Findings: The existing RNA meets the relevance and importance criteria for natural systems and scenic. The proposed expansion area meets the relevance and importance criteria for wildlife resource. The current RNA boundary will be retained. The proposed expansion area is included in the Steese ACEC nomination, described in this Appendix.		
Rationale:	Cultural: There has not been a cultural resources survey within the Big Windy Hot Springs RNA, or within the proposed expanded boundaries. There are no known cultural sites. Protections afforded by existing federal legislation (e.g., National Historic Preservation Act 1966; Archaeological Resources Protection Act 1979) are adequate to protect cultural resources that may be found in the nominated area.	
Rationale:	Fish: Big Windy Creek within the existing RNA is a high gradient, riffle-rapid stream with poor pool development and rubble-boulder substrate. Fish habitat is considered marginal and appears to offer summer feeding habitat for a small number of grayling. Winter fishery surveys have not been performed but with poor pool habitat, winter use would likely be marginal. Expanding the boundary of the RNA would not benefit fishery resources.	
Rationale:	Wildlife: The proposed expansion has merit for protection of Dall sheep habitat. Protection of only the Big Windy Hot Springs site will not ensure continued use by Dall sheep. To use the Hot Springs mineral lick, sheep traverse a large area with minimal escape terrain. While in this area of minimal escape terrain, sheep are much more susceptible to disturbance and the consequences of disturbance are large (energy expended and predation risk) due to the distance to quality escape terrain. In order to maintain the ability of sheep to use this area, disturbance along the route to the lick may need to be limited. In addition, the ridge between Puzzle Gulch contains year-round habitat for the Fortymile caribou herd. Field surveys in the area indicate the area may also be valuable habitat for grizzly bear, wolf, moose, and gyrfalcon.	

Big Windy Hot Springs Existing Research Natural Area and Proposed Expansion (Map 59))	
Rationale:	Although the expanded area meets the relevance and importance criteria for wildlife, the planning team did not recommend expansion of the RNA to protect wildlife resources. The expanded area is included in the larger Steese ACEC nomination which also includes additional areas of delineated Dall sheep habitat and Fortymile caribou habitat. There is no need to expand the RNA boundary for the purposes of protecting the natural system. The existing management, RNA and national conservation area designations, and additional protection afforded by its remote location are sufficient to protect the natural hot springs system. The system remains intact and functioning 23 years after its initial designation as an RNA.
Rationale:	Scenic: There is no need to expand the RNA boundary for the purposes of protecting the scenic value. The existing management, RNA and national conservation area designations, and additional protection afforded by its remote location are sufficient to protect the scenic values of the natural hot springs system.

Limestone Jags Existing RNA and Proposed Expansion (Map 59))			
Limestone Jags RNA is 5,170 acres. Scoping comments recommended that the BLM reevaluate the area to ensure that it is an adequate size. The rationale provided by scoping comments was that RNAs need to be an adequate size to protect the integrity of the system. During development of the White Mountains RMP in the 1980s, larger areas than ultimately designated were proposed for RNAs. The success of management related to the size of these areas must be reviewed to determine if the originally proposed larger area is necessary. The spine of the White Mountains, an area of 180,000 acres that includes the Limestone Jags RNA, was nominated for inclusion in the National Natural Landmarks Program (BLM 1984).			
Area Evaluated:			
General Location	**General Description**	**Acreage**	**Values Considered**
White Mountains NRA	System of caves, underground streams, natural bridges or arches, and emergent cold springs. Seasonal habitat for Dall sheep and caribou. Proposed expansion includes variety of habitats.	180,000	cultural, fish, wildlife, scenic
Does the proposed ACEC contain one or more relevant values?			
Relevant Values	Yes/No	Rationale for Determination	
1. A significant historic or cultural value	No	No known historic or cultural sites.	
2. A significant scenic value	Yes	Scenic value is high with the scenic quality (Class A rating) of the area having high values in natural landscape characteristics of landform, vegetation, water, color, influence of adjacent scenery, scarcity and no impacts from cultural modifications.	
3. A fish or wildlife resource	Yes	Dall Sheep habitat; calving, postcalving, and insect avoidance habitat for caribou	
4. A natural process or system	Yes	System of caves, underground streams, natural bridges or arches, and emergent cold springs.	
5. Natural hazards	No	No known natural hazards	
Does the Proposed ACEC contain one or more of the important values?			
Important Values	Yes/No	Rationale for Determination	
More than locally significant	Yes	Natural systems: The high-latitude limestone mountains in the area are unusual in the region and create unique karst features and plant and animal habitats, including rare plant species. Wildlife: Year-round Dall sheep habitat, much of which is below elevational treeline. The area is calving, postcalving, and insect avoidance habitat for the White Mountains caribou herd and, historical habitat for the Fortymile caribou herd. Scenic: This area is unique in landform (limestone cave, bridges, pinnacles and cliff system), vegetation (unique plant communities) and color (vivid colors from vegetation against rock face and water) from the surrounding landscape.	

Limestone Jags Existing RNA and Proposed Expansion (Map 59))		
Is fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change	Yes	Natural systems: The current RNA is managed to preserve several exemplary "type needs" as part of a nationwide system of RNAs, including geologic features (most related to limestone), animal species (Dall sheep, Hoary marmot, peregrine falcon) and a variety of plant communities. Wildlife: Dall sheep habitat and caribou calving and postcalving and insect avoidance habitats are considered sensitive habitat. Scenic: This area was identified as having Outstandingly Remarkable Scenic Values for Fossil Creek under the Wild and Scenic Rivers Act.
Has been recognized as warranting protection	Yes	Natural systems: The current RNA has been determined to warrant protection of existing values for research and monitoring.
Has qualities which warrant highlighting to satisfy management concerns about safety and public welfare	No	None identified
Significant threat to human life/safety or property	No	None identified
Summary of Important Values: Wildlife, natural systems and scenic.		
Does the area require special management to protect important and relevant resources?		
Wildlife: Yes. See White Mountains ACEC nomination. Natural System: Yes. Special management is required to protect the RNA for future research. Scenic: Yes. Special management is required to protect the scenic quality of the limestone karst system.		
Findings: The existing RNA meets the relevance and importance criteria for wildlife, natural systems and scenic. The proposed expansion area meets the relevance and importance criteria for wildlife resource. The current RNA boundary will be retained. The proposed expansion area was instead included in a larger area nominated as an ACEC and is evaluated under the White Mountains ACEC nomination.		
Rationale:	Cultural: Between 2002 and 2005, the BLM surveyed inside the current boundaries of the Limestone Jags RNA for cultural and paleontological resources, specifically focusing on the area's caves and rockshelters. Approximately 3,350 acres of land were surveyed, including 90 caves and rockshelters. No archaeological or other cultural sites were found; one paleontological site was found. There have been no other known cultural resources surveys within the boundaries of the existing Limestone Jags RNA, nor within the proposed expanded boundaries. As such, there are no known cultural sites within these areas. Therefore, specifically for cultural resources concerns, there is no reason to expand the boundary of the RNA to protect the integrity of the system or to enhance management.	
Rationale:	Fish: Fossil Creek, the most significant fish bearing stream in the RNA, contains low fishery resource values. Therefore, fish was not identified as a relevant value.	

Limestone Jags Existing RNA and Proposed Expansion (Map 59))	
Rationale:	Wildlife: The proposed expansion has merit for protection of Dall sheep and caribou calving/postcalving habitat. Protection of only the existing RNA will not ensure continued use of the larger area by Dall sheep and caribou. Although the expanded area meets the relevance and importance criteria for wildlife, the planning team did not recommend expanding the RNA to protect wildlife resources. The expanded area is however included in the larger White Mountains ACEC nomination that includes more significant portions of Dall sheep habitat and caribou habitat. See the White Mountains ACEC nomination.
Rationale:	Natural System: The existing RNA is thought to adequately protect geologic and plant community Type Needs for the purposes of a RNA.
Rationale:	Scenic: The proposed expansion has merit for protection of scenic values of Fossil Creek and the White Mountains Spine area which is unique in landform (limestone cave, bridges, pinnacles and cliff system), vegetation (unique plant communities) and color (vivid colors from vegetation against rock face and water). Although the expanded area meets the relevance and importance criteria for scenic, the planning team did not recommend expanding the RNA to protect wildlife resources.

Mount Prindle Existing Research Natural Area and Proposed Expansion (Map 59))			
Mount Prindle RNA is 5,950 acres. Scoping comments recommended that the BLM reevaluate the area to ensure that it is of adequate size. The rationale provided was that RNA needs to be an adequate size to protect the integrity of the system. During development of the 1980s management plans, larger areas than ultimately designated, were proposed for RNAs. The success of management related to the size of these areas should be reviewed to determine if the originally proposed larger area is necessary. Mount Prindle and a considerably larger area (47,000 acres) was nominated and reviewed for inclusion in the National Natural Landmarks Program (NNLP) in the late 1970s (Young and Walters 1982). This area still retains the values for which it was reviewed and the RNA boundary should be expanded to ensure proper protections for the values of the area.			
Area Evaluated:			
General Location	**General Description**	**Acreage**	**Values Considered**
White Mountains NRA and Steese National Conservation Area	Mount Prindle and surrounding area.	47,000	cultural, wildlife, fish, scenic
Does the proposed ACEC contain one or more relevant values?			
Relevant Values	Yes/No	Rationale for Determination	
1. A significant historic or cultural value	No	No known cultural or archaeological sites.	
2. A significant scenic value	Yes	Scenic value is high with the scenic quality (Class A rating) of the area having high values in natural landscape characteristics of landform, vegetation, water, color, influence of adjacent scenery, scarcity and little or no impacts from cultural modifications.	
2. A fish or wildlife resource	Yes	Dall sheep habitat and mineral lick; current White Mountains and historical Fortymile caribou herd calving habitat	
3. A natural process or system	Yes	Solifluction lobes; glaciated and unglaciated subarctic landforms; diversity of alpine plant communities	
4. Natural hazards	No	No known natural hazards	
Does the Proposed ACEC contain one or more of the important values?			
Important Values	Yes/No	Rationale for Determination	
More than locally significant	Yes	Natural systems: Mount Prindle RNA has an unusually high number of scientifically and educationally interesting natural features, both rare and typical of the central and western portion of the Yukon-Tanana Uplands, within a relatively compact area. Wildlife: Year-round habitat for a subpopulation of Dall sheep and one mineral lick. The area is calving and postcalving habitat for the White Mountains caribou herd and, historical habitat for the Fortymile caribou herd. Dall sheep are very limited in distribution in Interior Alaska, and the Yukon-Tanana Uplands in particular. Caribou are important culturally and for sport and subsistence harvest. The Fortymile caribou herd is an international herd and one of the most important subsistence resources in east central Alaska. Scenic: This area is unique in landform (cliff systems, cirque headwall, tors, terraces, debris torrent channels, stone stripes, moraines), vegetation (unique plants), and color (vivid colors from vegetation against rock faces) from the surrounding landscape.	

Mount Prindle Existing Research Natural Area and Proposed Expansion (Map 59))		
Is fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change	Yes	Natural systems: It contains excellent examples of both glaciated landforms and periglacial (unglaciated) features. The solifluction lobes, produced by the periglacial processes, are some of the best developed in central Alaska. Two recently active debris torrent channels have carved the east face of Mount Prindle, providing spectacular evidence of large-scale weathering processes. RNA system "type needs" listed for the Mount Prindle RNA include periglacial features, cliffs, animals (Dall sheep, caribou, wheatear), a rare plant (*Draba densifolia*) and several plant communities. Other rare plants occur in the proposed RNA (*Ranunculus glacialis var. camissonis* and *Minuartia biflora*). Wildlife: Mineral licks are rare and important habitats for ungulates. Calving and postcalving habitats for caribou are considered the most sensitive seasonal habitats. Dall sheep have specialized habitat requirements. In addition to Dall sheep, caribou, and northern wheatear habitat, the proposed RNA contains at least two gyrfalcon and one peregrine falcon nest sites. Scenic: This area is rare and unique in landform (cliff systems, cirque headwall, tors, terraces, debris torrent channels, stone stripes, moraines,), vegetation (unique plants), and color (vivid colors from vegetation against rock faces) from the surrounding landscape.
Has been recognized as warranting protection	Yes	Natural systems: The RNA has been recognized as warranting protection due to its high potential for supporting public education and scientific research. Wildlife: The RNA has been recognized as warranting protection due to its high potential for supporting public education and scientific research.
Has qualities which warrant highlighting to satisfy management concerns about safety and public welfare	No	None identified
Significant threat to human life/safety or property	No	None identified
Summary of Important Values: Wildlife, natural systems, and scenic.		
Does the area require special management to protect important and relevant resources?		
Wildlife: Yes. See White Mountains and Steese ACEC nominations. Natural System: Yes. Special management is required to protect the RNA for future research and education. Scenic: Yes. Special management is required to protect the scenic quality of the glacial and periglacial landforms.		
Findings: The existing RNA meets the relevance and importance criteria for natural systems and scenic. The proposed expansion area meets the relevance and importance criteria for wildlife resource. The current RNA boundary will be retained. An area including the proposed expansion area was nominated as an ACEC and is evaluated under the Steese and White Mountains ACEC nominations.		

Mount Prindle Existing Research Natural Area and Proposed Expansion (Map 59))	
Rationale:	Cultural: The Importance Criteria, in terms of cultural resources, emphasizes the presence of cultural sites that have substantial significance and values, are rare, or have qualities of more than local significance. The single log cabin ruin site known in the proposed expanded boundary does not meet these criteria. While it may meet federal criteria for significance and be eligible to the National Register of Historic Places, it would do so at the local level (such as history of economic exploitation in the upper Beaver Creek drainage), not at the regional or national level. Neither is it a rare type site. There are one to two dozen examples of similar miners and trappers cabin in the encompassing White Mountains NRA. (No known religious sites or other sites important to Native Americans or Alaska Natives are known within or near the proposed expanded boundaries of the Mount Prindle RNA, or anywhere else within the surrounding White Mountains NRA or Steese National Conservation Area.) Current scoping efforts by the BLM for the Eastern Interior RMP have specifically addressed locating such sites with local, federally recognized Tribal groups. As yet, none have been made known to the BLM. Therefore, historic and cultural resources were not identified as relevant values.
Rationale:	Fish: Streams in the proposed area are likely to be high gradient, low productivity, and of low fishery value. Therefore, fish was not identified as a relevant value.
Rationale:	Wildlife: The proposed expansion has merit for protection of Dall sheep and caribou habitat. Protection of the existing RNA will not ensure continued use of the larger area by Dall sheep and caribou. Although the expanded area meets the relevance and importance criteria for wildlife, the planning team did not recommend expanding the RNA to protect wildlife resources. The expanded area is included in the larger White Mountains and Steese ACEC nominations that includes additional areas of Dall sheep habitat and caribou habitat. See those nominations in this appendix for more information.
Rationale:	Natural System: The RNA contains excellent examples of both glaciated landforms and periglacial (unglaciated) features. At least four glacial advances spanning several hundred thousand years are evident. The small glaciers of Mount Prindle were isolated in a vast unglaciated region and were barely nourished by the ice age climates. The features marking the fluctuations of these small glaciers are useful in studies of past climates. The periglacial landscape processes have operated for even longer periods and have produced remnant features such as tors and cryoplanation terraces, including depositional features such as solifluction lobes. The solifluction lobes in the RNA are some of the best developed in central Alaska. The proposed RNA includes habitat for three rare plants.
Rationale:	Scenic: There is no need to expand the RNA boundary for the purposes of protecting the scenic value. The existing management, RNA, national recreation area and national conservation area designations are sufficient to protect the scenic values of the glaciated landforms and periclacial features.

Upper Black River Watershed and Salmon Fork of the Black River (Map 59))			
During scoping, the BLM received three nominations for an ACEC in the Upper Black River watershed. This area was nominated for historic, scenic, and cultural values, fish and wildlife resources, as an important source of subsistence resources for Chalkyitsik and Fort Yukon, and municipal water source for the village of Chalkyitsik. The area nominated included all BLM-managed lands within the Upper Black River watershed. During the public comment period on the Draft RMP and through government-to-government consultation with the Gwichaa Zhee Gwich'in and Chalkyitisk Tribal governments the BLM received some additional information on values in the upper Black River. The tribes requested that BLM expand the Salmon Fork ACEC to include all of the upper Black River watershed. This additional information was evaluated and the BLM determined that the additional information provided on the Draft RMP did not change the evaluation for this area. Only the Salmon Fork watershed is carried forward in the Proposed RMP as a potential ACEC.			
Area Evaluated:			
General Location	**General Description**	**Acreage**	**Values Considered**
Interior Alaska, north and east of the Yukon River	Upper Black River watershed	1,578,000	historic, cultural, fish, wildlife, scenic
Does the proposed ACEC contain one or more relevant values?			
Relevant Values	Yes/No	Rationale for Determination	
1. A significant historic or cultural value	No	Three known surveys have occurred and 19 prehistoric and historic sites have been identified on BLM-managed lands in this area. These sites are not significant.	
2. A significant scenic value	Yes	Scenic value is high on a little over half of the proposed area, with the scenic quality (Class A rating) of the area having high values in natural landscape characteristics of landform, vegetation, water, color, influence of adjacent scenery, scarcity and little or no impacts from cultural modifications.	
3. A fish or wildlife resource	Yes	The Salmon Fork of the Black River is an undisturbed, pristine watershed supporting a wide variety of anadromous and resident fish. A nesting population of bald eagles occur. Caribou habitat (core and general winter range) occurs in higher elevations of the proposed area. Wildlife utilized for subsistence by residents of Fort Yukon and Chalkyitsik, including moose and furbearers, is present.	
4. A natural process or system	Yes	An intact and undisturbed river system that is in proper functioning condition. Two significant caves are found in the Salmon Fork watershed. The area north of the main stem of the Salmon Fork supports significant populations of two rare plant species, *Antennaria densifolia* (G2S2) and *Ranunculus turneri* (G2G3S2), recommended for BLM Alaska sensitive status and one BLM Alaska sensitive plant species, *Physaria calderi* , Calder's Bladderpod (G3G4 S2). Steep south facing bluffs may support a number of BLM Alaska sensitive species, including *Erysimum asperum* var. *angustatum*.	
5. Natural hazards	No	No known natural hazards	
Does the Proposed ACEC contain one or more of the important values?			
Important Values	Yes/No	Rationale for Determination	

Upper Black River Watershed and Salmon Fork of the Black River (Map 59))		
More than locally significant	No	Cultural and Historic: Known prehistoric and historic sites on the Salmon Fork are not more than locally significant. Outside of the Salmon Fork, the site potential is unknown.
	No	Scenic: The scenic values associated with the Ogilvie Mountains and eastern portions of the Porcupine Plateau is unique in the eastern portion of the state with steep mountains and deep narrow valleys in sharp contrast to low flat ridges with gentle slopes and broad flat valleys to the west. However, only half of the proposed area is covered by this the higher value scenery while the other half has a lower value of scenic quality (Class B).
	Yes*	Fish: The Salmon Fork headwaters are in Canada and it serves as a migration corridor for salmon returning to spawn in Canada. It is a tributary of the Yukon River which is managed subject to international agreements with Canada.
	Yes*	Wildlife: The nominated area includes fall and winter range for the Porcupine caribou herd. The identified habitats are near the edge of the herd's range, may not be used in all years, and constitute a small portion of available winter habitat. However, the herd is culturally important for communities in Alaska and Canada and is the subject of an international agreement with Canada.
	No	Natural systems: Most river systems in Alaska are intact, mostly undisturbed, and in proper functioning condition.
Is fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change	No	Cultural and Historic: Both the historic and prehistoric sites types found in the nominated area are not particularly rare.
	No	Scenic: The scenic values associated with the Ogilvie Mountains and eastern portions of the Porcupine Plateau is unique in the eastern portion of the state with steep mountains and deep narrow valleys in sharp contrast to low flat ridges with gentle slopes and broad flat valleys to the west. However, only half of the proposed area is covered by this the higher value scenery while the other half has a lower value of scenic quality (Class B).
	Yes*	Fish: The Salmon Fork contains spawning and rearing habitat for both anadromous and resident fish species. K.T. Alt (1987) found evidence to suggests sheefish spawn in the Salmon Fork. There are only five known sheefish spawning locations in the entire Yukon River drainage.
	Yes*	Wildlife: The Black River (including portions of the Salmon Fork and Grayling Forks) supports nesting bald eagles. This population may be the northernmost population of bald eagles of at least moderate density in Alaska.
	Yes*	Natural systems: The area north of the main stem of the Salmon Fork supports significant populations of one BLM Alaska sensitive plant species and several rare species considered for inclusion on the BLM Alaska Sensitive Species List. Cave and karst resources are rare in the Arctic. Two significant caves are found in the Salmon Fork

<table>
<tr><th colspan="3">Upper Black River Watershed and Salmon Fork of the Black River (Map 59))</th></tr>
<tr><td></td><td></td><td>drainage. The two significant caves are extremely remote and difficult to access, and do not require special management.</td></tr>
<tr><td>Has been recognized as warranting protection</td><td>No</td><td>None identified</td></tr>
<tr><td>Has qualities which warrant highlighting to satisfy management concerns about safety and public welfare</td><td>No</td><td>None identified</td></tr>
<tr><td>Significant threat to human life/safety or property</td><td>No</td><td>None identified</td></tr>
<tr><td colspan="3">Summary of Important Values: Fish and wildlife and natural systems</td></tr>
<tr><td colspan="3">Does the area require special management to protect important and relevant resources?</td></tr>
<tr><td colspan="3">Fish: Land disturbing activities have the potential to jeopardize and/or adversely affect the waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity. Restoration of these habitats after disturbance is extremely difficult in Alaska and may take many decades. Restrictions or limitations on these types of activities are needed.

Wildlife: Water quality in Salmon Fork and Grayling Fork should be maintained to support nesting Bald Eagles and restrictions on industrial activity in vicinity of nests should be enacted. Coordination and notification with Canadian Government is required prior to developments affecting Porcupine caribou habitat. Provisions should be made in management to allow the herd to continue to utilize habitats in the area. Special management will aid but is not considered required for the protection of caribou habitat.

Natural systems: Limestone habitats and steep south facing slopes and bluffs should be managed to minimize impacts on rare flora. Special management will aid but is not considered required for the protection of rare and sensitive plants.</td></tr>
<tr><td colspan="3">Findings: *The Salmon Fork Watershed (621,000 acres) meets the relevance and importance criteria and should be considered for ACEC designation in the Proposed RMP/Final EIS (Map 69). The remainder of the nominated area does not meet the criteria and is not considered for designation.</td></tr>
<tr><td>Rationale:</td><td colspan="2">Cultural: Outside of the Salmon Fork, the prehistoric site potential of the vast majority of the proposed ACEC is unknown. No known religious sites or other sites important to Native Americans or Alaska Natives are known within the boundaries of the proposed ACEC. There is no data on which to recommend an ACEC designation for this area based upon cultural resources.

Regarding the Salmon Fork, the 20th century log cabin ruins do not meet the criteria. Nor are these sites particularly rare in Interior Alaska. Hundreds if not thousands of such sites (such as 1910s–1950s trapping cabins) exist on the landscape. Known prehistoric sites along the Salmon Fork do not meet the importance criteria. The site types found are not particularly rare, they are mostly surface lithic sites (some apparently have a shallow subsurface component), with no known organic artifacts or ecofacts present, and with no features presently known. They are situated on high topographic, exposed locations along the rivers. As such, they are likely summer-oriented, brief campsites. None are village sites. There are no known quarry sites. No artifacts indicating any occupation beyond the mid-Holocene were located (no artifacts associated with early Holocene or late-Pleistocene occupations association with addressing Peopling of the New World research questions). While the sites, individually and collectively may meet federal criteria for significance and be eligible to the National Register of Historic Places, they would only do so at the local (e.g., Salmon River drainage) or sub-regional (e.g., eastern-central Interior Alaska) geographic levels, and not at the regional (e.g., Alaska-wide) or national level.

Protections afforded to cultural resources by existing federal legislation are adequate for the cultural resources that may be expected to be found in the area. No special management is needed.</td></tr>
</table>

Upper Black River Watershed and Salmon Fork of the Black River (Map 59))	
Rationale:	Fish: The watershed of the Salmon Fork Black River (4th level HUC #194040204) meets the importance criteria. The Salmon Fork is an undisturbed pristine watershed supporting a wide variety of anadromous and resident fish species. Local residents in the Black River area have long used its fisheries resources for subsistence purposes and the Black River and its tributaries, primarily the Salmon Fork, are considered the most productive sources of fish for residents of Chalkyitsik. Anadromous fish stocks destined for the Salmon Fork contribute to subsistence fishing opportunities along more than 900 miles of the Yukon River. With declining salmon stocks in the Yukon River one might consider all of its anadromous fish producing tributaries to be of important value. The headwaters of the Salmon Fork originate in Canada, therefore, the portion of the Salmon Fork located in the U.S. is a migration corridor for anadromous fish stocks returning to spawn in Canada. The Salmon Fork contains high quality and diverse fishery resources, with at least eight species of fish including Chinook salmon and a significant run of fall chum salmon. The Salmon Fork contains critical spawning and rearing habitat for both anadromous and resident fish species. Aerial surveys estimate escapement of fall chum between 444 and 3,098 fish. Aerial estimates of abundance are always lower than actual escapements even in optimal survey conditions (Barton 1984). Local residents report that coho and fall chum spawn in open water springs found on Kevinjik (slightly upstream of BLM lands) and Tetthaajik Creeks during the late fall. Sheefish use the Salmon Fork for summer feeding and K. T. Alt (1987) found evidence that suggests sheefish spawn in the Salmon Fork. There are only five known sheefish spawning locations in the entire Yukon River drainage. Alt accurately predicted sheefish spawning areas in the upper Nowitna River drainage which has since been documented. The Salmon Fork also contains a very healthy Arctic grayling population.
Rationale:	Wildlife: The nominated area meets the relevance and importance criteria. Some resources may require special management. Subsistence: Trapping and harvest of moose and caribou have occurred within the Salmon Fork (Caulfield 1983). However, these activities also occur along the Porcupine River and mainstem of the Black River. Harvest of fall caribou is reported occasionally in the headwaters of the Salmon Fork, however; it is a small area compared to the entire caribou harvest area and significantly farther from the village of Chalkyitisk. Porcupine herd caribou migrate through and winter in portions of BLM-managed lands in the Black River drainage. Given the whole picture of trapping and caribou and moose hunting land use, the portions of BLM-managed lands are small. Further input from local residents would provide specific information on whether or not these are critically important areas for subsistence resources. The Black River drainage includes general and core fall and winter range for the Porcupine caribou herd. The identified areas of winter range are generally higher elevations and may be valuable winter range because higher elevations tend to burn less frequently, allowing more time for forage lichens to develop. Most seasonal caribou habitats (e.g., calving and postcalving) are considered of higher value and more sensitive than winter habitats. In addition, the identified habitats are near the edge of the herd's range and may not be used in all years. However, the Porcupine herd is an international herd of high value to subsistence hunters and First Nations people and the subject of an international agreement with Canada. Provisions should be made in management to allow the herd to continue to use these winter habitats. Caribou habitats are considered relevant and important values. Special management will aid, but is not required, to protect caribou habitat. Relatively little of the mapped caribou range in the subunit occurs outside of the Salmon Fork. Bald Eagles nest primarily along the Salmon Fork, but a few nest on the lower Grayling Fork. Most of the Grayling Fork drainage is closed to mineral location, entry, and leasing in Alternative E, so special management is not required to protect bald eagles nesting outside of the Salmon Fork. Moose are highly valued for subsistence by local residents, but based on available information, do not meet the importance criteria for either the Salmon Fork or for the entire Black River drainage. Moose resources in the proposed ACEC have not been shown to meet criteria 2 or 3 (i.e., not particularly fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change, nor recognized as warranting protection for national priority concerns or to carry

Upper Black River Watershed and Salmon Fork of the Black River (Map 59))	
	out mandates of FLPMA). Some comments suggested that the opportunity to readily harvest moose is vulnerable to adverse change (e.g., from increased access in this currently very remote area), however, the area moose population itself would not be similarly vulnerable. Regarding criteria 1, it is possible that the resource could be considered to have ". . . more than locally significant qualities which give it special worth, consequence, [or] meaning. . . ." due to the importance of the resource to communities as far away as Fort Yukon. Comments mention harvest data that might support this. However, that data has not been made available to the BLM. Available recent data , although only for three years of harvest, do not support the comment that "*the greatest percentage of moose harvested by Chalkyitsik residents, and a significant percentage harvested by Fort Yukon residents, are taken up the Grayling Fork, Bull river, Wood River, and the uppermost main stem Black River.*" Data from three year harvest reports indicate that 34 percent of Chalkyitsik moose harvest and 5 percent of Fort Yukon moose harvest occurred in harvest reporting game management subunits that encompassed upper Black River tributaries (Stevens and Maracle 2012, Van Lanen et al 2012). An unknown portion of this harvest could have occurred on the large portion of these game management units that is non-BLM land.
Rationale:	Natural System: The upper Black River is extremely remote and difficult to access. It is likely to remain in proper functioning condition without special management. Relevant and important resources are concentrated in the Salmon Fork watershed. The significant caves meet the relevance and importance criteria but do not require special management. Rare and sensitive plants meet the relevance and importance criteria, but do not require special management.
Rationale:	Scenic: The scenic values associated with the Ogilvie Mountains and eastern portions of the Porcupine Plateau is unique in the eastern portion of the state with steep mountains and deep narrow valleys in sharp contrast to low flat ridges with gentle slopes and broad flat valleys to the west. However, only half of the proposed area is covered by this the higher value scenery. No special management is needed to protect scenic values.

Fortymile ACEC (Maps 60, 61, 62, and 63)			
Internal BLM nomination for caribou calving and postcalving habitat and Dall sheep habitat			
Area Evaluated:			
General Location	**General Description**	**Acreage**	**Values Considered**
Northern portion of the Fortymile Subunit	Caribou calving and postcalving habitat, Dall sheep habitat, mineral licks.	732,000	Wildlife, scenic
Does the proposed ACEC contain one or more relevant values?			
Relevant Values	Yes/No	Rationale for Determination	
1. A significant historic or cultural value	No	No known cultural or archaeological sites.	
2. A significant scenic value	Yes	Scenic value is high with the scenic quality (Class A rating) of the area having high values in natural landscape characteristics of landform, vegetation, water, color, influence of adjacent scenery, scarcity and little or no impacts from cultural modifications.	
3. A fish or wildlife resource	Yes	Fortymile caribou herd calving and postcalving habitat and Yukon-Tanana Uplands Dall sheep habitat.	
4. A natural process or system	No	None identified	
5. Natural hazards	No	No known natural hazards	
Does the Proposed ACEC contain one or more of the important values?			
Important Values	Yes/No	Rationale for Determination	
More than locally significant	Yes	Wildlife: Dall sheep are very limited in distribution in Interior Alaska and the Yukon-Tanana Uplands in particular. Caribou are important culturally and for sport and subsistence harvest. The Fortymile caribou herd is an international herd and one of the most important subsistence resources in east central Alaska. Scenic: This area is unique in landform (scattered irregular mountains and V to U shaped valleys), vegetation (four major vegetative communities), water (complex river system with incised drainages) and color (vivid colors from diverse vegetation against rock and water) from the surrounding landscape.	
Is fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change	Yes	Wildlife: Mineral licks are rare and important habitats for ungulates. Calving and postcalving habitats for caribou are considered the most sensitive seasonal habitats. Dall sheep have specialized habitat requirements. Scenic: This area contains portions of the Fortymile Wild and Scenic River with identified Outstandingly Remarkable Scenic Values for Champion Creek, Upper North Fork, Joseph Creek and Middle Fork, under the Wild and Scenic Rivers Act.	
Has been recognized as warranting protection	Yes	Wildlife: See above and in "Rationale" below.	
Has qualities which warrant highlighting to satisfy management concerns about safety and public welfare	No	None identified	
significant threat to human life/safety or property	No	None identified	
Summary of Important Values: Wildlife and scenic.			
Does the area require special management to protect important and relevant resources?			

Fortymile ACEC (Maps 60, 61, 62, and 63)	
Wildlife: Yes. Without long-term special management the value of these areas as wildlife habitat will likely be reduced. Scenic: Yes in that portion of the ACEC within the viewshed of the Fortymile Wild and Scenic River. Special management is required to protect the scenic quality of the viewshed of a designated "wild" segment under the Wild and Scenic Rivers Act.	
Findings: The nominated area meets the relevance and importance criteria and should be considered for ACEC designation in the Draft RMP/EIS.	
Rationale	Dall Sheep: Dall sheep are an important component of biological diversity and recreational opportunity of the area. Alaska is the only state which harbors Dall sheep, and BLM lands support the majority of Dall sheep in the Yukon-Tanana Uplands. In Canada, Dall sheep are found only in portions of Yukon and Northwest Territories, while Stone sheep (a Dall sheep subspecies) occur in portions of Yukon Territory and northern British Columbia. Within Alaska, Dall sheep are most abundant and widespread in the large mountain ranges—Brooks Range and Alaska Range/Chugach Range/Wrangell Mountains. The Yukon-Tanana Uplands are non-typical Dall sheep habitat, supporting small scattered populations of sheep in isolated areas of rugged terrain. Much of the habitat is just above treeline and sheep often make use of areas below treeline. Occurring as small populations, these sheep are relatively more susceptible to local population extinction. Climate change could potentially result in decreasing area and quality of these patchy near-treeline habitats, and warmer winter weather could result in icing conditions that might restrict access to forage. Wild sheep are sensitive to human disturbance and often avoid areas of human disturbance. Where sheep continue use of habitats in the presence of human disturbance, physiological stress and increased susceptibility to disease may result. When important habitats are located at a distance from rugged escape terrain, susceptibility to the effects of disturbance are greater. Dall sheep in many areas within the planning area, by necessity utilize low-security habitats for foraging and for mineral acquisition, and so are more susceptible to disturbance. When disturbed, the discontinuous nature of escape terrain also may result in extensive flight distances to reach the next suitable patch of escape terrain. Many of the mineral licks used by these populations occur at low elevation and require long distance travel through low-security habitats (e.g., tussock tundra and lowland black spruce forest and woodland). Sheep in these situations may be already stressed and susceptible to predation. Human activities may cause additional stress, add to predation risk, or result in abandonment or avoidance of the area. Heavy use of mineral licks by Dall sheep (especially in early summer) is considered indicative of the importance of these licks to the population and they are considered crucial habitats. Dall sheep make intensive, regular use of relatively small areas (near rugged terrain and mineral licks). Protection of sheep habitat requires applying use restrictions to only minor portions of the planning area. Most Dall sheep habitat occurs within areas of caribou calving habitat.

Fortymile ACEC (Maps 60, 61, 62, and 63)	
Rationale	Caribou: The White Mountains caribou herd is an important component of biological diversity and recreational opportunity in the White Mountains NRA and Steese National Conservation Area and occurs in the northwestern portion of the historical range of the Fortymile caribou herd. Preliminary genetic analysis, indicates that the White Mountains herd may possibly be more closely related to woodland caribou herds in Canada than Alaska barren ground caribou herds. The much larger Fortymile herd is one of the most important subsistence resources in east central Alaska. Once estimated to number more than 500,000 animals, the herd is also an international resource, with a considerable portion of the historical range occurring in Canada. (The herd once ranged as far as Whitehorse, Yukon Territory). It remains one of the seven largest herds in Alaska, and one of the few large herds accessible by road. A precedent-setting cooperative planning process focuses on the goal of recovery of the herd in numbers and range. The habitats considered most sensitive for this herd are calving and postcalving, and the Fortymile Caribou Herd Planning Team recommended these be given the highest priority in management. During calving and postcalving time periods caribou are concentrated in specific habitats which are limited in extent. Caribou have been shown to be sensitive to disturbance. Studies of Prudhoe Bay oil development have indicated that caribou avoid oil field roads and facilities and distribution of calving has shifted away from oil fields. In addition, the caribou cows that do continue to use the oil field

Fortymile ACEC (Maps 60, 61, 62, and 63)	
	area during calving appear to have lower reproductive success. The population-level effects on caribou from a given level of activity or development in calving habitats cannot at this time be predicted. Although sufficient calving habitat may exist to allow caribou to shift to undeveloped portions of calving range, the increased reliance on a smaller set of calving habitats may have negative consequences for long-term herd population dynamics, such as, shifting of calving grounds may reduce predation, improve forage conditions, and provide resiliency in response to changing weather, forage, and insect conditions. Caribou population declines have occurred as a result of overuse by caribou of calving and summer range forage. Climate in the planning area is predicted to become warmer and drier (increases in summer precipitation will not keep pace with the increase in evapotranspiration). It is likely that tree-line will slowly rise and alpine tundra will become shrubbier. These changes would increase the importance of specific alpine and subalpine habitats for calving and postcalving caribou. Looking at worldwide caribou and reindeer populations, Vors and Boyce (2009) concluded: "The cumulative effects of phenology changes, spatial and temporal changes in species overlap, and extreme weather events are thus significant threats to the long-term persistence of caribou and reindeer." They showed that most caribou herds in the world are currently in decline, coincident with climate change and human-caused landscape change. With the completion of BLM land conveyance, state lands and private lands within caribou calving and postcalving habitats and sheep habitats are likely to experience mineral development and the associated development of roads and trails. These developments will increase the importance of federal lands for maintenance of caribou and Dall sheep populations. BLM lands that will remain after selections are generally considered of lower potential for occurrence of minerals. Designation and management of calving and posctalving habitats in ACECs may conserve caribou and Dall sheep while allowing access to mineral resources of the region. Focusing on limiting impacts to the most critical habitats in these areas would be the most efficient strategy for maintaining this important northern resource. In ANILCA, Congress directed that caribou range should be a special value in management of the Steese National Conservation Area. At the time, much of the Steese had been used for calving by Fortymile caribou. In recent years, Fortymile caribou have concentrated in habitats located more to the south and east, areas contained in the Fortymile ACEC.
Rationale	Scenic: The proposed area has merit for protection of Outstandingly Remarkable Scenic Values of this portion of the Fortymile Wild and Scenic River managed as a Visual Resource Management (VRM) Class I which is to preserve the existing character of the landscape. A VRM Class I provides for natural ecological changes; however, it does not preclude very limited management activities. The level of change to the characteristic landscape should be very low and must not attract attention. The proposed area has merit for protection of scenic values within the viewshed of this portion of the Fortymile Wild and Scenic River managed as a VRM Class II which is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. This area is unique in landform, vegetation, water, color and has little impacts from cultural modifications. See Appendix E.2.3 for a discussion of outstandingly remarkable scenic values in the Fortymile River system.

Steese ACEC (Maps 64, 65, and 66)			
Internal BLM nomination for caribou calving and postcalving habitat and Dall sheep habitat			
Area Evaluated:			
General Location	**General Description**	**Acreage**	**Values Considered**
Steese National Conservation Area	Caribou calving and postcalving habitat, Dall sheep habitat, mineral licks.	927,000	Wildlife, scenic
Does the proposed ACEC contain one or more relevant values?			
Relevant Values	Yes/No	Rationale for Determination	
1. A significant historic or cultural value		No known historic or cultural sites.	
2. A significant scenic value	Yes	Scenic value, however, is high with the scenic quality (Class A rating) of the area having high values in natural landscape characteristics of landform, vegetation, water, color, influence of adjacent scenery, scarcity and having little or no impacts from cultural modifications.	
3. A fish or wildlife resource	Yes	White Mountains caribou herd habitat, current and historic Fortymile caribou herd calving and postcalving habitat, Dall sheep habitat; mineral licks.	
4. A natural process or system	Yes	Boreal forest ecosystem	
5. Natural hazards	No	No known natural hazards	
Does the Proposed ACEC contain one or more of the important values?			
Important Values	Yes/No	Rationale for Determination	
More than locally significant	Yes	Wildlife: Dall sheep are very limited in distribution in Interior Alaska and the Yukon-Tanana Uplands in particular. Caribou are important culturally and for sport and subsistence harvest. The Fortymile caribou herd is an international herd and one of the most important subsistence resources in east central Alaska. Scenic: Scenic value is high on a little over half of the proposed area, with the scenic quality (Class A rating) of the area having high values in natural landscape characteristics of landform, vegetation, water, color, influence of adjacent scenery, scarcity and little or no impacts from cultural modifications.	
Is fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change	Yes	Wildlife: Mineral licks are rare and important habitats for ungulates. Calving and postcalving habitats for caribou are considered the most sensitive seasonal habitats. Dall sheep have specialized habitat requirements. Scenic: This area contains portions of the Birch Creek Wild and Scenic River with identified Outstandingly Remarkable Scenic Values under the Wild and Scenic Rivers Act (Appendix E.2.1).	
Has been recognized as warranting protection	Yes	Wildlife: In creating the Steese National Conservation Area, Congress directed that caribou habitat be one of two special values to be considered in planning and management of the area.	
Has qualities which warrant highlighting to satisfy management concerns about safety and public welfare	No	None identified	
Significant threat to human life/safety or property	No	None identified	
Summary of Important Values: Wildlife and scenic			

Steese ACEC (Maps 64, 65, and 66)	
Does the area require special management to protect important and relevant resources?	
Wildlife: Yes. Without long-term special management the value of these areas as wildlife habitat will likely be reduced. Scenic: Yes. Special management is required to protect the scenic viewshed of a designated "wild" segment under the Wild and Scenic Rivers Act.	
Findings: The nominated area meets the relevance and importance criteria and should be considered for ACEC designation in the Draft RMP/EIS.	
Rationale:	Caribou and Dall sheep: See Fortymile ACEC evaluation, rationale.
Rationale:	Scenic: The proposed area has merit for protection of Outstandingly Remarkable Scenic Values of this portion of Birch Creek Wild and Scenic River managed as a Visual Resource Management (VRM) Class I which is to preserve the existing character of the landscape. A VRM Class I provides for natural ecological changes; however, it does not preclude very limited management activities. The level of change to the characteristic landscape should be very low and must not attract attention. These drainages are unique in landform, vegetation, water, color and have little impacts from cultural modifications. The proposed area has merit for protection of scenic values within the viewshed of this portion of Birch Creek Wild and Scenic River managed as a VRM Class II which is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. This area is unique in landform, vegetation, water, color and has little impacts from cultural modifications.

White Mountains ACEC (Map 64)			
Internal BLM nomination for caribou calving and postcalving habitat and Dall sheep habitat			
Area Evaluated:			
General Location	**General Description**	**Acreage**	**Values Considered**
White Mountains National Recreation Area	Caribou calving and postcalving habitat; Dall sheep habitat; mineral licks.	589,000	wildlife, scenic
Does the proposed ACEC contain one or more relevant values?			
Relevant Values	Yes/No	Rationale for Determination	
1. A significant historic or cultural value	No	No known historic or cultural sites.	
2. A significant scenic value	Yes	Scenic value is high with the scenic quality (Class A rating) of the area having high values in natural landscape characteristics of landform, vegetation, water, color, influence of adjacent scenery, scarcity and having little or no impacts from cultural modifications.	
3. A fish or wildlife resource	Yes	White Mountains caribou herd habitat, historic Fortymile caribou herd calving and postcalving habitat, Dall sheep habitat; mineral licks.	
4. A natural process or system	Yes	Boreal forest ecosystem	
5. Natural hazards	No	No known natural hazards	
Does the Proposed ACEC contain one or more of the important values?			
Important Values	Yes/No	Rationale for Determination	
More than locally significant	Yes	Wildlife: Dall sheep are very limited in distribution in Interior Alaska and the Yukon-Tanana Uplands in particular. Caribou are important culturally and for sport and subsistence harvest. The Fortymile caribou herd is an international herd and one of the most important subsistence resources in east central Alaska. Scenic: This area is unique in landform (scattered irregular mountains with jagged tors and V to U shaped valleys), vegetation (four major vegetative communities), water (complex river system with incised drainages) and color (vivid colors from diverse vegetation against white rock and blue water) from the surrounding landscape.	
Is fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change	Yes	Wildlife: Mineral licks are rare and important habitats for ungulates. Calving and postcalving habitats for caribou are considered the most sensitive seasonal habitats. Dall sheep have specialized habitat requirements. Scenic: This area contains portions of the Beaver Creek Wild and Scenic River with identified Outstandingly Remarkable Scenic Values under the Wild and Scenic Rivers Act.	
Has been recognized as warranting protection	Yes	Wildlife: See above and in "Rationale" below.	
Has qualities which warrant highlighting to satisfy management concerns about safety and public welfare	No	None identified	
significant threat to human life/safety or property	No	None identified	
Summary of Important Values: Wildlife, scenic			
Does the area require special management to protect important and relevant resources?			

White Mountains ACEC (Map 64)	
Wildlife: Yes. Without long-term special management the value of these areas as wildlife habitat could potentially be reduced. Scenic: Yes. Special management is required to protect the scenic quality of the viewshed of a designated "wild" segment under the Wild and Scenic Rivers Act.	
Findings: The nominated area meets the relevance and importance criteria and should be considered for ACEC designation in the Draft RMP/EIS.	
Rationale:	Caribou and Dall sheep: See Fortymile ACEC evaluation, rationale.
Rationale:	Scenic: The proposed area has merit for protection of Outstandingly Remarkable Scenic Values of this portion of Beaver Creek Wild and Scenic River managed as a Visual Resource Management (VRM) Class I which is to preserve the existing character of the landscape. A VRM Class I provides for natural ecological changes; however, it does not preclude very limited management activities. The level of change to the characteristic landscape should be very low and must not attract attention. These drainages are unique in landform, vegetation, water, color and have little impacts from cultural modifications. The proposed area has merit for protection of scenic values within the viewshed of this portion of Birch Creek Wild and Scenic River managed as a VRM Class II which is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. This area is unique in landform, vegetation, water, color and has little impacts from cultural modifications.

Mosquito Flats ACEC (Map 63)			
Public nomination during the public comment period on the Draft RMP. This area was nominated due to: its value as a large, contiguous wetland; the largest and most heavily used moose calving area in Game Management Unit 20E; and waterfowl nesting and resting habitat.			
Area Evaluated:			
General Location	**General Description**	**Acreage**	**Values Considered**
Mosquito Flats	Contiguous wetlands in the upper Mosquito Fork drainage	37,000 acres	Natural system, wildlife, scenic

Does the proposed ACEC contain one or more relevant values?		
Relevant Values	Yes/No	Rationale for Determination
1. A significant historic or cultural value	No	The few cultural resources that are known within the boundaries of proposed ACEC are not substantially significant.
2. A significant scenic value	Yes	Scenic value is high with the scenic quality (Class A rating) of the area having high values in natural landscape characteristics of landform, vegetation, water, color, influence of adjacent scenery, scarcity and having little or no impacts from cultural modifications.
3. A fish or wildlife resource	Yes	The area contains high density moose calving, trumpeter swan nesting, good short-eared owl habitat, and a large complex of floating bog wetland vegetation encircled by mountains.
4. A natural process or system	Yes	The distinct sand beds of the Mosquito Fork River provide aquatic habitat unique to eastern interior Alaska. In low-relief wetland environments of Interior Alaska stream beds are dominantly dark organic-rich silt. However, in the Mosquito Flats wetlands the Mosquito Fork River flows over continuous sand beds that are uncharacteristically clean, light colored, well-sorted, and low in organics, suggesting origin of the sand is likely from a past depositional environment, possibly related to eolian deposits of Pleistocene or later age reported by Reger and others (2011).
5. Natural hazards	No	No known natural hazards
Does the Proposed ACEC contain one or more of the important values?		
Important Values	Yes/No	Rationale for Determination
More than locally significant	Yes	Wildlife: Mosquito Flats is an important moose calving area (and summer habitat) for the regional moose population (Gasaway 1992). The importance of Mosquito Flats in supporting nesting waterfowl is unknown, except that it supports multiple nesting trumpeter swans (a BLM Alaska sensitive species). It is utilized by short-eared owls (another BLM Alaska sensitive species) in high enough densities to be chosen as an area to test new capture techniques (Booms 2012). It likely also supports other BLM Alaska sensitive species, including olive-sided flycatcher, rusty blackbird, and blackpoll warbler. Wetlands: The sand-bed river provides unique aquatic habitat essential for maintaining habitat and species diversity within the planning area. Scenic: This area is unique in landform (scattered irregular mountains and V to U shaped valleys), vegetation (four major vegetative communities), water (complex river system with incised drainages) and color (vivid colors from diverse vegetation against rock and water) from the surrounding landscape.

Mosquito Flats ACEC (Map 63)		
Is fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change	Yes	Wildlife: Wetland habitats in general, and floating bog wetlands, in particular, can be sensitive to use by OHVs and airboats (Zacheis and Doran 2009). Wetlands: The surface hydrology of the Mosquito Flats wetland area is sensitive to damage by summer use of Off Highway Vehicles (OHV), either through thermokarst action where the vegetation mat is broken or by repeated stream crossing over easily erodible sand banks and channels. OHV tracks through the wetlands would alter surface water flow paths to the Mosquito Fork River as well substantially increase input of silt and organics to the stream.
Has been recognized as warranting protection	Yes	Wildlife: See above and in Rationale below. Wetlands: See above.
Has qualities which warrant highlighting to satisfy management concerns about safety and public welfare	No	None identified
significant threat to human life/safety or property	No	None identified
Summary of Important Values: wildlife, wetlands, scenic		
Does the area require special management to protect important and relevant resources?		
Wetlands: Yes. The proposed Mosquito Flats ACEC would require special management attention to protect surface hydrology of the Mosquito Flats wetlands and associated unique aquatic habitat essential for maintaining habitat and species diversity within the planning area. Wildlife: Possibly. Seasonal restrictions to prevent disturbance of nesting waterfowl and calving and postcalving moose is not currently needed, but could potentially be in the future. Scenic: No. Special management may aide in protecting the scenic viewshed of a designated "wild" segment under the Wild and Scenic Rivers Act, but it is not required.		
Findings: The nominated area meets the relevance and importance criteria and should be considered for ACEC designation in the Proposed RMP/Final EIS.		
Rationale:	Wetland habitats in general, and floating bog wetlands, in particular, are sensitive to use by OHVs and airboats (Zacheis and Doran 2009). The types of management recommended would be those that prevent physical impairment of wetlands from OHVs. The ACEC would be particularly vulnerable to adverse change from summer OHV use. Motorized travel should be restricted to winter use only. Placer mine operations utilizing heavy equipment have the potential to adversely impact soil resources and water quality through erosion of disturbed soils, periodic discharge of sediment laden water, and subsequent increased downstream turbidity. Mining operations could adversely impact the natural water quality and flow characteristics.	

Appendix D. Visual Resource Inventory

D.1. Introduction

BLM's Land Use Planning Handbook H-1601–1 requires that the BLM designate VRM management classes for all areas of BLM land, based on an inventory of visual resources and management considerations for other land uses. The Eastern Interior Field Office conducted an inventory to determine the visual quality of all lands in the planning area. This appendix summarizes the methodology and results of the inventory, which is incorporated by reference into the RMP/EIS. The inventory with maps is available in BLM's Fairbanks District Office.

Methodology

Visual resource inventory (VRI) class areas for the planning area were delineated using the process in BLM's Visual Resource Inventory Handbook (H-8410-1). Visual resources are described in the context of the Visual Resource Management (VRM) system, which is used by the BLM to inventory and manage visual resources. This system provides an analytical method to analyze potential visual impacts and to apply visual design techniques to ensure that surface-disturbing activities are harmonious with their surroundings. The VRM system inventory is applied to the entire planning area, including non-federal lands (e.g., state, private) since adjacent lands impact the scenic quality and sensitivity of BLM-managed lands. However, management of visual resources will only occur on BLM-managed lands.

Implementing VRM involves conducting an inventory, establishing management classes, and providing an impact assessment. During the inventory stage, data are collected to identify the visual resources of an area in order to designate VRI classes. The inventory consists of a scenic quality evaluation, sensitivity level analysis, and a delineation of distance zones. These are described in the following sections.

Based on these three factors, BLM lands are placed into one of four VRI classes which represent the relative value of the visual resources. Classes I and II are the most valued, Class III representing a moderate value, and Class IV being of least value. The inventory classes provide the basis for considering visual values in the resource management planning process.

Once the visual resource inventory is completed, visual resource management classes (I-IV) are assigned to lands in the planning area during the planning process. The visual resource management classes for each alternative are described in Chapter 2 and displayed on Maps 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 and 25. The effects of the alternatives on visual resources are analyzed in Chapter 4.

D.2. Scenic Quality

Scenic quality is a measure of the visual appeal of a tract of land. All public lands have scenic value, but areas with the most variety and harmonious composition have the greatest value. The scenic quality evaluation describes the characteristic landscape and determines scenic-quality ratings for the visual resources (the land, water, vegetation, and structures that are visible on the land) of the planning area. The evaluation is intended to represent the overall impression a viewer

has of the visual resources from several viewpoints or locations, rather than the view from any one location, including an aerial view, or during any one season of the year.

The planning area was used as the frame of reference for rating scenic quality. Physiographic Divisions of Alaska (Wahrhaftig 1965) were used as a foundation for each Scenic Quality Rating Unit (SQRU). The planning area can be divided into three major physiographic provinces: the Northern Plateaus Province, the Western Alaska Province, and the Alaska-Aleutian Province. These provinces are further divided into 11 physiographic divisions, forming a basis to describe the elements of landform, water, color and distinctiveness. Each of these divisions was considered a SQRU. The transitions between physiographic divisions are generally subtle.

Landform is characterized by vertical relief, spatial composition, and color. Water is characterized by its shape, pattern, and color. Color is defined by its relative scales of hue (classifications of red, yellow, green, blue, or combinations) and value (lightness and darkness), and intensity (degree or strength). Distinctiveness is a measure of uniqueness within a region.

Each SQRU was evaluated to determine its scenic quality and is rated as Class A, B or C. A Scenic Quality Field Inventory Form was developed for each SQRU. In some cases, there is more than one form if the SQRU occurred in more than one planning subunit. These inventory forms estimate the visual values which resulted in the Class A, B, or C rating. The SQRU classes are summarized below:

- Class A SQRU has a great deal of visual variety, contrast, and harmony.
- Class B SQRU has a moderate amount of visual variety, contrast, and harmony.
- Class C SQRU has little visual variety, contrast, and harmony.

D.2.1. Vegetative Types

Vegetation is an important component in determining the visual quality of an area. Vegetation is represented by species, variety, extent and color. The more variety of species a landscape has the higher the scenic quality. General vegetation types based on Viereck and Elbert (1972) were used as a basis for this analysis.

Vegetation Types Present in the Subunit	Fortymile Subunit	Steese Subunit	Upper Black River Subunit	White Mountains Subunit
Alpine tundra	x	x	x	x
Closed spruce forests	x	x	x	x
Moist tundra	x			
Open, low growing spruce	x	x	x	
Treeless bogs	x	x	x	x

D.2.2. Cultural Modifications

Cultural Modifications are also taken into account in the scenic quality rating process. Cultural modifications can blend in with or stand out from the surrounding landscape. The planning area is still primarily a natural landscape where humans have not substantially changed the scenic quality. However some areas have been modified by the activities of humans. Buildings are the most likely to be seen and have the most modification from the natural landscape. Buildings primarily exist near communities, including Boundary, Central, Chicken, Eagle, Tanacross, Tetlin, Tetlin Junction, and Tok. Homestead areas, mining claims, Native allotments, and isolated cabins can also be found throughout the planning area. Most of the buildings outside a community, are

in relative harmony with the landscape as they are small, made of local materials, and have primarily natural based colors.

Other modifications include the Alaska, Dalton, Elliot, Steese, Taylor, and Top of the World highways, and other roads. Airstrips can be found in the Fortymile, Steese, and Upper Black River subunits. While the profile of an airstrip is low, landform changes are introduced by brown colors in predominantly green vegetation and more regular lines than the surrounding irregular vegetation. A few capped oil and gas exploration wells may be found within the Upper Black River Subunit. Given the small footprint and with most either flush with the landscape or consisting of a "Christmas tree" less than six feet tall, these modifications are very hard to see from a distance of more than 200 feet. OHV trails exist in all subunits to varying degrees. Summer travel in the Upper Black River Subunit is primarily by watercraft. However, snowmobile trails and seismic lines can be seen from elevated locations. Summer ATV travel has occurred in the Fortymile, Steese, and White Mountains subunits with many trails or travel routes visible for long distances from elevated locations.

While these features introduce modifications to the landform, they also provide places of use and special interest or key observation areas from which to evaluate the sensitivity levels.

D.3. Visual Sensitivity

Visual sensitivity is a key component in identifying VRI classes. Sensitivity levels are a measure of public concern for the scenic quality of an area. There are six factors to consider when evaluating sensitivity levels: Type of Users, Amount of Use, Public Interest, Adjacent Land Use, Special Areas and Other Factors. Areas identified as sensitive include known travel routes, especially State Scenic Byways, areas of human habitation, areas of traditional use, Native allotments, and areas identified through Benefits Based Management studies (Fix 2007; Harrington and Fix 2008; Stegmann, Fix and Teel 2008). Numerous areas are noted to have potentially high visual sensitivity because area residents and visitors view the natural landscape as very important and have a high level of interest and sensitivity to changes to the natural landscape. There are three levels of overall sensitivity: High (H), Medium (M) and Low (L). The results of the sensitivity ratings are summarized in Table D.1, "Scenic Quality Rating Units, VRI Classes, and Sensitivity Ratings in the Planning Area" .

Table D.1. Scenic Quality Rating Units, VRI Classes, and Sensitivity Ratings in the Planning Area

Scenic Quality Rating Unit (SQRU)	SQRU Class	Visual Sensitivity Rating	Fortymile Subunit	Steese Subunit	Black River Subunit	White Mountains Subunit
Alaska Range-Central and Eastern Part	A	M	X			
Kokrine-Hodzana Highlands	B	M				X
Northern Foothills	A	M	X			
Northway-Tanacross Lowlands	B	M	X			
Ogilvie Mountains	A	M	X		X	
Porcupine Plateau	B	M			X	
Rampart Trough	C	M				X
Tanana-Kuskokwim Lowland	C	L	X			
Tintina Valley	B	L	X			

Scenic Quality Rating Unit (SQRU)	SQRU Class	Visual Sensitivity Rating	Fortymile Subunit	Steese Subunit	Black River Subunit	White Mountains Subunit
Yukon Flats Section	C	M	X	X	X	
Yukon-Tanana Upland	A	M	X	X		X
Visual Resource Inventory Class			**II-III**	**I-II**	**II-III**	**I-II**

D.4. Distance Zones

Distance Zones are also used in determining VRI classes. They are important in assessing visual impacts. The distance from an object affects how clearly elements of a landscape are perceived, with visible details of a particular object decreasing with increasing distance. Distance Zones are one basis for determining the visual sensitivity of planning areas. The VRM system recognizes three Distance Zones: Foreground-Middleground, Background, and Seldom-Seen as defined below:

- Foreground-Middleground Zone: This is the area that can be seen from each travel route or assessment location for a distance of up to five miles where management activities might be viewed in detail.
- Background Zone: This is the remaining area that can be seen from each travel route or assessment location to approximately 15 miles. It does not include areas in the background that are so far distant that the only thing discernible is the form or outline.
- Seldom-Seen Zone: These are areas that are not visible within the Foreground-Middleground and Background zones, and areas beyond the Background Zone, generally over 15 miles and screened by natural landscape features.

D.5. Summary

D.5.1. Fortymile Subunit

The tables below show the results of the VRM Inventory (VRI Class) for the Fortymile Subunit. The first table shows inventory results for all lands in the subunit. The second table displays VRI results for BLM-managed lands. Acreage numbers are based on the 2009 Land Status maps.

Table D.2. VRM Inventory for all lands within the Fortymile Subunit

Inventory Parameters	VRI Class I (acres)	VRI Class II (acres)	VRI Class III (acres)	VRI Class IV (acres)	Percent of Subunit
Scenic Quality Rating (SQRU)					
SQRU A	145,000	12,910,000	0	0	82
SQRU B	0	0	741,000	1,565,000	15
SQRU C	0	0	0	488,000	3
Visual Sensitivity					
High	145,000	11,057,000	0	0	71
Medium	0	1,853,000	741,000	1,011,000	23
Low	0	0	0	1,042,000	6
Distance Class					
Foreground-Middleground	145,000	2,926,000	741,000	488,000	27
Background	0	4,188,000	0	1,034,000	33
Seldom-seen	0	5,797,000	0	530,000	40

Table D.3. VRM Inventory for BLM-managed lands within the Fortymile Subunit

Inventory Parameters	VRI Class I (acres)	VRI Class II (acres)	VRI Class III (acres)	VRI Class IV (acres)	Percent of Subunit
Scenic Quality Rating (SQRU)					
SQRU A	145,000	1,870,000	0	0	97
SQRU B	0	0	6,000	47,000	3
SQRU C	0	0	0	1,000	0
Visual Sensitivity					
High	145,000	1,857,000	0	0	97
Medium	0	13,000	6,000	0	1
Low	0	0	0	47,000	2
Distance Class					
Foreground-Middleground	145,000	655,000	6,000	2,000	39
Background	0	659,000	0	45,000	34
Seldom-seen	0	556,000	0	0	27

The following tables show the relationship between the VRI inventory data and the VRM Class management alternatives. All Acreages for Alternatives A-D are based on 2009 Land Status. Acreages for Alternative E are based on 2015 Land Status.

Table D.4. Fortymile Subunit Alternatives A and B for VRI Classes I and II

VRI Class I											VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. A	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	145	145			145			145											
VRM Class II	103										103			103			103		
VRM Class III																			
VRM Class IV																			
Total	248	145			145			145			103			103			103		
Alternative. B	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	145	145			145			145											
VRM Class II	631										968			968			437	360	170
VRM Class III	4										3			3			3		
VRM Class IV	1,284										907			894	13		222	298	387
Total	2,076	145			145			145			1,878			1,865	13		663	659	557

[a]All acres are in 1,000s of acres

Table D.5. Fortymile Subunit Alternatives C and D for VRI Classes I and II

VRI Class I											VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. C	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	145	145			145			145											
VRM Class II	452										452			452			124	212	115
VRM Class III																			
VRM Class IV	1,831										1,426			1,413	13		538	447	442
Total	2,076	145			145			145			1,878			1,865	13		663	659	557
Alternative. D	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	145	145			145			145											
VRM Class II	103,000																		
VRM Class III											100			100			100		
VRM Class IV											1,778			1,765	13		562	659	557
Total		145			145			145			1,878			1,864	13		662	659	557

[a]All acres are in 1,000s of acres

Table D.6. Fortymile Subunit Alternatives A and B for VRI Classes III and IV

		VRI Class III									VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. A	Acres [a](1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	145																		
VRM Class II	103																		
VRM Class III																			
VRM Class IV																			
Total	248																		
Alternative. B	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	145																		
VRM Class II	970											3				3		3	
VRM Class III	4											838				1	1		

		VRI Class III									VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
VRM Class IV	957		6			6		6				43	<1			44	1	42	<1
Total	2,076		6			6		6				47	<1			47	2	45	<1

[a]All acres are in 1,000s of acres

Table D.7. Fortymile Subunit Alternatives C and D for VRI Classes III and IV

		VRI Class III									VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. C	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	145																		
VRM Class II	100																		
VRM Class III																			
VRM Class IV	1,831		6			6		6				47	<1			47	2	45	<1
Total	2,076		6			6		6				47	<1			47	2	45	<1
Alternative. D	Acres	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	145																		
VRM Class II																			
VRM Class III	100																		

		VRI Class III									VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
VRM Class IV	1,831		6			6		6				47	<1			47	2	45	<1
Total	2,076		6			6		6				47	<1			47	2	45	<1

[a]All acres are in 1,000s of acres

Table D.8. Fortymile Subunit Alternatives E for VRI Classes I – IV

VRI Class I											VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. E	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	145	144			144			144			<1			<1			<1		
VRM Class II	731	<1			<1			<1			728			728			236	300	192
VRM Class III	11										11			11			11		
VRM Class IV	992	<1			<1			<1			942			928	13		292	296	354
Total	1,878	145			145			145			1,681			1,667	13		539	596	546
VRI Class III											**VRI Class IV**								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. E	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	144																		
VRM Class II	731											3				3		2	<1
VRM Class III	11																		

		VRI Class I									VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
VRM Class IV	992		6			6		6				43				44	2	42	<1
Total	1,878		6			6		6				46				47	2	44	<1

[a]All acres are in 1,000s of acres

D.5.2. Steese Subunit

The tables below show the results of the VRM Inventory (VRI Class) for the Steese Subunit. The first table shows inventory results for all lands in the subunit. The second table displays VRI results for only BLM-managed lands. Acreage numbers are based on the 2009 Land Status maps.

Table D.9. VRM Inventory for all lands within the Steese Subunit

Inventory Parameters	VRI Class I (acres)	VRI Class II (acres)	VRI Class III (acres)	VRI Class IV (acres)	Percent of Subunit
Scenic Quality Rating (SQRU)					
SQRU A	58,000	1,963,000	0	0	48
SQRU B	0	0	1,000	20,000	1
SQRU C	11,000	0	25,000	2,122,000	51
Visual Sensitivity					
High	58,000	1,960,000	25,000	1,000	49
Medium	11,000	3,000	1,000	2,121,000	51
Low	0	0	0	20,000	0
Distance Class					
Foreground-Middleground	69,000	830,000	26,000	1,456,000	57
Background	0	955,000	0	596,000	37
Seldom-seen	0	178,000	0	90,000	6

Table D.10. VRM Inventory for BLM-managed lands within the Steese Subunit

Inventory Parameters	VRI Class I (acres)	VRI Class II (acres)	VRI Class III (acres)	VRI Class IV (acres)	Percent of Subunit
Scenic Quality Rating (SQRU)					
SQRU A	58,000	1,136,000	0	0	94
SQRU B	0	0	0	0	0
SQRU C	11,000	0	25,000	45,000	6
Visual Sensitivity					
High	58,000	1,136,000	25,000	1,000	96
Medium	11,000	0	0	44,000	4
Low	0	0	0	0	0
Distance Class					
Foreground-Middleground	69,000	408,000	25,000	43,000	43
Background	0	644,000	0	2,000	51
Seldom-seen	0	84,000	0	0	6

The tables below show the relationship between the inventory data and management alternatives. All Acreages for Alternatives A-D are based on 2009 Land Status. Acreages for Alternative E are based on 2015 Land Status.

Table D.11. Steese Subunit Alternatives A and B for VRI Classes I and II

VRI Class I											VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. A	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	69	57		11	57	11		69			<1			<1			<1		
VRM Class II	76										76			76			30	46	
VRM Class III	1,066	<1			<1			<1			1,056			1,056			373	598	84
VRM Class IV																			
Total	1,211,000	58		11	58	11		69			1,132			1,132			404	644	84
Alternative. B	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	107	58		15	58	15		73			21			21			21	<1	
VRM Class II	1,139										1,130			1,130			401	645	84
VRM Class III																			
VRM Class IV	35										2			2			2		
Total	1,292	58		15	58	15		73			1,153			1,153			424	645	84

[a]All acres are in 1,000s of acres

Table D.12. Steese Subunit Alternatives C and D for VRI Classes I and II

	VRI Class I										VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. C	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	103	58		15	58	15		73			17			17			17	<1	
VRM Class II	578										569			569			166	363	40
VRM Class III	`																38	116	
VRM Class IV	612										568			568			242	282	44
Total	1,292	58		15	58	15		73			1,153			1,153			462	761	84
Alternative. D	Acres (1,000,s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	90	58		15	58	15		73			5			5			4	<1	
VRM Class II	423										423			423			127	257	
VRM Class III																			40
VRM Class IV	779										725			725			293	388	44
Total	1,292	58		15	58	15		73			1,153			1,153			424	645	84

[a]All acres are in 1,000s of acres

Table D.13. Steese Subunit Alternatives A and B for VRI Classes III and IV

		VRI Class III									VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. A	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	69			<1	<1			<1					<1		<1		<1		
VRM Class II	76																		
VRM Class III	1,066			8	8			8					1	1				1	
VRM Class IV																			
Total	1,211			8	8			8					1	1	<1		<1	1	
Alternative. B	Acres (1,000,s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	107			12	12			12											
VRM Class II				8	8			8					1	1				1	
VRM Class III																			

		VRI Class III									VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
VRM Class IV	35												44		44		43	<1	
Total	1,281			20	20			20					45	1	44		43	2	

[a]All acres are in 1,000s of acres

Table D.14. Steese Subunit Alternatives C and D for VRI Classes III and IV

		VRI Class III									VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. C	Acres[a] (1,000,s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	103			12	12			12					<1		<1		<1		
VRM Class II	578			8	8			8					1	1				1	
VRM Class III	154																		
VRM Class IV	612												44		44		43	<1	
Total	1,292			20	20			20					45	1	44		43	2	
Alternative. D	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	90			12	12			12											
VRM Class II	423																		
VRM Class III																			

		VRI Class III									VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
VRM Class IV	779			8	8			8					45	1	44		43	2	
Total	1,292			20	20			20					45	1	44		43	2	

[a]All acres are in 1,000s of acres

Table D.15. Steese Subunit Alternatives E for VRI Classes I – IV

VRI Class I											VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. D	Acres[a] (1,000,s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	103	58		11	58	11		69			17			17			17	<1	
VRM Class II	910	<1			<1			<1			900			900			212	604	84
VRM Class III																			
VRM Class IV	270	<1			<1			<1			236			236			195	41	<1
Total	1,282	58		11	58	11		69			1,154			1,154			424	645	84
VRI Class III											VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. D	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	103			17	17			17											
VRM Class II	910			8	8			8					1	1				1	
VRM Class III																			

		VRI Class I									VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
VRM Class IV	270												34		34		34	<1	
Total	1,282			25	25			25					35	1	34		34	2	

[a]All acres are in 1,000s of acres

D.5.3. Upper Black River Subunit

The tables below show the results of the VRM Inventory (VRI Class) for the Upper Black River Subunit. The first table shows inventory results for all lands in the subunit. The second table displays VRI results for only BLM-managed lands. Acreage numbers are based on the 2009 Land Status maps.

Table D.16. VRM Inventory for all lands within the Upper Black River Subunit

Inventory Parameters	VRI Class I (acres)	VRI Class II (acres)	VRI Class III (acres)	VRI Class IV (acres)	Percent of Subunit
Scenic Quality Rating (SQRU)					
SQRU A	0	2,884,000	0	0	37
SQRU B	0	0	1,262,000	1,739,000	39
SQRU C	0	0	0	1,873,000	24
Visual Sensitivity					
High	0	10,000	0	0	0
Medium	0	2,874,000	1,262,000	3,452,000	98
Low	0	0	0	161,000	2
Distance Class					
Foreground-Middleground	0	1,512,000	1,262,000	1,199,000	51
Background	0	1,102,000	0	1,743,000	37
Seldom-seen	0	270,000	0	671,000	12

Table D.17. VRM Inventory for BLM-managed lands within the Upper Black River Subunit

Inventory Parameters	VRI Class I (acres)	VRI Class II (acres)	VRI Class III (acres)	VRI Class IV (acres)	Percent of Subunit
Scenic Quality Rating (SQRU)					
SQRU A	0	1,478,000	0	0	63
SQRU B	0	0	448,000	398,000	36
SQRU C	0	0	0	37,000	1
Visual Sensitivity					
High	0	0	0	0	0
Medium	0	1,478,000	448,000	435,000	100
Low	0	0	0	0	0
Distance Class					
Foreground-Middleground	0	783,000	448,000	16,000	53
Background	0	637,000	0	408,000	44
Seldom-seen	0	58,000	0	11,000	3

The tables below show the relationship between the inventory data and management alternatives. All Acreages for Alternatives A-D are based on the 2009 Land Status maps. Acreages for Alternative E are based on 2015 Land Status.

Table D.18. Upper Black River Subunit Alternatives A and B for VRI Classes I and II

VRI Class I											VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. A	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I																			
VRM Class II																			
VRM Class III																			
VRM Class IV																			
Total																			
Alternative. B	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I																			
VRM Class II	2,361										1,478				1,478		783	637	58
VRM Class III																			
VRM Class IV	1,738																		
Total	2,359										1,478				1,478		783	637	58

[a]All acres are in 1,000s of acres

Table D.19. Upper Black River Subunit Alternatives C and D for VRI Classes I and II

VRI Class I											VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. C	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I																			
VRM Class II																			
VRM Class III	623										549				549		275	216	58
VRM Class IV	1,738										929				929		507	422	
Total	2,361										1,478				1,478		783	637	58
Alternative. D	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I																			
VRM Class II																			
VRM Class III																			
VRM Class IV	2,361										1,478				1,478		782	637	58
Total	2,361										1,478				1,478		782	637	58

[a]All acres are in 1,000s of acres

Table D.20. Upper Black River Subunit Alternatives A and B for VRI Classes III and IV

		VRI Class III									VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. A	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I																			
VRM Class II																			
VRM Class III																			
VRM Class IV																			
Total																			
Alternative. B	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I																			
VRM Class II	2,361		448			448		448				398	37		435		16	408	11
VRM Class III																			

	VRI Class III										VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
VRM Class IV																			
Total	2,361		448			448		448				398	37		435		16	408	11

[a]All acres are in 1,000s of acres

Table D.21. Upper Black River Subunit Alternatives C and D for VRI Classes III and IV

		VRI Class III									VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. C	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I																			
VRM Class II			51			51		51				22			23			12	11
VRM Class III	623																		
VRM Class IV	1,738		397			397		397				375	37		413		16	397	<1
Total	2,361		448			448		448				398	37		435		16	408	11
Alternative. D	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I																			
VRM Class II																			
VRM Class III																			

	VRI Class III										VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
VRM Class IV	2,361		448			448		448				398	37		435		16	408	11
Total	1,281		447			447		447				398	37		435		16	408	11

[a]All acres are in 1,000s of acres

Table D.22. Upper Black River Subunit Alternatives E for VRI Classes I – IV

VRI Class I											VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. E	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I																			
VRM Class II	1,131										803				803		465	280	58
VRM Class III																			
VRM Class IV	1,230										674				674		317	357	
Total	2,360										1,477				1,477		783	637	58
VRI Class III											VRI Class IV								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. E	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I																			
VRM Class II	1,131		236			236		236				92			92			81	11
VRM Class III																			

	VRI Class I										VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
VRM Class IV	1,230		212			212		212				306	37		343		16	327	<1
Total	2,360		448			448		448				398	37		435		16	408	11

[a]All acres are in 1,000s of acres

D.5.4. White Mountains Subunit

The tables below show the results of the VRM Inventory (VRI Class) for the White Mountains Subunit. The first table shows inventory results for all lands in the subunit. The second table displays VRI Class results for only BLM-managed lands. Acreage numbers are based on the 2009 Land Status maps.

Table D.23. VRM Inventory for all lands within the White Mountains Subunit

Inventory Parameters	VRI Class I (acres)	VRI Class II (acres)	VRI Class III (acres)	VRI Class IV (acres)	Percent of Subunit
Scenic Quality Rating (SQRU)					
SQRU A	73,000	1,790,000	0	0	59
SQRU B	0	0	69,000	53,000	4
SQRU C	4,000	0	0	1,159,000	37
Visual Sensitivity					
High	73,000	1,790,000	0	0	59
Medium	4,000	0	69,000	1,211,000	41
Low	0	0	0	0	0
Distance Class					
Foreground-Middleground	76,000	1,177,000	69,000	453,000	57
Background	0	482,000	0	657,000	36
Seldom-seen	0	131,000	0	101,000	7

Table D.24. VRM Inventory for BLM-managed lands within the White Mountains Subunit

Inventory Parameters	VRI Class I (acres)	VRI Class II (acres)	VRI Class III (acres)	VRI Class IV (acres)	Percent of Subunit
Scenic Quality Rating (SQRU)					
SQRU A	70,000	950,000	0	0	100
SQRU B	0	0	0	0	0
SQRU C	0	0	0	0	0
Visual Sensitivity					
High	70,000	950,000	0	0	100
Medium	0	0	0	0	0
Low	0	0	0	0	0
Distance Class					
Foreground-Middleground	70,000	786,000	0	0	84
Background	0	164,000	0	0	16
Seldom-seen	0	0	0	0	0

The tables below show the relationship between the inventory data and management alternatives. All Acreages for Alternatives A-D are based on 2009 Land Status. Acreages for Alternative E are based on 2015 Land Status.

Table D.25. White Mountains Subunit Alternatives A and B for VRI Classes I and II

		VRI Class I									VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. A	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	69	69			69			69			<1			<1			<1		
VRM Class II	506	1			1			1			505			505			388	117	
VRM Class III	428	<1			<1			<1			428			428			382	46	
VRM Class IV																			
Total	1,003	71			71			71			933			933			769	164	
Alternative. B	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	96	70			70			70			25			25			25		
VRM Class II	554										554			554			397	157	
VRM Class III	38										367			367			361	7	
VRM Class IV	4										4			4			4	<1	
Total	1,020	70			70			70			950			950			786	164	

[a]All acres are in 1,000s of acres

Table D.26. White Mountains Subunit Alternatives C and D for VRI Classes I and II

VRI Class I											VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. C	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	96	70			70			70			25			25			25		
VRM Class II	217										217			217			130	87	
VRM Class III	268										268			268			237	30	
VRM Class IV	440										440			440			394	47	
Total	1,020	70			70			70			950			950			786	164	
Alternative. D	Acres (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	82	70			70			70			12			12			12		
VRM Class II	123										123			123			70	53	
VRM Class III	321										321			321			265	56	
VRM Class IV	494										494			494			440	54	
Total	1,020	70			70			70			950			950			786	164	

[a]All acres are in 1,000s of acres

Table D.27. White Mountains Subunit Alternatives E for VRI Classes I – II

		VRI Class I									VRI Class II								
		Scenic Quality Rating			Sensitivity Rating			Distance Zones			Scenic Quality Rating			Sensitivity Rating			Distance Zones		
Alternative. E	Acres[a] (1,000s)	A	B	C	High	Medium	Low	F-M	B	SS	A	B	C	High	Medium	Low	F-M	B	SS
VRM Class I	96	70			70			70			25			25			25		
VRM Class II	883	<1			<1			<1			882			882			719	164	
VRM Class III																			
VRM Class IV	42										42			42			42	<1	
Total	1,020	71			71			71			950			950			786	164	

[a]All acres are in 1,000s of acres

Appendix E. Wild and Scenic Rivers Inventory

Through the Wild and Scenic Rivers Act (WSR Act) of 1968, Congress established legislation to protect and preserve designated rivers throughout the United States in their free-flowing condition. Section 5(d) of the WSR Act directs federal agencies to consider the potential for national "wild," "scenic," and "recreational" river areas during land use planning. A Wild and Scenic River inventory was therefore conducted by the Eastern Interior Field Office as part of the Eastern Interior planning process. Only Congress can designate new wild and scenic rivers in Alaska.

This appendix outlines the process used to determine which rivers in the Eastern Interior Planning Area meet the eligibility and suitability criteria under the WSR Act. Rivers determined eligible are described in this appendix and in Chapter 3 of the Proposed RMP/Final EIS. Rivers meeting the suitability criteria are recommended suitable for designation under the WSR Act in Alternative B of the Proposed RMP/Final EIS. The BLM is required to analyze the impacts of designation and of suitable rivers in at least one alternative.

Guidance on determining eligibility and suitability for wild and scenic rivers (WSRs) comes from:

- The Wild and Scenic Rivers Act of 1968 (Public Law 90-542 [as amended], 16 U.S.C. 1271–1287
- BLM Manual 6400, Wild and Scenic Rivers—Policy and Program Direction for Identification, Evaluation, Planning and Management
- The Interagency Wild and Scenic Rivers Council: Composed of representatives from the U.S. Department of the Interior and the Department of Agriculture, the overriding goal of the Council is to improve interagency coordination in administering the WSR Act, improve service to the American public, and enhancing protection of important river resources. Information about the council and its products can be found at http://www.rivers.gov/

All rivers in Alaska were considered for inclusion in the National Wild and Scenic Rivers System (NWSR) as part of the Alaska National Interest Lands Conservation Act (ANILCA). In the *Report to the Secretary of the Interior for Potential Components of the National Wild and Scenic Rivers System, Alaska* (Bureau of Outdoor Recreation 1972), Alaska was divided into six drainage sub-regions with 69 rivers selected for preliminary consideration for having the greatest potential for inclusion. The planning area is in the Yukon sub-region and 26 rivers were identified for study. Of these 26 rivers, 11 are within the planning area. These rivers are Beaver, Birch, Black-Grayling-Salmon, Charley, Chatanika, Chena, Fortymile, Kandik, Porcupine, Tanana, and Yukon. Additionally, three of these rivers were previously identified for potential inclusion in the NWSR (FR 1970). They include Birch Creek, Chatanika River, and the Fortymile River. Birch Creek, Fortymile River, and Beaver Creek were designated as wild and scenic rivers (WSRs) in 1980 by ANILCA.

E.1. Overview of the Process

There are three phases in identifying rivers for possible inclusion in the NWSR.

The first phase of the wild and scenic river review is to inventory all potentially eligible rivers within the planning area to determine which rivers are eligible for consideration in the NWSR. To be eligible, rivers must be free-flowing and possess at least one outstandingly remarkable value

(ORV). Free-flowing is defined as existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. ORVs may include scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. The ORVs are evaluated in the context of regional and/or national significance, and must be river-related. Eligibility is, in legal terms, a fact-based determination and not a planning decision.

The second phase is to assign a tentative classification of "wild," "scenic," or "recreational" for each river/segment found eligible. It is made based on the current level of naturalness and development associated with each river/segment. Congress will set the actual classification on any river added to the NWSR.

The third phase is to determine suitability for inclusion into the NWSR. Determining suitability is a planning decision and it provides the basis for recommending legislation.

Methodology

The first step in determining eligibility is to develop a list of potential rivers. A list of potential rivers was generated for the planning area that included or was based on review of:

1. recommendations from the public made during the scoping process;
2. the 1970 USDA/DOI List;
3. the Nationwide Rivers Inventory List;
4. the Outstanding Rivers List compiled by American Rivers, Inc.;
5. published guidebooks, regional guides, and inventories, i.e., American Whitewater Affiliation List;
6. river segments identified in Statewide Comprehensive Outdoor Recreation Plans;
7. river segments officially identified by State or local government agencies as being in the public interest for river protection;
8. rivers identified as potentially meeting the criteria by the BLM review team; and,
9. other sources such as website searches.

The review was limited to rivers that the BLM administers per BLM Manual 6400–3.1: "The BLM does not have the authority to evaluate the presence, absence, or quality of values that occur on private lands. However, the boundary of that river may include private lands. In such cases, eligibility determinations should only consider the presence or values on BLM-administered lands and related waters." The data from the list of potential river segments were then transferred to a GIS database with segments either extended to landmarks or confluences on the ground. Some segments were connected to the existing river corridors for easier management consideration or were extended to headwaters to protect downstream values.

The second step in determining eligibility is determining ORVs for each identified river. The Wild and Scenic Rivers Act states that ORVs can include scenery, recreation, geology, fish and wildlife, history, cultural and other similar values. More specific guidance on identifying ORVs is provided by the Interagency Wild and Scenic Rivers Council (IWSRC) and BLM Manual 6400.

The following is a summary of the guidance by the IWSRC in "A Compendium of Questions & Answers Relating to Wild & Scenic Rivers," May, 1997 online at www.rivers.gov. The value must be river related. To be considered river related, a value must:

- be located in the river or on its immediate shorelines – within one-quarter mile on either side of the river; and,
- contribute substantially to the functioning of the river ecosystem; or,
- owe its location or existence to the presence of the river.

The value must be rare, unique, or exemplary in a regional or national context. To be considered rare or unique, a value should be a conspicuous example from among a number of similar values that are themselves uncommon or extraordinary.

Since the determination of a river's eligibility is a review of what exists, the eligibility of rivers does not vary with the plan alternatives. It is simply a declaration of what has been determined.

Section 1(b) of the WSR Act requires that, in order for a river segment to be eligible for inclusion as a component of the NWSR, it must possess one or more of the following ORVs: scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. The following standards guide how these values are to be interpreted and applied on BLM-managed lands. State Directors may (normally as an element of guidance for resource management planning) prescribe supplemental standards or criteria for determining ORVs as they apply to particular river segments. BLM Manual 6400 provides standards to guide how ORVs are interpreted and applied. These are described below.

1. **Scenery.** The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attractions. BLM Visual Resource Inventory Handbook, H-8410-1, may be used in assessing visual quality and in evaluating the extent of development upon scenic values. The rating area must be scenic quality "A" as defined in BLM Visual Resource Inventory Handbook. When analyzing scenic values, additional factors, such as seasonal variations in vegetation, scale of cultural modifications, and length of time negative intrusions are viewed, may be considered. Scenery and visual attractions may be highly diverse along the majority of the river or river segment.
2. **Recreation.** Recreational opportunities within the subject river corridor are, or have the potential to be, popular enough to attract visitors from throughout or beyond the region of comparison or are unique or rare within the region. River-related opportunities include, but not be limited to, sightseeing, interpretation, wildlife observation, camping, photography, hiking, fishing, hunting, and boating. Such a recreational opportunity may be an outstandingly remarkable value without the underlying recreational resource being an outstandingly remarkable value (e.g., fishing may be an outstandingly remarkable value without the fish species being an outstandingly remarkable value). The river may provide settings for national or regional usage or competitive events.
3. **Geology.** The river area contains one or more examples of a geologic feature, process, or phenomenon that is unique or rare within the region of comparison. The feature(s) may be in an unusually active stage of development, represent a "textbook" example, and/or represent a unique or rare combination of geologic features (erosional, volcanic, glacial, and other geologic features).
4. **Fish.** Fish values include either indigenous fish populations or habitat or a combination of these river-related conditions.
    a. Populations. The river is nationally or regionally an important producers of indigenous resident and/or anadromous fish species. Of particular significance is the presence of wild stocks and/or federal or state, listed, or candidate, threatened, endangered, or BLM sensitive species. Diversity of species is an important consideration and could, in itself, lead to a determination that it is an outstandingly remarkable value.
    b. Habitat. The river provides exceptionally high quality habitat for fish species indigenous to the region of comparison. Of particular significance is habitat for wild stocks and/or federal or state listed or candidate, threatened, endangered, or BLM sensitive species. Diversity of habitat is an important consideration and could, in itself, lead to a determination that it is an outstandingly remarkable value.

5. **Wildlife.** Wildlife values include either terrestrial or aquatic wildlife populations or habitat or a combination of these river-related conditions.
   a. Populations. The river, or area within the river corridor, contains nationally or regionally important populations of indigenous wildlife species dependent on the river environment. Of particular significance are species considered to be unique to the area and/or populations of federal or state listed or candidate, threatened, endangered, or BLM sensitive species. Diversity of species is an important consideration and could, in itself, lead to a determination that it is an outstandingly remarkable value.
   b. Habitat. The river, or area within the river corridor, provides exceptionally high-quality habitat for wildlife of national or regional significance and/or may provide unique habitat or a critical link in habitat conditions for federal or state listed or candidate, threatened, endangered, or BLM sensitive species. Contiguous habitat conditions are such that the biological needs of the species are met. Diversity of habitat is an important consideration and could, in itself, lead to a determination that it is an outstandingly remarkable value.
6. **Historical.** The river, or area within the corridor, has scientific value or contains a rare or outstanding example of a district, site, building, or structure that is associated with an event, person, or distinctive style. Likely candidates include sites that are eligible for the National Register of Historic Places at the national level or have been designated a national historic landmark by the Secretary of the Interior.
7. **Cultural.** The river, or area within the river corridor, contains rare or outstanding examples of historic or prehistoric locations of human activity, occupation, or use, including locations of traditional cultural or religious importance to specified social and/or cultural groups. Likely candidates might include a unique plant procurement site of contemporary significance.
8. **Other Similar Values.** While no specific national evaluation guidelines have been developed for the "other similar values" category, assessments of additional river-related values consistent with the foregoing guidance may be developed as part of the eligibility process, including, but not limited to, hydrological and paleontological resources or scientific study opportunities. By way of example, the following evaluation guidelines describe possible river-related botanical resources:

   i. *Botany* The area within the river corridor contains riparian communities that are ranked critically imperiled by state-based natural heritage programs. Alternatively, the river contains exemplary examples, in terms of health, resilience, species diversity, and age diversity, of more common riparian communities. The river corridor may also contain exemplary and rare types of ecological refugia (palm oases) or vegetation habitats (hanging gardens or rare soil types) that support river related species. The river may also contain river-related plant species that are listed as threatened or endangered by the U.S. Fish and Wildlife Service or appear on the BLM's sensitive species list.

E.1.1. Determining Eligibility

The region of comparison used for determining eligibility was generally the eastern Interior Alaska consisting of the Yukon and Tanana drainages, from the U.S.-Canada border to the confluence of the Tanana River with the Yukon River, between the Alaska Range and Brooks Range. This region was only a general guideline. A BLM resource specialist could determine that based on the resource under consideration, it may be more appropriate to modify the region of consideration. For example, a particular fish may only live in one small area of the region of

comparison, making it unique to the region. But if these fish are abundant in the area immediately adjacent to the region, it may be more appropriate to use a larger area for consideration. Likewise, a particular fish species may be present in several locations in the planning area, but only exist in the planning area, so it may be appropriate to consider a larger region of comparison.

List of Potential Rivers to be Evaluated

1. Two comments were received on WSRs in the scoping process for the Eastern Interior RMP. One encouraged the BLM to consider designation of WSRs as a tool to help wildlife populations, but did not recommend any particular river segment. The second recommended that the Salmon Fork of the Black River be considered for designation as a WSR.
2. On October 28, 1970, the Secretaries of Agriculture and the Interior identified and published in the *Federal Register* a list of 47 river segments for Wild and Scenic river evaluation and consideration (FR 1970). Of the 47 identified rivers, six are in Alaska. They include the following three rivers in the planning area: Birch Creek, Chatanika River, and Fortymile River. Birch Creek and the Fortymile River were designated as components of the NWSR in 1980 under ANILCA. The BLM has no management authority on the Chatanika River.
3. The Nationwide Rivers Inventory listed four rivers within the planning area. These rivers were placed on the list by the National Park Service (NPS) in 1993 because they were thought to potentially contain one or more ORVs, though no formal determination of eligibility was conducted. The NPS only reviewed the segments of these rivers that are within the Yukon-Charley Rivers National Preserve.
    a. The Kandik River from the Yukon-Charley Rivers National Preserve boundary to the river mouth (32 river miles) was listed in 1993 as possibly being eligible as "wild" with outstanding fish, history, and biological diversity values. North of the Preserve boundary, Doyon, Limited, manages 16 miles of the Kandik River, the State of Alaska manages the next 12 miles, and the BLM manages the remaining 25 miles to the Canadian border.
    b. The Nation River from the Yukon-Charley Rivers National Preserve boundary to river mouth (16 river miles) was listed in 1993 as possibly being eligible as "wild" with outstanding fish and wildlife values. The BLM does not manage any lands on the Nation River.
    c. The Seventymile River from headwaters to the Yukon-Charley Rivers National Preserve boundary (20 river miles) was listed in 1993 as possibly being eligible as "wild" with outstanding geology, wildlife, and archaeological sites. Downstream from the preserve boundary, the lands surrounding the river are not managed by the BLM. (A Decision to Issue Conveyance on the section immediately downstream from the preserve boundary was issued on March 17, 2009.)
    d. The Yukon River from upstream of the Yukon-Charley Rivers National Preserve boundary near Calico Bluffs to downstream of Yukon-Charley Rivers National Preserve boundary near Circle (128 river miles) was listed in 1993 possibly being eligible for classification as "wild" and "scenic" with outstanding geology, wildlife, and history values. The BLM does not manage any lands on the Yukon River in the planning area.
4. *The American Rivers Outstanding Rivers List (Huntington and Echeverria 1991):* Eight rivers on the list are within the planning area. Of these, five contain no lands for which the BLM has management responsibilities (Charley, Chatanika, Chena, Porcupine and Yukon rivers). The three rivers on the list for which the BLM does have management authority (Birch, Beaver and the Fortymile) were designated as components of the NWSR in 1980 under ANILCA.

5. Published guidebooks, regional guides, and inventories. A review of published guidebooks found the following: *The Alaska River Guide* by Karen Jettmar (1993). This book contains information on the following rivers in the planning area: Beaver Creek, Birch Creek, Black River, Charley River, Chatanika River, Chena River, Fortymile River, and Porcupine River. The *American Whitewater National Whitewater Inventory* includes the following rivers in the planning area: Charley River and Fortymile River.
6. A review of *Alaska's Outdoor Legacy; Statewide Comprehensive Outdoor Recreation Plan* 2004–2009 (ADNR 2004) found that the State of Alaska has six legislatively designated State Recreation Rivers, none of which are in the planning area.
7. River segments officially identified by State or local government agencies as being in the public interest for river protection. None were identified.
8. Rivers identified as potentially meeting the criteria by a BLM review team. On January 14, 2009 BLM staff specialists reviewed USGS 1:250,000 quadrangle maps covering the planning area and developed a list of rivers that potentially met the eligibility criteria of free-flowing and possessing at least one Outstandingly Remarkable Value. Thirty-seven rivers were identified as having potential for Outstandingly Remarkable Values.
9. Other resources: A website search was conducted for rivers in the planning area. The American Rivers America's Most Endangered Rivers Report 2009 Edition (online at http://www.americanrivers.org/our-work/protecting-rivers/endangered-rivers/) listed Beaver Creek as the eighth most endangered river in the nation.

From the sources listed above, the BLM compiled a list of 40 rivers (Table E.1, "List of Potential Rivers in the Planning Area"). Rivers already designated as components of the NWSR (e.g., Birch Creek) were excluded from the list. Of the 40 rivers, five are not under BLM management and were removed from further consideration. The remaining 35 rivers were evaluated for eligibility (Table E.2, "Summary Eligibility Findings for Inclusion into the NWSR").

One additional river, the Wood River was identified during the public comment period on the Draft RMP/EIS. This river was added to the list and evaluated for the Proposed RMP/Final EIS.

Table E.1. List of Potential Rivers in the Planning Area

River	Subunit	Presence of BLM Lands
Bachelor Creek	Steese	Yes
Bear Creek	Steese	Yes
Big Windy Creek	Steese	Yes
Black River	Upper Black River	Yes
Chatanika	Fortymile	No
Chena River	Fortymile	No
Clums Fork	Steese	Yes
Dexter Creek	Steese	Yes
Dome Creek	Fortymile	Yes
Drifting Snow Creek	Upper Black River	Yes
Fossil Creek	White Mountains	Yes
Gold Run	Fortymile	Yes
Grayling Fork of the Black River plus tributaries	Upper Black River	Yes
Kandik River	Upper Black River	Yes
Little Black River	Upper Black River	Yes
Little Champion Creek	White Mountains	Yes
Little Champion Creek	Fortymile	Yes
Loper Creek	Steese	Yes

River	Subunit	Presence of BLM Lands
McKinley Creek	Steese	Yes
McLean Creek	Steese	Yes
Nation River	Upper Black River	No
Nome Creek	White Mountains	Yes
O'Brien Creek	White Mountains	Yes
Ophir Creek	White Mountains	Yes
Preacher Creek	Steese	Yes
Racquet Creek	Upper Black River	Yes
Rice Gulch Creek and tributary	Upper Black River	Yes
Roy Creek	White Mountains	Yes
Runt Creek and tributaries	Upper Black River	Yes
Salmon Fork of the Black River	Upper Black River	Yes
Seventymile	Fortymile	No
Sheep Creek	White Mountains	Yes
South Fork Birch Creek and two tributaries	Steese	Yes
Tikan Creek	Upper Black River	Yes
Victoria Creek	White Mountains	Yes
Volcano 2 Creek	Steese	Yes
Volcano Creek	Steese	Yes
Willow Creek	White Mountains	Yes
Windy Creek	White Mountains	Yes
Yukon River	Upper Black River	No
Wood River[a]	Upper Black River	Yes

[a] Added and evaluated based on public comments on the Draft RMP/EIS.

The 36 rivers listed in Table E.2, "Summary Eligibility Findings for Inclusion into the NWSR" were reviewed for eligibility using the criteria described below. Resources that ranked a 3 or 4 were considered to meet the criteria of an ORV. All rivers that are free-flowing and possess at least one ORV were considered eligible. Because of past extensive gold dredging operations, Nome Creek was determined not to be free-flowing and thus, potential ORVs were not evaluated.

Each river's resources were rated by BLM specialists based on a five point scale:

0 – not present / not significant
1 – low value / not significant
2 – moderate value; typical, one of many in the region / locally significant
3 – exemplary value; one of only a few in the region / regionally significant
4 – extraordinary value; the most significant in the region / regionally significant
U – unknown value / little or no knowledge of resource values.

The following BLM resource specialists completed the eligibility review:

- Holli McClain: Outdoor Recreation Planner
- Collin Cogley: Outdoor Recreation Planner
- Robin Mills: Archaeologist
- Jason Post: Fisheries Biologist
- Jim Herriges: Wildlife Biologist
- Craig McCaa: Writer/Editor, Geologist

Summary of Eligibility Findings

Of the 35 rivers reviewed, five were determined to be eligible for inclusion into the NWSR by virtue of being free-flowing and possessing at least one ORV (ranking of 3 or 4): Dome Creek (Fortymile Subunit), Gold Run (Fortymile Subunit), Big Windy Creek (Steese Subunit), Salmon Fork of the Black River (Upper Black River Subunit), and Fossil Creek (White Mountains Subunit). Discussion of how the ORVs for each eligible river were determined are described in section E.1.1.

Table E.2. Summary Eligibility Findings for Inclusion into the NWSR

River	Free-flowing	Potential Outstandingly Remarkable Value							Miles
		Scenic	Recreational	Geologic	Fish	Wildlife	Cultural	Historic	
FORTYMILE SUBUNIT									
Dome Creek	Yes	1	2	U	1	1	U	3	5[a]
Gold Run	Yes	1	U	U	U	1	U	3	4
Little Champion	Yes	U	U	U	U	1	U	2	7
STEESE SUBUNIT									
Bachelor Creek	Yes	1	1	1	U	1	U	1	4
Bear Creek	Yes	U	U	1	U	1	U	1	8
Big Windy Creek	Yes	3	2	3	1	3	U	U	14
Clums Fork	Yes	1	1	U	2	1	2	2	22
Dexter Creek	Yes	U	U	U	U	1	U	1	9
Loper Creek	Yes	1	2	1	U	1	U	2	22
McKinley Creek	Yes	U	U	U	U	1	U	1	10
McLean Creek	Yes	U	U	U	U	1	U	2	4
Preacher Creek	Yes	1	2	2	2	1	2	1	31
South Fork Birch Creek and 2 tributaries	Yes	2	U	2	1	2	U	1	15
Volcano 2 Creek	Yes	U	U	U	U	1	U	1	5
Volcano Creek	Yes	1	U	1	U	1	U	2	5
UPPER BLACK RIVER SUBUNIT									
Black River	Yes	1	U	U	2	1	U	U	59[b]
Drifting Snow Creek	Yes	U	U	U	1	1	U	2	18
Grayling Fork— Black River and tributaries	Yes	1	U	U	2	2	2	U	87
Kandik	Yes	U	2	U	2	1	U	2	25[c]
Little Black River	Yes	1	2	U	1	2	2	U	
Racquet Creek	Yes	U	U	U	U	1	U	2	11
Rice Gulch Creek and tributaries	Yes	U	U	U	1	1	1	2	16
Runt Creek and tributaries	Yes	U	U	U	2	1	2	2	61
Salmon Fork — Black River	Yes	2	2	U	2	3	2	2	52[d]
Tikan Creek	Yes	U	U	U	U	1	U	U	6
Wood River	No	U	U	U	U	U	U	U	54
WHITE MOUNTAINS SUBUNIT									

River	Free-flowing	Potential Outstandingly Remarkable Value							Miles
		Scenic	Recreational	Geologic	Fish	Wildlife	Cultural	Historic	
Fossil Creek	Yes	3	1	3	U	2	U	1	23
Champion Creek	Yes	1	1	2	U	2	1	1	8
Nome Creek	No	—	—	—	—	—	—	—	25
O'Brien Creek	Yes	2	1	U	U	2	U	1	11
Ophir Creek	Yes	1	0	1	U	1	U	2	17
Roy Creek	Yes	1	0	U	U	1	U	1	10
Sheep Creek	Yes	2	0	U	U	1	U	U	10
Victoria Creek	Yes	2	U	2	2	2	U	2	58
Willow Creek	Yes	2	1	U	1	1	U	1	17
Windy Creek	Yes	2	1	2	U	1	U	1	8

[a]Dome Creek miles managed: State —11, BLM — 5

[b]Black River – miles managed: Doyon Ltd – 32 miles, USFWS – 242, BLM – 59

[c]Kandik River – miles managed: NPS – 32, Doyon, Ltd. – 16, State of Alaska – 12, BLM – 25

[d]Salmon Fork – miles managed: USFWS – 27, BLM – 52

E.1.1.1. Discussion of ORVs for Eligible Rivers

Dome Creek (Fortymile Subunit)

Historic ORV: Dome Creek, a tributary of O'Brien Creek in the Fortymile River drainage (Map 70), is of particular interest in the regional history of Interior Alaska in exemplifying small-scale capitalized entrepreneurs or businesses in mining placer gold deposits in Interior Alaska. The typical evolution of mining processes along placer gold-bearing ground includes original discovery and subsequent workings with hand techniques, small-scale capital projects, followed by larger-scale consolidation of claims and workings of lower-grade deposits. Each subsequent stage frequently erases the traces of the previous one.

The historic material remains along Dome Creek exemplify the remains of a small companies, that consolidated and worked the claims along the middle portion of Dome Creek, dating to the 1910s to 1930s, and which were not subsequently destroyed by later operations. Intact historic remains found include an eight-mile long ditch, at least two camp and cabin ruins related first to the ditch construction and then to later mining operations, worked and hydraulicked ground, and a complete sawmill.

Historic remains relating to other mining and trapping operations throughout much of the 20th century are also found along other portions of Dome Creek. There are other creeks in the region of comparison that have similar evidence of small placer mining companies, but the relative isolation of Dome Creek has allowed it to maintain its integrity. The site types are not necessarily rare in the region of comparison, but the integrity of the features on this creek provide more than just local significance. Dome Creek is regionally significant for historic values.

Because of these factors, the history of Dome Creek is considered to be an ORV.

Gold Run (Fortymile Subunit)

Historic ORV: Gold Run, a tiny tributary of Slate Creek in the upper drainage of the North Fork of the Fortymile River, is of particular interest in the regional history of Interior Alaska in exemplifying an isolated, early-20th century placer mining community, that focused on hand-working of shallow placer gold deposits. Because of the creek's isolation, it never underwent subsequent, larger-scale mining activities (e.g., hydraulicking; bulldozers and backhoes; dredges), that typically erase earlier, hand-worked traces of mining activity. As a result, about 100 historic features are found intact along a four mile stretch of the creek, most of them associated with early-20th century mining, including cabin ruins, ground and stilt caches, other caches of tools, ditches, hand-stacked tailings piles, sluice boxes, dams and dam gates, and prospects. While there may be other creeks in the region of comparison that have evidence of early hand-working placer mining, there sheer density of such sites along Gold Run makes it stand out with substantial value, and it is likely one of only a few such creeks in the region of comparison. Gold Run is regionally significant for historical values.

The eligible segment begins about one-half mile above the second tributary upstream on the south side from the mouth of Gold Run (T.4S., R. 25E., section 1, SE1/4SE1/4NE1/4 , Fairbanks Meridian) to the border of Doyon, Limited, lands approximately 0.2 miles above the mouth (Map 70).

Because of these factors, the history of Gold Run is considered to be an ORV.

Big Windy Creek (Steese Subunit)

Scenic ORV: The Big Windy Creek lies within the Yukon-Tanana Uplands which has a scenic quality of "A" according to BLM's Visual Resource Management (VRM) process (H-8410-1). A scenic quality rating of "A" means the landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications within the area have the most variety and most harmonious composition.

Big Windy Creek flows through a very narrow steep gradient canyon with birch and spruce uplands until the confluence with the South Fork of Birch Creek (Map 74). The focus for the river users is on the clear water course that is characterized by rapids and cascades created by boulders falling from granite cliffs and boulder talus slopes which constrict movement of the creek. Other sections of the creek closer to the confluence of South Fork, while still steep and narrow, are characterized by a plunge–pool system created by boulder fields. Elevations of surrounding ridge summits are about 3,200 feet while the creek valley is about 1,500 feet for an elevation change of 1,700 feet.

The hot springs in the area create a diverse, lush grass type vegetation and colorful green and red algae that contrast with the white of the granite cliffs and boulders, and the black of lichen covered rocks, as well as adjacent spruce and birch forests. Small springs, flows, pools and seeps allow water to flow over the face of the cliff creating unique views. The cliff face has massive fractured boulders. Pothole features created by smaller rocks caught in the current of Big Windy Creek can be seen in the creek bed. The hot springs raises the temperature of the water as far away as the confluence of South Fork with Birch Creek.

Due to the hot springs, the canyon has contrasting vegetation types unique to the area with large productive mature white spruce and paper birch on the south-facing slope and low paper birch, black spruce, and dwarf birch tundra in other areas or also on south-facing slope. This natural hot springs is one of a limited number of hot springs in central Alaska and is one of a few still undeveloped (Juday 1998).

The changes in elevation and topography over a relatively short river segment results in highly diverse scenery and visual attractions. The steep gradient and narrow canyon focus the attention of the viewer on the water, cliff and boulder areas, and diverse plants communities resulting from the hot springs. The natural undeveloped nature of this hot spring and adjacent river segment make it unique within the region.

Because of these factors, the Scenery of Big Windy Creek is considered to be an ORV.

Geologic ORV Of the three major hot springs east of Fairbanks in central Alaska, Big Windy Hot Springs on Big Windy Creek remains the only hot springs system that has not been extensively altered by human development (Juday 1998). Precipitation of dissolved minerals from cooling hot springs waters has created unusual and delicate geologic features at the site and provided an important mineral lick for Dall sheep. The springs, adjacent cliffs, and marshy areas provide habitat for unusual plant species, as well as for bacteria and algae that live only in the high-temperature environments of geothermal vents. Big Windy Hot Springs' geothermal vents provide excellent research opportunities for studying flow of mineralized water through an undisturbed hot springs system.

Big Windy Creek, particularly in its central section near the hot springs, has several rare features for a stream in the Yukon-Tanana Upland:

- It occupies a narrow V-shaped valley.
- It cascades over large, granitic boulders.
- It remains largely ice-free during the winter because of hot water contributed by the springs.
- Boulders caught in powerful eddies have ground smooth circular depressions called potholes into the bedrock.

Because of these factors, the geology of Big Windy Creek is considered to be an ORV.

Wildlife ORV: Wildlife and the associated ecosystem of Big Windy Creek is of at least regional significance. The presence of an undeveloped hot springs in this river results in unique wildlife and ecosystem values. Other hot springs in the area have been developed and most other central Alaska hot springs are either developed for resort use or have been modified substantially (Juday 1998). The hot springs serves as a mineral lick for a population of Dall sheep. They travel more than 20 km from the primary portion of sheep habitat in the area (in and beyond the headwaters of Big Windy Creek) to reach the lick and use a small cliff at the site. A 1962 ADF&G inventory reported a band of 76 Dall sheep near the hot springs on Big Windy Creek. All sheep in this population apparently use the lick. The lick is also used by moose.

The northern water shrew (*Sorex palustris*) was documented here and this represents the furthest north occurrence in its range (Cook et al. 1997). Another uncommon small mammal, the long-tailed vole (*Microtus longicaudis*) was also documented at the hot springs, which is near the northwest edge of its known distribution.

Several plant species occur here as disjunct populations or at the northern limits of their range. It is possible that unique thermophytic organisms, such as green and red algae and cyanobacteria occur in the hot springs. The hot water creates open water conditions through the winter on Big Windy Creek, which likely influences vegetation and wildlife species use for some distance downstream. Upstream of the Hot Springs a peregrine falcon nest site occurs on a riverside cliff and gyrfalcons forage and probably nest in the alpine environment of the headwaters. The drainage is regularly used by caribou of the Fortymile herd.

Because of these factors, the wildlife of Big Windy Creek is considered to be an ORV.

Salmon Fork Black River (Upper Black River subunit)

Wildlife ORV: Nesting bald eagles occur along the Black River (including the Salmon Fork) in what is probably the most northern dense nesting population of bald eagles in Alaska (Robert J. Ritchie, pers. comm.). Although similar densities of bald eagle nests occur along the Tanana River, this population occurs approximately 250 km north of that population and above the Arctic Circle. Thirty three bald eagle nests (not all active) were recorded in surveys conducted in 1994, 1996, and 1997; ten of these were on BLM-managed portion of the Salmon Fork mainstem (Ritchie and Rose, 1998). An additional active nest was observed during fisheries surveys in 2009, upstream of previous surveys.

Due to its remoteness, the BLM has limited data about other wildlife values of the Salmon Fork (Map 78). American peregrine falcon nest on river bluffs (two to three pairs). Based on a float trip in 1991, BLM biologist Winston Hobgood reported very abundant black bear, "the largest owl population I have encountered in 23 years observing wildlife in Alaska," and noted the presence of harlequin ducks. The Salmon Fork is used by subsistence hunters and trappers from Chalkyitsik and Fort Yukon. Game Management Unit 25(B), which includes the Salmon Fork, is one of the more productive furbearer trapping areas in the state. Chalkyitsik residents have

reported that the Salmon Fork is an important moose hunting area for their community. Wildlife associated with this river are of at least regional significance.

Because of these factors, the wildlife of the Salmon Fork of the Black River is considered to be an ORV.

Fossil Creek (White Mountains Subunit)

Scenic ORV: Fossil Creek lies within the Yukon-Tanana Uplands which has a scenic quality of "A" according to BLM's VRM process (H-8410-1).

Fossil Creek is roughly 30 miles in length. It originates in broad valleys at about 3,000 feet elevation in the heart of the White Mountains, well above tree line (Map 74). High granitic type mountains rising from 4,000 to 5,000 feet in elevation frame these valleys. At five to eight miles downstream, the creek rapidly transitions from the tall rounded mountains and broad valleys to a steep narrow valley below tree line. An abrupt towering limestone ridge thrusts up, forcing Fossil Creek to turn 90 degrees to the south. This ridge of limestone holds Fossil Creek to its east side for nearly 20 miles. Along the ridge numerous "jags" punctuate from its nearly vertical sides and peaks. White cliff faces and scree slopes dominate the west side of the creek. Some of these exposed "jags" have natural arches carved through them. These natural arches are not uncommon along the ridge. Many are tucked away, but some like Windy Arch can be seen from many different directions from several miles away.

In sharp contrast to the knife-like limestone ridge on the west side, the more rounded darker granitic type mountains quickly rise up on the east side. This east side, unlike the west side, is mostly vegetated. The vegetation types within the valley primarily consist of white spruce and deciduous trees immediately along the creek rapidly changing to exposed barren slopes on the west side and sparse black spruce and open tundra on to the east.

The last 3-5 miles of Fossil Creek turn abruptly again to the west. The creek slices through the limestone ridge at what is known as Fossil Gap. Here, a number of fires have burned through the area in the past few decades further exposing limestone rock formations. The creek itself can also be nearly dry during the summer, most likely losing water into underground aquifers that later flow into Beaver Creek. Overall, during the winter months, Fossil Creek does not have the scenic values as during the summer months due to decreased light levels and snow covered vegetation and landscapes, but its scenic value still remains very high. A multiple-use winter trail follows the entirety of the drainage and two public use cabins, Caribou Bluff and Windy Gap, exist close to the creek. These cabins are log and blend into the natural environment.

Because of these factors, the scenery of Fossil Creek is considered to be an ORV.

Geologic ORV: Fossil Creek's drainage is defined by a prominent ridge of Early Silurian white Tolovana Limestone, for which the White Mountains were named. The Tolovana Limestone includes karst (limestone dissolution) features such as caves, natural arches, sinkholes, cold springs, and underground streams that, in Alaska, have been widely documented only in the Southeast. Development of karst features in high-latitude locations is thought to be impeded by seasonal freezing of near-surface groundwater or by destruction during periods of glaciation (Jennings 1983). The White Mountains represent one of the few recorded locations of these features in northern or western Alaska (ADF&G 2006). A limestone dissolution joint-type cave in the Fossil Creek drainage represents one of the largest examples of its kind in high-latitude North America (Juday 1989).

The geologic complexity of the area is compounded by northeast-southwest-trending thrust faults, a disconformable contact between the limestone and underlying volcanic rocks, and a wind gap marking a former stream channel stranded after Fossil Creek captured the drainage through headward erosion.

The Ordovician volcanic rocks underlying the Tolovana Limestone are a productive source of fossils, including brachiopods and sphinctozoan sponges. Several fossil locations on Fossil Creek have been the subject of paleontological research.

Because of these factors, the geology of Fossil Creek is considered to be an ORV.

E.1.2. Tentative Classification

Classification is a determination based on existing characteristics of a river area resulting from human-caused change or levels of development. The criteria for classification is provided by the Interagency Wild and Scenic Rivers Coordinating Council Technical Report: The Wild & Scenic River Study Process (1999) and BLM Manual 6400 Illustration 2, and is described below. The classification presented in this plan (Table E.3, "Classification Findings for Eligible Rivers") is tentative.

1. **Wild rivers:** Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America. "Wild" means free of impoundments; essentially primitive with little or no evidence of human activity; the presence of a few inconspicuous structures, particularly those of historic or cultural values is acceptable; a limited amount of domestic livestock grazing or hay production is acceptable; little or no evidence of past timber harvest and no ongoing timber harvest; generally inaccessible except by trail and no roads railroads, or other provision for vehicular travel within the river area with a few existing roads leading to the boundary of the area are acceptable; and meets or exceeds (water quality) criteria or federally approved state standards for aesthetics, for propagation of fish and wildlife normally adapted to the habitat of the river and for primary contact recreation (swimming) except where exceeded by natural conditions.

2. **Scenic rivers:** Those rivers or sections of rivers that are generally free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads. "Scenic" means free of impoundments; largely primitive and undeveloped with no substantial evidence of human activity; the presence of small communities or dispersed dwelling or farm structures is acceptable; the presence of grazing, hay production , or row crops is acceptable; evidence of past or ongoing timber harvest is acceptable, provided the forest appears natural from the riverbank; accessible in places by road and roads may occasionally reach or bridge the river and the existence of short stretches of inconspicuous roads or railroads is acceptable; (water quality) goal that all waters of the United States are made fishable and swimmable.

3. **Recreational rivers:** Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past. "Recreational" means some existing impoundment or diversion — the existence of low dams, diversions, or other modifications or the waterway is acceptable, provided the waterway remains generally natural and riverine in appearance; some development with substantial evidence of human activity; the presence

of extensive residential and a few commercial structures is acceptable; lands may have been developed for the full range of agricultural and forestry uses; may show evidence of past and ongoing timber harvest; readily accessible by road or railroad; the existence of parallel roads or railroads on one or both banks as well as bridge crossings and other river access points is acceptable; (water quality) goal that all waters of the United States are made fishable and swimmable.

Table E.3. Classification Findings for Eligible Rivers

River	Subunit	Tentative Classification
Dome Creek	Fortymile	Recreational
Gold Run	Fortymile	Wild
Big Windy Creek	Steese	Wild
Salmon Fork of the Black River	Upper Black River	Wild
Fossil Creek	White Mountains	Scenic

E.1.3. Suitability

Each eligible river segment is further evaluated during the planning process to assess whether or not it would be suitable for inclusion in the NWSR. The planning determination of suitability provides the basis for any decision to recommend legislation. Other federal agencies, the State, local entities, the public and other interests had the opportunity to review and comment on this report during the public comment period for the Eastern Interior Draft RMP/EIS. Any interest in designating or not designating was identified during this period, and this section was revised accordingly in the Proposed RMP/Final EIS.

Since the determination of suitability is considered a decision in the planning process, the suitability of these rivers will vary across the alternatives in the RMP. Below is a discussion on how each of the five eligible rivers meets the criteria of suitability, followed by the range of alternatives considered in the Eastern Interior Proposed RMP/Final EIS. Suitability is determined only for those sections on BLM-managed lands.

The suitability criteria outlined in the WSR Act and BLM Manual 6400 are:

1. Characteristics that do, or do not, make the area a worthy addition to the National System. These characteristics (free flowing and outstandingly remarkable values) are described in the WSR Act and may include additional factors.
2. The current status of land ownership and use in the area.
3. The reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the National System.
4. The federal agency that will administer the area should it be added to the National System.
5. The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies.
6. The estimated cost to the United States of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area should it is added to the National System.
7. A determination of the extent that other federal agencies, the state, or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System.
8. An evaluation of local zoning and other land use controls in protecting the river's outstandingly remarkable values and preventing incompatible development.

9. The state/local government's capacity to manage and protect the outstandingly remarkable values on non-federal lands. This factor requires an evaluation of the river protection mechanisms available through the authority of state and local governments. Such mechanisms may include, for example, water quantity or quality, or protection of river-related values such as open space and historic areas.
10. The existing support or opposition of designation. Assessment of this factor will define the political context. The interest in designation or nondesignation by federal agencies, state, local, tribal governments; national and local publics; and the state's congressional delegation should be considered.
11. The consistency of designation with other agency plans, programs, and policies in meeting regional objectives. Designation may help or impede the goals of tribal governments or other federal, state, or local agencies. For example, designation of a river may contribute to state or regional protection objectives for fish and wildlife resources. Similarly, adding a river that includes a scarce recreation activity or setting to the National System may help meet statewide recreation goals. Designation might, however, limit irrigation and/or flood control measures in a manner inconsistent with regional socioeconomic goals.
12. The contribution to river system or basin integrity. This factor reflects the benefits of a "systems" approach (e.g., expanding the designated portion of a river in the National System or developing a legislative proposal for an entire river system — headwater to mouth — or watershed). Numerous benefits may result from managing an entire river or watershed, including the ability to design a holistic protection strategy in partnership with other agencies and the public.
13. The potential for water resources development. Identify any proposed water resource projects that may be foregone, as designation may limit development of water resources projects as diverse as irrigation and flood control measures, hydropower facilities, dredging, diversion, bridge construction and channelization.

Suitability — Dome Creek (Fortymile Subunit)

- Length: 16 miles
- Tentative classification: "recreational"

1. Characteristics which do or do not make the area a worthy addition to the NWSR.

   Dome Creek has outstandingly remarkable historic values and is free-flowing making it eligible for inclusion in the NWSR.

2. Status of land ownership, minerals (surface and subsurface), use in the area, including the amount of private land involved and associated or incompatible uses.

   The state has selected all of Dome Creek as part of their entitlement under the Statehood Act. Valid federal mining claims cannot be conveyed to the State and the State's topfiling will continue to be listed as a "selection." If the mining claim holders choose to convert these claims to state mining claims, or if they fail to meet federal requirements to maintain their claims and the claims are closed, the state would be able to prioritize these lands for conveyance. Most of Dome Creek has federal mining claims on it. The lands surrounding these claims were conveyed to the State, and in some cases, state lands lay within the one-half mile potential WSR corridor. The only lands BLM administers on Dome Creek are these mining claims, which may or may not remain under BLM management for the long-term.

There are 18 federal mining claims on Dome Creek. In the discussion on eligibility for Dome Creek, it is noted that the typical evolution of mining processes along placer gold-bearing ground includes original discovery and subsequent workings with hand techniques, small-scale capital projects, followed by larger-scale consolidation of claims and workings of lower-grade deposits. Each subsequent stage frequently erases the traces of the previous one. The existing claims could be mined and could erase the evidence of the historic material remains along Dome Creek that exemplify the remains of a small companies, that consolidated and worked the claims in the 1910s to 1930s. This would result in the loss of the ORV for Dome Creek. Mining these claims would be incompatible with designation of this creek into the NWSR.

There are no known commercial timber values in the area and no known leasable mineral potential. Some hunting or trapping occurs in the area. Active mining and OHV routes are found within the proposed river corridor. The river segment is not considered to be floatable and little, if any, recreational boating use is expected. Little subsistence use is thought to occur on Dome Creek.

3. Reasonably foreseeable potential uses of the land and related waters which would be enhanced, foreclosed, or curtailed if the area were included in the NWSR and the values which could be foreclosed or diminished if the area is not protected as part of the NWSR.

   The federal mining claims would still be valid if the creek is designated as a segment of the NWSR and the claims could be worked, which could potentially erase the historic features which are the Outstandingly Remarkable Value. Locatable mineral activities are not discretionary on the part of the administering agency. Therefore, the effects of designation and non-designation would be the same.

4. The Bureau of Land Management is the federal agency that would administer Dome Creek if it was added to the NWSR.

5. Ability of the agency to manage and/or protect the river area or segment as a WSR, or other mechanisms (existing or potential) to protect identified values other than WSR designation.

   The ability for the BLM to manage and/or protect the creek area is minimal. The state manages the uplands, there are 18 valid existing federal mining claims, and the federal lands have been prioritized for conveyance to the state. It is unlikely that there would be assistance from the state.

6. Estimated cost, if necessary, of acquiring lands, interests in lands, and administering the area if it is added to the NWSR.

   The federal government could buy out the existing mining claims if there were willing sellers, but the cost is unknown. It is unlikely that there would be willing sellers or assistance from the state.

7. The extent other agencies would participate in the preservation and administration of the river as a WSR.

   If designated, it is unlikely that there would be assistance from the state.

8. Local zoning and other land use controls.

Dome Creek is a tributary to O'Brien Creek, a designated "scenic" segment in the Fortymile WSR. There is no local or state zoning in this area. The state allows staking of state mining claims on state lands throughout most of Interior Alaska.

9. Ability of the State government to manage and/or protect the river area or segment as a WSR, or other mechanisms (existing or potential) to protect identified values other than WSR designation.

   Dome Creek is a tributary to O'Brien Creek, a designated "scenic" segment in the Fortymile WSR. The addition includes federal mining claims with state lands on two sides. The state lands in the Dome Creek area of the Fortymile are under the Upper Yukon Area Plan which identifies the area as General Use to maintain flexibility in management.

10. Support or opposition of designation.

    There is limited public support for designation of Dome Creek. The State of Alaska is strongly in opposition to wild and scenic river study and designation of river segments (ADNR 2008, 2013). Its position is that study and designation is in conflict with Section 1326(b) of ANILCA. The Alaska Mining Association (AMA 2013) and Fortymile Miner's Association opposes new designations in the area (AMA 2008). Additionally, Doyon, Limited Native Corporation is specifically opposed to designation of Dome Creek (Doyon 2013). Environmental groups voiced support for designation of Dome Creek (AWL et al. 2013).

11. Consistence with other agencies plans, programs and policies in meeting regional objectives.

    The Fortymile River area in general is managed under the State's Upper Yukon Area Plan. The area around Dome Creek is within Region 2 — North Fork unit and has management considerations for transportation needs while preserving the scenic values along the Taylor Highway, new and existing road and trails, reduce impacts to wildlife and other natural resources and minimum commercial development. Designation would be consistent with these management objectives.

12. Contribution to the river system or basin integrity.

    Dome Creek is a tributary to O'Brien Creek, a designated "scenic" segment in the Fortymile WSR. The addition of this headwater stream would add to the basin and river system approach already evident in the Fortymile WSR of 392 designated river miles.

13. Potential for water resources development.

    Dome Creek is a tributary to O'Brien Creek, a designated "scenic" segment in the Fortymile WSR. There is little interest or need for irrigation, flood control measures, hydropower, bridge construction or channelization along this segment. Some dredging activities associated with mining may occur. Some diversions or bank stabilization may occur to protect the Taylor Highway.

Finding for Dome Creek

Dome Creek possesses outstandingly remarkable historic values in that it exemplifies small-scale capitalized entrepreneurs or businesses in mining placer gold deposits in Interior Alaska from the 1910s to 1930s. This creek meets the tentative classification as a 'recreational" river due to the

amount of development/disturbance and past mining. Dome Creek is suitable for designation under Alternative B of the RMP for the purpose of analysis. It is not suitable under the other alternatives because the BLM would be unable to protect the ORVs and the free-flowing condition of the creek. There are 18 valid existing mining claims on Dome Creek. Locatable mineral activities are not discretionary on the part of the administering agency. The existing claims could be mined and could erase the evidence of the historic material remains along Dome Creek that would result in the loss of the historic value of Dome Creek. In addition, there is limited federal, public, state, Tribal, local, or other interests in the designation. Although some environmental groups voiced support for designation, the State of Alaska adamantly opposes designation of new rivers and there is no known support within the Alaska Congressional Delegation. Additionally, Doyon, Limited Native Corporation, the largest private landowner in the Fortymile Subunit, is specifically opposed to designation of new rivers in the Fortymile area (Doyon 2013).

Suitability — Gold Run (Fortymile Subunit)

- Length: 4 miles
- Tentative Classification: "wild"

1. Characteristics which do or do not make the area a worthy addition to the NWSR.

   Gold Run has outstandingly remarkable historic values and is free-flowing making it eligible for inclusion in the NWSR.

2. Status of land ownership, minerals (surface and subsurface), use in the area, including the amount of private land involved and associated or incompatible uses.

   The BLM administers the entire segment of Gold Run under consideration. There are no existing federal mining claims on Gold Run. Generally, the water flow is too low to permit boating. There is a rough airstrip on the ridge above the creek between Gold Run and Jim Creek that hunters use to access the area, although this use is thought to be low. Some trapping has been known in the past, although there is none known to be occurring now. Subsistence use is thought to be low.

3. Reasonably foreseeable potential uses of the land and related waters which would be enhanced, foreclosed, or curtailed if the area were included in the NWSR and the values which could be foreclosed or diminished if the area is not protected as part of the NWSR.

   There are no known mineral, oil and gas, geothermal or coal resources in this area. There are no known commercial timber values in the area. Because of the remoteness of the area and the lack of known resources, is reasonable to assume that the existing minimum level of use would continue and that designation or non-designation would have no effect on the use level.

4. The Bureau of Land Management is the federal agency that would administer Gold Run if it was added to the NWSR.

5. Ability of the agency to manage and/or protect the river area or segment as a WSR, or other mechanisms (existing or potential) to protect identified values other than WSR designation.

   As discussed in the eligibility section E.1.1 new mining in the area could erase the outstandingly remarkable features. In Alternative A, the area would remain withdrawn from the location of new mining claims and from leasing of oil and gas. Gold Run is within the boundaries of the proposed Fortymile ACEC in Alternatives B, C, D, and E. The purpose of

the ACEC is to protect caribou and Dall sheep habitat. The area is closed to the location of new mining claims in Alternatives B, C, and E and is open in Alternative D. It is unlikely that there would be assistance from the state.

6. Estimated cost, if necessary, of acquiring lands, interests in lands, and administering the area if it is added to the NWSR.

   Designation of Gold Run would not require the acquisition of any property as the lands are federal lands managed by the BLM. The additional costs anticipated from the management of the area as a WSR are expected to be minimal.

7. The extent other agencies would participate in the preservation and administration of the river as a WSR.

   If designated, it is unlikely that there would be assistance from the state.

8. Local zoning and other land use controls.

   Gold Run is a tributary to the North Fork of the Fortymile River, designated "wild" segment in the Fortymile WSR. There is no local or state zoning in this area.

9. Ability of the State government to manage and/or protect the river area or segment as a WSR, or other mechanisms (existing or potential) to protect identified values other than WSR designation.

   Gold Run is a tributary to the North Fork of the Fortymile River, a designated "wild" segment in the Fortymile WSR. The addition is entirely on BLM-managed lands, but would terminate at state land on the down stream end of the segment. The state lands in the Gold Run area of the Fortymile are under the Upper Yukon Area Plan which identifies the area as having High Value to protect the area for caribou habitat and calving.

10. Support or opposition of designation.

    There is limited public support for designation of Gold Run. The State of Alaska is strongly in opposition to wild and scenic river study and designation of river segments (ADNR 2008, 2013). Its position is that study and designation is in conflict with Section 1326(b) of ANILCA. The Alaska Mining Association (AMA 2013) and Fortymile Miner's Association oppose new designations in the area (AMA 2008). Additionally, Doyon, Limited Native Corporation is specifically opposed to designation of Gold Run (Doyon 2013). Environmental groups voiced support for designation of Gold Run (AWL et al. 2013).

11. Consistence with other agencies plans, programs and policies in meeting regional objectives.

    The Fortymile River area in general is managed under the State's Upper Yukon Area Plan. The area around Gold Run is within Region 1 — Middle Fork unit and has management considerations for multiple use, primarily habitat, recreation and mining. Activities should avoid or minimize conflict with caribou calving and other wildlife values. Designation would be consistent with these management objectives.

12. Contribution to the river system or basin integrity.

    The addition of this headwater stream would add to the basin and river system approach already evident in the Fortymile WSR System of 392 designated river miles. It is separated,

however, from the North Fork by approximately nine miles of streams under private ownership.

13. Potential for water resources development.

    Gold Run is a tributary of the Middle Fork of the Fortymile River, a designated "wild" segment in the Fortymile WSR. There is little interest or need for irrigation, flood control measures, hydropower dredging, diversion, bridge construction or channelization along this remotely located segment.

Finding for Gold Run

Gold Run possesses outstandingly remarkable historic values in that it exemplifies an isolated, early 20th century placer mining community, which focused on hand-working of shallow placer gold deposits. Because of the creek's isolation, it never underwent subsequent, larger-scale mining activities that typically erase earlier, hand-worked traces of mining activity. Because the remains of the mining activity are unobtrusive and do not detract from the primitive appearance of the watershed, and the lack of other disturbances, Gold Run meets the tentative classification as a "wild" river. Gold Run is suitable for designation under Alternative B of the Proposed RMP for the purpose of analysis. It is not suitable under the other alternatives because there are alternative means to protect the ORVs and there is limited support for the designation. New mining could erase the ORV of this stream. In Alternative A of this EIS, the area would remain withdrawn from the location of new mining claims and from leasing of oil and gas. Gold Run is within the boundaries of the proposed Fortymile ACEC in Alternatives B, C, D, and E. The purpose of the ACEC is to protect caribou and Dall sheep habitat. The area is closed to the location of new mining claims in Alternatives B, C, and E and is open in Alternative D, but the area is very remote with poor access so it is unlikely that mining would occur here. Gold Run flows into a stream that feeds the North Fork (a designated "wild" river), but it is separated from the North Fork by approximately nine miles of streams under private ownership. In addition, there is limited federal, public, state, Tribal, local, or other interests in the designation. Although some environmental groups voiced support for designation, the State of Alaska adamantly opposes designation of new rivers and there is no known support within the Alaska Congressional Delegation. Additionally, Doyon, Limited Native Corporation, the largest private landowner in the Fortymile Subunit, is specifically opposed to designation of new rivers in the Fortymile area (Doyon 2013).

Suitability — Big Windy Creek (Steese Subunit)

- Length: 14 miles
- Tentative Classification: "wild"

1. Characteristics which do or do not make the area a worthy addition to the NWSR.

   Big Windy Creek has outstandingly remarkable scenic, geologic and wildlife values and is free-flowing making it eligible for inclusion in the NWSR.

2. Status of land ownership, minerals (surface and subsurface), use in the area, including the amount of private land involved and associated or incompatible uses.

   The river segment is wholly managed by the BLM and is in the Steese National Conservation Area, an area that Congress has established to protect caribou habitat. One portion of the river corridor was designated as the Big Windy Research Natural Area in the Steese National

Conservation Area RMP (BLM 1986a) to be managed for the primary purpose of research and education.

There are no private or state lands and there are no existing mining claims within one-half mile on either side of Big Windy Creek. In 1983, the BLM determined that Big Windy Creek is non-navigable.

The area is remote and receives very little use, primarily winter use of the hot springs. Some hunting or trapping may occur in the area. There is no known interest in the development of water resources in this area. The river segment is not considered to be floatable and little recreational use is expected. Little subsistence use is thought to occur in the area. All existing use is compatible with designation into the NWSR.

3. Reasonably foreseeable potential uses of the land and related waters which would be enhanced, foreclosed, or curtailed if the area were included in the NWSR and the values which could be foreclosed or diminished if the area is not protected as part of the NWSR.

   There is high locatable mineral potential, and no leasable mineral potential in the area with the exception of geothermal resources. There are no oil and gas or coal resources known in this area. There are no known commercial timber values in the area. Due to the area's remoteness and lack of available infrastructure, commercial use of resources in the area is unlikely. The infrequent recreational, subsistence, hunting, and trapping use discussed under #2 above is expected to continue and be neither enhanced nor foreclosed by designation of the creek into the NWSR.

4. The Bureau of Land Management is the federal agency that would administer Big Windy Creek if it was added to the NWSR.

5. Ability of the agency to manage and/or protect the river area or segment as a WSR, or other mechanisms (existing or potential) to protect identified values other than WSR designation.

   In Alternatives B, C, D, and E of this plan, Big Windy Creek would be closed to mineral entry which would protect the scenic, geologic and wildlife values of the area. It is unlikely that there would be assistance from the state.

6. Estimated cost, if necessary, of acquiring lands, interests in lands, and administering the area if it is added to the NWSR.

   Designation of Big Windy Creek would not require the acquisition of any property because the lands are federal lands managed by the BLM. The additional costs anticipated from the management of the area as WSR is expected to be minimal.

7. The extent other agencies would participate in the preservation and administration of the river as a WSR.

   If designated, it is unlikely that there would be assistance from the state.

8. Local zoning and other land use controls.

   Big Windy Creek is a tributary of the South Fork of Birch Creek, designated "wild" segment in the Birch Creek WSR. There is no local or state zoning in this area.

9. Ability of the State government to manage and/or protect the river area or segment as a WSR, or other mechanisms (existing or potential) to protect identified values other than WSR designation.

   Big Windy Creek is a tributary of the South Fork of Birch Creek, designated "wild" segment in the Birch Creek WSR. The addition is entirely on BLM-managed lands.

10. Support or opposition of designation.

    The State of Alaska is strongly in opposition to wild and scenic river study and designation of river segments (ADNR 2008, 2013). Its position is that study and designation is in conflict with Section 1326(b) of ANILCA. The Alaska Mining Association (AMA 2013) and other industry groups are also opposed. Doyon, Limited Native Corporation is generally opposed to recommending additional river segments for inclusion in the NWSR, but did not specifically mention Big Windy Creek in their comments (Doyon 2013). Organized environmental groups were in support of designation (AWL et al. 2013). The Tanana Chiefs Conference, Council of Athabascan Tribal Governments, and National Congress of American Indians passed resolutions in support of Alternative B of the Draft RMP (TCC 2013, CATG 2013, NAIC 2012). While the resolutions did not specifically mention wild and scenic rivers, Alternative B is the alternative that recommended Big Windy Creek as suitable for designation.

11. Consistence with other agencies plans, programs and policies in meeting regional objectives.

    The addition of Big Windy Creek to the NWSR would be consistent with the Birch Creek River Management Plan. BLM-managed lands adjacent to Birch Creek are addressed in the Steese National Conservation Area RMP and adding Big Windy Creek would be consistent with the current plan.

12. Contribution to the river system or basin integrity.

    The addition of this headwater stream would add to the basin and river system approach already evident in the Birch Creek WSR System of 116 designated river miles. It is separated, however, from the South Fork by approximately two miles of undesignated stream.

13. Potential for water resources development.

    Big Windy Creek is a tributary of the South Fork of Birch Creek, a designated "wild" River. There is little interest or need for irrigation, flood control measures, hydropower dredging, diversion, bridge construction or channelization along this remotely located segment.

Finding for Big Windy Creek

Big Windy Creek possesses outstandingly remarkable scenic, geologic and wildlife values. The varied geologic/hydrologic features and the unique contrasting vegetation resulting from the hot springs provide outstandingly remarkable scenery. The hot springs also provide unique habitat for wildlife. This river meets the tentative classification as a "wild" river due to its primitive appearance, its general inaccessibility, and its high water quality. Big Windy Creek is suitable for designation under Alternative B of the Proposed RMP for the purpose of analysis.

It is not suitable under the other alternatives because it is within the Steese National Conservation Area and in all alternatives in this EIS, this area would be closed to mineral entry and would

have a suite of management decisions that would protect the ORVs of this river. Additionally, there is limited federal, public, state, Tribal, local, or other interest in the designation. Although some environmental groups voiced support for designation, the State of Alaska adamantly opposes designation of new rivers and there is no known support within the Alaska Congressional Delegation.

Suitability — Salmon Fork of the Black River (Upper Black River Subunit)

- Length: 52 miles
- Tentative Classification: "wild"

1. Characteristics which do or do not make the area a worthy addition to the NWSR.

   Salmon Fork has outstandingly remarkable wildlife values and is free-flowing making it eligible for inclusion in the NWSR.

2. Status of land ownership, minerals (surface and subsurface), use in the area, including the amount of private land involved and associated or incompatible uses.

   The BLM manages the upper reaches of the Salmon Fork, from the border with Canada downstream 52 miles to the Yukon Flats National Wildlife Refuge. These lands have been selected by the State to meet their land entitlement under the Statehood Act. The State has prioritized these lands at a level 14, the lowest priority rating. Due to the low prioritization, we can assume that BLM will retain management of these lands. There are no Native allotments along the river.

   In 1980, the BLM determined that the Salmon Fork is a navigable stream and in 2003 the BLM issued a recordable disclaimer of interest to the State of Alaska for the bed of the Salmon Fork Black River from its confluence with the Black River upstream approximately 74 river miles to the International Boundary.

   There are no federal or state mining claims on the Salmon Fork. The Salmon Fork is an important subsistence area for the people of Chalkyitsik (Chalkyitsik Village Council 2008). Because of its remoteness, little recreational boating occurs on the Salmon Fork although the river is boatable and floatable.

3. Reasonably foreseeable potential uses of the land and related waters which would be enhanced, foreclosed, or curtailed if the area were included in the NWSR and the values which could be foreclosed or diminished if the area is not protected as part of the NWSR.

   The potential for solid or fluid minerals in the area is low. There is no infrastructure in the area; the nearest road is over 60 miles away and is on the other side of the Yukon River. It is reasonable to conclude that the existing uses will continue on these lands and waters with little increase. No uses will be precluded if the area was included in the NWSR and no values would be foreclosed or diminished if the area is not protected as part of the NWSR.

4. The Bureau of Land Management is the federal agency that would administer the Salmon Fork Black River if it was added to the NWSR.

5. Ability of the agency to manage and/or protect the river area or segment as a WSR, or other mechanisms (existing or potential) to protect identified values other than WSR designation.

The Salmon Fork Black River is within the proposed Salmon Fork ACEC in Alternatives B, C, D, and E of the plan. Restrictions within the area vary by alternative, but the two uses that are most likely to have an effect on the ORVs are gold mining and oil and gas development. In Alternatives B and E, the ACEC is closed to both uses. In Alternative C, the ACEC is open to the location of new mining claims and closed to mineral leasing. In Alternative D, the ACEC is open to the location of new mining claims and open to leasing with minor constraints. In all alternatives, the river watershed is considered a Riparian Conservation Area with management decisions that would protect the river.

6. Estimated cost, if necessary, of acquiring lands, interests in lands, and administering the area if it is added to the NWSR.

   Designation of Salmon Fork Black River would not require the acquisition of any property because the lands are federal lands managed by the BLM. The additional costs anticipated from the management of the area as a WSR is expected to be minimal.

7. The extent other agencies would participate in the preservation and administration of the river as a WSR.

   If designated, it is unlikely that there would be assistance from the state.

8. Local zoning and other land use controls.

   The Salmon Fork Black River is located in a remote section of Interior Alaska on BLM-managed lands and flows into Yukon Flats National Wildlife Refuge. There are no local or state zoning in this area.

9. Ability of the State government to manage and/or protect the river area or segment as a WSR, or other mechanisms (existing or potential) to protect identified values other than WSR designation.

   The Salmon Fork Black River segment is entirely on BLM-managed lands. However, because the river is navigable, the bed of the river is state-managed land.

10. Support or opposition of designation.

    The State of Alaska is strongly in opposition to wild and scenic river study and designation of river segments (ADNR 2008, 2013). Its position is that study and designation is in conflict with Section 1326(b) of ANILCA. The Alaska Mining Association (Alaska Miners Association 2013) and other industry groups are also opposed. Doyon, Limited Native Corporation is generally opposed to recommending additional river segments for inclusion in the NWSR, but did not specifically mention the Salmon Fork in their comments (Doyon 2013).

    One individual recommended that the Salmon Fork be considered for designation under the WSR Act during public scoping for the Eastern Interior Draft RMP (Matesi 2008). Organized environmental groups were in support of designation (AWL et al. 2013, Upper Black River Working Group 2013). The Gwichyaa Zhee Gwich'in Tribal Government and Chalkyitsik Village Council, both federally recognized tribes, support designation of the Salmon Fork as a WSR. This support was noted in their comments on the Draft RMP/EIS and during cooperating agency review of the preliminary Proposed RMP. Tribes specifically requested that the Salmon Fork be recommended for designation as a WSR in

Alternative E of the Proposed RMP/Final EIS (Gwichyaa Zhee Gwich'in Tribal Government and Chalkyitsik Village Council 2015). The Tanana Chiefs Conference and Council of Athabascan Tribal Governments both past resolutions in support of Alternative B of the Draft RMP (TCC 2013, CATG 2013). While the resolutions did not specifically mention wild and scenic rivers, Alternative B is the alternative that recommended the Salmon Fork as suitable for designation. The National Congress of American Indians passed a resolution supporting the "listing and approval of Wild Scenic River Status for... Salmon River" (NAIC 2012).

11. Consistence with other agencies plans, programs and policies in meeting regional objectives.

    Yukon Flats National Wildlife Refuge manages their lands to maintain the natural environment consistent with natural ecological processes while providing opportunities for hunting, fishing, wildlife observation and photography and other outdoor recreation in a natural setting. The addition of the Salmon Fork Black River to the NWSR would be consistent with these management objectives.

12. Contribution to the river system or basin integrity.

    No other rivers or segments are identified as eligible for inclusion to the NWSR in this area.

13. Potential for water resources development.

    The Salmon Fork Black River is very remote. There is little interest or need for irrigation, flood control measures, hydropower dredging, diversion, bridge construction or channelization along this remotely located segment.

Finding for the Salmon Fork

The Salmon Fork of the Black River possesses outstandingly remarkable wildlife values that include the most northern dense nesting population of bald eagles in Alaska. This river meets the tentative classification as a "wild" river due to its primitive appearance, its general inaccessibility, and its high water quality. Salmon Fork is suitable for designation under Alternative B of the Proposed RMP for the purpose of analysis. It is not suitable under the other alternatives for several reasons. In 2003, the BLM issued a recordable disclaimer of interest to the State of Alaska for the bed of the Salmon Fork Black River from its confluence with the Black River upstream approximately 74 river miles to the International Boundary. Although some tribes and environmental groups voiced support for designation, the State strongly opposes new designations into the NWSR. There is no indication of support from the Alaska Congressional Delegation. In addition, the Salmon Fork is within a proposed ACEC in Alternatives B, C, D, and E of the plan. Restrictions within the area vary by alternative, but the two uses that are most likely to have an effect on the ORVs are gold mining and oil and gas development. In Alternatives B and E, the ACEC is closed to both uses. In Alternative C, the ACEC is open to the location of new mining claims and closed to mineral leasing. In Alternative D, the ACEC is open to the location of new mining claims and open to leasing with minor constraints. In all alternatives, the river watershed is considered a Riparian Conservation Area with riparian area restrictions that would sufficiently protect the outstandingly remarkable features.

Suitability — Fossil Creek (White Mountains Subunit)

- Length: 23 miles
- Tentative Classification: "scenic"

1. Characteristics which do or do not make the area a worthy addition to the NWSR.

   Fossil Creek has outstandingly remarkable scenic and geologic values and is free-flowing making it eligible for inclusion in the NWSR.

2. Status of land ownership, minerals (surface and subsurface), use in the area, including the amount of private land involved and associated or incompatible uses.

   Fossil Creek lies wholly within the White Mountains National Recreation Area established by ANILCA to provide for public outdoor recreation use and enjoyment and for the conservation of the scenic, scientific, historic, fish and wildlife and other values contributing to public enjoyment of such area. There are no private or state lands and no existing mining claims within one-half mile on either side of the creek. In 1982, the BLM determined that Fossil Creek is non-navigable.

   Fossil Creek receives an estimated 1,000 recreational visits each year, mostly during the winter season. Of these 1,000 visits, an estimated 50 are from hikers and hunters during the summer and fall. Hunting is almost entirely for Dall sheep in the surrounding limestone jags. Water flow on Fossil Creek is generally too low to permit boating. Little subsistence use is thought to occur in the area. There are no existing uses that are incompatible with designation.

3. Reasonably foreseeable potential uses of the land and related waters which would be enhanced, foreclosed, or curtailed if the area were included in the NWSR and the values which could be foreclosed or diminished if the area is not protected as part of the NWSR.

   Recreation is, and is expected to continue to be, the primary use of the area. It is reasonable to expect recreational use to increase in the area whether Fossil Creek is designated as part of the NWSR or not. Designation would have some effect on proposed recreation development in the area, requiring greater care in screening to maintain the scenic quality of the area.

4. The Bureau of Land Management is the federal agency that would administer Fossil Creek if it was added to the NWSR.

5. Ability of the agency to manage and/or protect the river area or segment as a WSR, or other mechanisms (existing or potential) to protect identified values other than WSR designation.

   Fossil Creek is closed to the location of new mining claims by ANILCA. In all alternatives of the EIS, Fossil Creek would be closed to mineral leasing. Also in all alternatives, this area would be in a Limited OHV designation, allowing for winter use of snowmobiles 1,000 pounds curb weight and less and requiring a permit or Plan of Operations for all other OHV use. These restrictions would protect the scenic and geologic ORVs of Fossil Creek.

6. Estimated cost, if necessary, of acquiring lands, interests in lands, and administering the area if it is added to the NWSR.

   Designation of Fossil Creek would not require the acquisition of any property because the lands are federal lands managed by the BLM. The additional cost anticipated from the management of the area as WSR is expected to be minimal.

7. The extent other agencies would participate in the preservation and administration of the river as a WSR.

If designated, it is unlikely that there would be assistance from the state.

8. Historical or existing rights which could be adversely affected.

   There are no historical or existing rights that would be adversely affected by designation.

9. Ability of the State government to manage and/or protect the river area or segment as a WSR, or other mechanisms (existing or potential) to protect identified values other than WSR designation.

   The Fossil Creek segment is entirely on BLM-managed lands.

10. Support or opposition of designation.

    The State of Alaska is strongly in opposition to wild and scenic river study and designation of river segments (ADNR 2008, 2013). Its position is that study and designation is in conflict with Section 1326(b) of ANILCA. The Alaska Mining Association (AMA 2013) and other industry groups are also opposed. Doyon, Limited Native Corporation is generally opposed to recommending additional river segments for inclusion in the NWSR, but did not specifically mention the Fossil Creek in their comments (Doyon 2013). Organized environmental groups were generally in support of designation (AWL et al. 2013). The Tanana Chiefs Conference, Council of Athabascan Tribal Governments, and National Congress of American Indians passed resolutions in support of Alternative B of the Draft RMP (TCC 2013, CATG 2013, NAIC 2012). While the resolutions did not specifically mention wild and scenic rivers, Alternative B is the alternative that recommended Fossil Creek as suitable for designation.

11. Consistence with other agencies plans, programs and policies in meeting regional objectives.

    The White Mountains NRA is adjacent to state lands managed under the State's Eastern Tanana (Fairbanks Region) and the Yukon Tanana (Lower Tanana Region) Area Plans. The Eastern Tanana management focus is land development, multiple and sustained yield of resources and protection of key habitats, fisheries and wildlife populations. Management of lands within the Yukon Tanana Plan that are adjacent to the White Mountains NRA will be to continue in their natural state with some development associated with utilities communications and roads. Yukon Flats National Wildlife Refuge manages their lands to maintain the natural environment consistent with natural ecological processes while providing opportunities for hunting, fishing, wildlife observation and photography and other outdoor recreation in a natural setting. The addition of Fossil Creek to the NWSR would be consistent with these management objectives.

12. Contribution to the river system or basin integrity.

    The addition of this headwater stream would add to the basin and river system approach already evident in the Beaver Creek WSR System of 127 designated river miles.

13. Potential for water resources development.

    Fossil Creek is located within the White Mountains National Recreation Area. There is little interest or need for irrigation, flood control measures, hydropower dredging, diversion, bridge construction or channelization along this remote segment.

Finding for Fossil Creek

Fossil Creek possesses outstandingly remarkable scenic and geologic values. Scenic qualities include contrasting topography and varied vegetation. Geologic values include karst features, which are rare in Alaska outside of the southeast panhandle. This river meets the tentative classification as a "scenic" river due to its largely primitive appearance, and its trail access. Fossil Creek is suitable for designation under Alternative B of the RMP for the purpose of analysis. It is not suitable under the other alternatives because alternate means of protection are in place. ANILCA closed this area to the location of new mining claims and in all alternatives of this EIS, the area would be closed to mineral leasing and limit OHV use to the winter season. These decisions would be sufficient to protect the ORVs for Fossil Creek. In addition, support for designating Fossil Creek is limited. Although some environmental groups voiced support for designation, the State of Alaska adamantly opposes designation of new rivers and there is no known support within the Alaska Congressional Delegation.

E.2. Outstanding Remarkable Values on Designated Rivers

The following sections describes the ORVs for wild and scenic rivers designated by ANILCA. The Eastern Interior RMP makes a determination of the ORVs for the Birch Creek, Beaver Creek, and Fortymile WSRs. ORVs are typically identified in a study prior to the designation, but the Birch Creek, Beaver Creek, and Fortymile WSRs were designated by ANILCA without these specific values identified by Congress. In these cases, managers typically develop ORVs from study reports and other documentation of management activities and intentions as well as incorporating current data and expertise.

ORVs are defined by the WSR Act as those characteristics that make the river worthy of special protection. These can include scenery, recreation, fish and wildlife, geology, history, culture, and other similar values, which are to be considered in determining eligibility for wild and scenic river designation. The WSR Act states that "Each component of the National Wild and Scenic Rivers System shall be administered in such a manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values."

E.2.1. Outstanding Remarkable Values for Birch Creek

Birch Creek WSR begins approximately one mile upstream from the confluence of Twelvemile and Birch Creeks, near Mile 94 of the Steese Highway, and ends at the Steese Highway – Birch Creek bridge, near Mile 140 of the Steese Highway, a distance of 126 river miles. Approximately 77 miles of Birch Creek WSR flows through the Steese National Conservation Area, which was also established by ANILCA. The National Conservation Area is managed by the BLM and managed pursuant to the applicable provisions of the Federal Land Policy and Management Act. Special values to be considered in planning and management of the area are caribou habitat and Birch Creek WSR (ANILCA Section 401.)

The final 13 miles of the designated river (upstream from the Steese Highway bridge near Mile 140) flows through lands owned by Doyon, Limited. While these final 13 miles are designated as "wild," the BLM does not manage these lands.

Historical Review Birch Creek

Proposed Birch Creek Wild and Scenic River Final Environmental Statement. This document was prepared by the Alaska Planning Group of the U.S. Department of the Interior in 1975 and addressed the impact of designating a portion of Birch Creek as a component of the NWSR. Specific values of the river were discussed in the section "Description of the Environment," however no formal determination of ORVs was made. The document reviewed 135 miles of the 314 mile-long Birch Creek.

Pertinent statements on the values of the river in the Environmental Statement include:

- "Spectacular schist examples are found along the river in rock outcroppings and on adjacent hillsides where sheer rock walls have resisted the erosive action of the water. These outcropping and coloration of the exposed bedrock are of outstanding interest to the layman as well as the geologist." (page 30)
- "The area adjacent to the lower 35 miles of the proposed Wild River Area has been identified by the Alaska Department of Fish and Game, in the publication Alaska's Wildlife and Habitat, as a significant waterfowl molting and nesting area for lesser scaup, pintails, widgeons, mallards, green-winged teals, white-winged scoters, buffleheads, American goldeneyes, canvasbacks, and shovelers. Trumpeter swans also may nest in the area. Canada and white-fronted geese and little brown cranes are common in the wet muskeg areas." (page 41)
- "The American peregrine falcon (Falco peregrines anatum) is known to nest along Birch Creek. As the peregrine falcon is a threatened species (Threatened Wildlife of the United States, 1973), the nesting sites found along Birch Creek cliffs are considered quite significant." (page 41)
- "Other area wildlife of special interest are the timber wolf and American osprey." (page 41)
- "Birch Creek offers outstanding recreational opportunities for non-motorized 'float-boat' use for the experienced canoeist (canoeing, kayaking, rafting). It is one of the very few clearwater rivers in the State with road access at two points on an otherwise undisturbed river segment. The recreationist is offered a wilderness experience along the river without having to pay the high costs of aircraft transportation—a unique proposition in Alaska." (page 48)

A Proposal for Protection of Eleven Alaskan Rivers, Final Environmental Statement . This document was prepared by the Department of the Interior Heritage Conservation and Recreation Service, June 1980. It evaluates the impact of protecting the natural environment within a four-mile corridor along eleven rivers in Alaska, including Birch Creek. No specific values were noted for Birch Creek.

Alaska National Interest Lands Conservation Act (ANILCA) December 1980. Congress established the Birch Creek WSR in ANILCA Section 603 in which the Wild and Scenic River Act was amended to add the following paragraph:

"Birch Creek, Alaska: The segment of the main stem from the south side of the Steese Highway in township 7 north, range 10 east, Fairbanks meridian, downstream to the south side of the Steese Highway in township 10 north, range 16 east, to be administered by the Secretary of the Interior."

ANILCA designated Birch Creek as a "wild" pursuant to theWSR Act. The values of the river were not discussed. ANILCA further directed the Secretary of the Interior to establish detailed boundaries and to prepare a management and development plan.

Birch Creek River Management Plan. This document was prepared by the BLM and USFWS, December 1983. It determined the detailed boundaries for the river corridor and established a

management and development plan. While values in the river corridor were discussed, ORVs were not determined.

Pertinent statements on the values of the river in the River Management Plan include:

- "Birch Creek provides for a wide variety of primitive-based recreation opportunities…. Attractive, natural campsites are abundant along the river, including the many gravel bars as well as upland forested areas. Birch Creek is easily accessible from Fairbanks via the State-maintained Steese Highway." (page 8)
- "Scenic viewing opportunities are one of the region's most valuable recreational resources. Occasional cliffs and outcroppings of bedrock contrast with the green mosaic formed by surrounding vegetation on low rolling hills." (page 8)
- "A portion of the Circle to Fairbanks Historic Gold Rush Trail, which has been submitted for nomination to the National Register of Historic Places, passes through the river corridor." (page 23). Note: Upon subsequent review, it was determined that this trail does not pass through the river corridor.

Findings for Birch Creek

The following paragraphs evaluate the scenic, recreational, geologic, fish, wildlife, cultural, historic, and other values for Birch Creek WSR. See section E.1 Overview of the Process for a description of BLM criteria used to interpret these values.

Scenic

Evaluation of Present Situation:

The Birch Creek WSR Corridor lies within the Yukon-Tanana Uplands which has a scenic quality of "A" according to BLM's VRM process. See Appendix D.2 Scenic Quality.

The upper reach of Birch Creek flows through a narrow winding canyon with birch and spruce upland. A boater's focus is on the water course of riffle-pools with small rapids emptying into shallow pools; there are opportunities, however, for glimpses of historic structures in an otherwise natural landscape. Some shallow gravel bars offer contrast with the water and upland vegetation.

At the confluence with Harrington Creek the river changes character as the channel widens with a backdrop of low rounded hills and mountains. Short sections of rapids over a an eight-mile stretch through outcropping bedrock create contrast with the water and the varied vegetation types which include white and black spruce, birch and aspen, alpine tundra and black spruce bog uplands. Gravel bars are larger and higher with willow and alder shrubs and congregations of large debris along point bars creating unique visual points of interest. Upland banks are also higher in many stretches with four-to-six foot drops to water level. There are more opportunities to glimpse historic cabins and hike to higher elevations for outstanding views of the river system.

The lower section of Birch Creek enters the Yukon Flats where the river valley widens to miles and the river meanders with numerous channels with broad gravel bars. Cliff areas with ice lenses and loess soils are evident along this lower stretch. There are also unique areas where trees have lodged along the river bed in mid channel and create a bone-yard effect. Diverse vegetative types such as closed spruce forest, open low-growing spruce, and treeless bog offers distinctive contrast between the water, gravel bars and uplands creating unique views and changing views along Birch Creek. The river again approaches the foothills with a more confined meandering

channel with oxbows and sloughs before it finally breaks free into the flats. The viewshed is confined again with small cliff-like banks.

Finding:

The changes in topography from a headwater stream to a more mature river with meander bends and braided systems add diversity to a relatively short river segment. The eight-mile stretch of intermittent extruding bedrock with interspersed rapids creates visual contrast with the surrounding vegetation, gravel bars and water. The range of foreground hills, middle distant mountains, broad flats and foreground hills as one floats down the river creates a mosaic of backdrops for floaters. The small number of historical cabins that blend with the landscape and are mostly hidden from view add some variety and points of interest to the area. The variety of vegetation types and the seasonal colors are an exemplary example for Interior Alaska. Because of these characteristics, the scenic value of Birch Creek is found to be outstandingly remarkable.

Recreational

Evaluation of the Present Situation:

Birch Creek, flowing for the most part through the Steese National Conservation Area, offers outstanding recreational opportunities for non-motorized "float-boat" use for the experienced canoeist (canoeing, kayaking, rafting). It is one of the very few clearwater rivers in the State with road access at two points on an otherwise undisturbed river segment. The recreationist is offered a multi-day wilderness river experience without having to pay the high costs of aircraft transportation. Many rivers in Interior Alaska have extensive motorized use, while Birch Creek offers an 8 to 14 day non-motorized float opportunity. It is one of the few accessible rivers that offer a floater the experience of all phases of a river, from headwater stream to full meandering river with a whitewater experience. Floaters experience solitude, closeness with nature and wildlife, escape from personal pressures, everyday demands of life and crowds, and exploration of new areas. The chance of seeing wildlife is good with peregrine falcons, bald eagles, and beaver being common. Wolf, bear, fox, lynx, and occasionally caribou may be seen.

River floaters demographics are local Fairbanks, Anchorage, national, and international. They come to float a multi-day wilderness type experience as a major part of their Alaska destination. The clear-water whitewater is unique for open floaters, as well as smaller whitewater craft. Hunters from the Lower-48 bring rafts and canoes for the float-hunting opportunities. International use has occurred in the past and is anticipated to occur again in the future with users from Germany the primary user group willing to pay for a guided experience. While floating the river, users also enjoy seeing wildlife, fishing, hunting, remote primitive camping, hiking to higher vista points, amateur geology, and photography.

Finding:

Birch Creek is recognized regionally and nationally as an accessible, freshwater and whitewater wild river providing a multi-day primitive floating and camping experience which is considered unique. The rivers presentation of diverse geological values is unique within the region that includes a stretch of whitewater caused by bedrock outcrops and the changes in river character from headwater to mature stream. This creek is a good example of the typical diversity of vegetation types and seasonal variations that enhance the river experience. The recreational value of Birch Creek is found to be outstandingly remarkable.

Geologic

Evaluation of the Present Situation:

Most of the bedrock along Birch Creek WSR consists of Paleozoic to Late Precambrian metamorphic rocks (primarily schist and quartzite) that are among the oldest rocks in Alaska. Geologists formerly referred to these rocks as Birch Creek Schist, a name inspired by the characteristic outcrops along this river.

Also exposed in cutbanks along Birch Creek are melting ice lenses, part of the permanently frozen soils, or permafrost, underlying much of the river valley. Supporting evidence and examples of the geologic processes include, but are not limited to:

- Active landslides and thawing permafrost along the river provide opportunities to observe dynamic and ongoing geologic processes.
- Birch Creek's usually clear water is characteristic of certain Interior Alaska rivers that, unlike most rivers in the state, drain terrain that did not experience extensive continental and/or alpine glaciation.
- Classic exposures of Birch Creek Schist are found in sheer rock walls below Harrison Creek and along both banks at Shotgun Rapids.
- Numerous periglacial features, including altiplanation terraces and tors, can be seen from the river on nearby ridges.

Finding:

Outcrops of schist along the river could be considered "textbook" in that they served as inspiration for naming the Birch Creek Schist. However, this rock type is widely dispersed in the Yukon-Tanana Upland, and similar bluffs and rapids exist on the region's other rivers. Similarly, the periglacial features, permafrost exposures, and general hydrology of Birch Creek are widely distributed in the region. Geology is therefore not an outstanding remarkable value of Birch Creek.

Fish Populations and Habitat

Evaluation of the Present Situation:

Birch Creek supports 12 known species of fish and has one of the highest diversity of fish in the region.

Anadromous species: Birch Creek supports populations of Chinook, chum, and coho salmon. Various environmental factors make it difficult to gather population data for Chinook salmon in Birch Creek. The relative health of Birch Creek Chinook may be assessed to some extent by the health of Yukon River Chinook salmon that are still experiencing below average returns (Volk et al. 2009). With below average returns in the Yukon River, all streams providing spawning and rearing habitat for Chinook salmon are highly important both locally and regionally.

Resident species: Birch Creek also supports healthy and viable populations of Arctic grayling, round and humpback whitefish, sheefish, least cisco, northern pike, burbot, slimy sculpin, and blackfish.

Habitat: Major stream-disturbing activities such as placer mining have been active in the Birch Creek watershed for over one hundred years. While it is not known to what degree these activities affected the various fish populations, Birch Creek does provide critical habitat for up to many fish species making it one of the most diverse watersheds in the region.

Finding:

Birch Creek has one of the highest diversity of fish of all rivers in the region. This diversity makes fisheries an outstanding remarkable value for Birch Creek.

Wildlife Populations and Habitat

Evaluation of the Present Situation:

Birch Creek WSR supports a dense nesting population of American peregrine falcons that occur on riverside cliffs and bluffs. The species was an Endangered Species under the Endangered Species Act at the time of Birch Creek WSR designation and was delisted in 1999 but remains a BLM Alaska sensitive species. Similar densities of nesting peregrines occur on few other rivers in the region (Fortymile WSR and the Yukon River within Yukon-Charley Rivers National Preserve).

Peregrine falcons are one component of a complete assemblage of subarctic wildlife species present along Birch Creek at natural levels of abundance and among habitats and plant communities essentially unchanged from natural conditions. The riparian habitats supported by the river are productive and provide key habitat for many species. River corridor and adjacent habitat combine to support this complete assemblage of species. Other raptors nesting along the river include frequently-observed red-tailed (Harlan's) hawks, a few nesting bald eagles, and occasional osprey. The lower section of the river supports extensive riparian vegetation that is excellent moose habitat. The many wetlands and oxbow lakes in the lower river corridor also support important waterfowl and shorebird nesting, including significant waterfowl molting and nesting of lesser scaup, pintails, widgeons, mallards, green-winged teals, white-winged scoters, buffleheads, American goldeneyes, canvasbacks, and shovelers. Trumpeter swans (BLM Alaska sensitive species) also nest in oxbow and other lakes in the river corridor.

Wolves occur in the area and at least one den site is known to occur in the river corridor. Caribou of the Fortymile herd travel on the river ice in winter and use the adjacent uplands in winter and summer. The river is a popular hunt area (sport and subsistence) for moose and caribou, via float boats and (in the lower portion) motorized river boats. The river receives its heaviest use during moose hunting season.

Finding:

While the wildlife values of Birch Creek are high, they do not constitute an ORV of at least regional significance. Wildlife values do contribute to the recreational ORV for the river as wildlife watching is often component of recreational activities.

Cultural

Evaluation of the Present Situation:

There are eight prehistoric sites within or immediately adjacent to the Birch Creek WSR Corridor. They are all shallow or surface lithic sites; therefore, likely late prehistoric Athabascan sites. Most are located on high promontories; therefore, likely hunting lookout sites. One potential early historic Athabascan village site, which may have once contained a prehistoric component, is also located inside the corridor. However, the location of this site is known only from historic documentation, and has never been verified archaeologically, despite repeated attempts by different researchers over the past four decades. A couple of the sites have features or topographic settings that may indicate short-term camping locales. None have been evaluated for eligibility

to the National Register of Historic Places, although field notes indicate that all likely have at least some buried, undisturbed deposits, which along with other variables may make them eligible to the Register.

An evaluation of the topographic settings inside the Birch Creek WSR Corridor indicates that, although additional prehistoric sites may be found, they will not likely vary in site type from those already discovered. For example, there is little likelihood of locating a caribou drive line site, or a permanent or winter village site, within the corridor. If such rare types of sites were found inside the corridor, they would likely contribute to culture or prehistory being an ORV in any future re-evaluation of Birch Creek. Similarly, if prehistoric utilization of riverine resources (e.g., salmon) are discovered, such a regionally relatively rare site type would too likely contribute to a prehistoric ORV re-evaluation for Birch Creek.

Finding:

The prehistoric uses of the Birch Creek corridor (such as short-term camping, lookout hunting sites) are typical of this and many other river settings in the region. None of the known prehistoric sites are particularly unusual or rare within the region of comparison. While the examples of the known prehistoric sites do indeed seem typical, or exemplary, of their site types, one cannot argue that they are "especially good examples" of their types owing to a present lack of quantitative data at the present time. Cultural, or prehistoric archaeology, is therefore not an ORV.

Historic

Evaluation of the Present Situation:

Birch Creek is of interest in the regional history of eastern Interior Alaska because of its association with a pre-Klondike gold rush. Gold miners first prospected in the area in the early 1890s, and the first economically viable gold discovery was made at Pitka's Bar in 1893 by Pitka Pavaloff and Sergei Cherosky, two miners of mixed Russian-Athabascan descent. The following year saw a rush or stampede up the creek when about 100 other men descended in the area. The creek and associated supply town on the Yukon River, Circle City, was virtually emptied of miners following the 1896 Klondike gold discovery further up the Yukon River in Canada. Mining would resume along tributaries of Birch Creek and in surrounding areas in the years following the Klondike strike, and continues through to the present day.

There are about 21 historic-era sites known within or immediately adjacent to the corridor. Of these, five have eroded away with no or very little remaining evidence of their existence. Three others have been built and occupied within the last 50 years, including one framed building covered with corrugated sheet metal that was occupied seasonally nearly every year from 1959-1993. The remaining 13 are spruce log cabin sites, often with an assortment of outbuildings (e.g., doghouses, caches, trash dumps). All but one of these are collapsing, the sole exception a refurbished cabin that was likely originally constructed in the 1920s to 1930s. Based upon artifacts, some historic documentation, and writings on the walls, these 13 sites date variably from the early 1900s through the 1970s or 1980s. Sites with evidence of a post-1959 occupation had further evidence of earlier occupations; they were apparently refurbished and reused in later times. The remaining cabin ruin sites were all mining and prospecting or trapping related, based on historical documentation, artifacts or features at the sites, or comparison to known cabins in the comparative region. One of the sites that has eroded away was an early 20th century roadhouse, and another was the purported site of a historic Athabascan village.

Of the 13 sites that have components older than 50 years and that have not eroded away, none have been evaluated for eligibility to the National Register of Historic Places. Field notes indicate, however, that most if not all of these sites have undisturbed cultural deposits, which along with other variables, may make them eligible to the Register.

As most historic-era sites leave at least some type of surface presence, it is likely that most cabin ruins or above-ground structure ruins have been identified inside the corridor. Any undiscovered ruin sites will most likely represent more examples of the types already found; that is, 20th century mining and trapping related sites. Other historic site types that are probable along Birch Creek but have not been discovered are those that leave more ephemeral traces, such as graves, mining prospect and other types of sub-surface pits, and short-term camps that do not involve permanent buildings (e.g., hunting camps; prospect camps). Examples of rare historic sites that may be present in the corridor, and that would likely contribute to history being an outstanding remarkable value in any future reevaluation of Birch Creek, include (1) definitive pre-Klondike era historic mining/prospecting sites, and (2) any early historic or protohistoric Alaska Native sites typifying traditional land use or subsistence practices.

Finding:

The historic traces found inside the Birch Creek corridor are typical of this and many other river settings in the region. None of the known historic sites are particularly unusual or rare within the region of comparison. The known historic sites seem typical, or exemplary, of their site types, of which there are hundreds more known scattered throughout the region of comparison, both on BLM and non-BLM lands. Taken alone, the historic sites found inside the Birch Creek corridor that are exemplary of mining and prospecting and trapping enterprises do not constitute an ORV.

Conclusion:

The scenic, recreation, and fish values of Birch Creek WSR are determined to be outstanding remarkable.

E.2.2. Outstanding Remarkable Values for Beaver Creek

Of the 127 miles of the designated Beaver Creek WSR, the initial 111 mile segment flows through the White Mountains National Recreation Area, an area established in ANILCA and managed by the BLM to provide for public outdoor recreation use and enjoyment and for the conservation of the scenic, scientific, historic, fish and wildlife and other values contributing to public enjoyment of such area. The final 16 mile segment flows the Yukon Flats National Wildlife Refuge, administered by the U.S. Fish and Wildlife Service.

Historical Review Beaver Creek

The Beaver Creek National Wild River Final Environmental Statement. This document was prepared by the Alaska Planning Group of the U.S. Department of the Interior, 1973 (DOI 1973a), and addressed the impact of designating a portion of Beaver Creek as a component of the NWSR. Specific values of the river were discussed in the section called "Description of the Environment," however no formal determination of ORVs was completed. The document reviewed 135 miles of the 303 mile-long Beaver Creek.

Pertinent statements on the values of the river in the Environmental Impact Statement include:

- "The overall landscape of the White Mountains area has been identified as superior or unique in a statewide scenery evaluation by the staff of the joint Federal-State Land Use Planning Commission." (page 24)
- "The intersection [of two great structural trends] and accompanying fault zones associated with the Beaver Creek area produce a very complex geological area." (page 25)
- The lower 2.5 miles of Fossil Creek "has been identified by the BLM as a 'Geological Display Area'—compact areas where significant periods of geologic history are presented or other important geologic processes are vividly portrayed." (page 28)
- "In addition to esthetic and wildlife values, the natural vegetation in the Beaver Creek area is extremely important in maintaining water quality and a stable watershed." (page 33-35)
- "Fishing for Arctic grayling is considered excellent and attracts fly-in fishermen. The grayling fishery also attracts snowmobilers into the river area near 'Big Bend' where waters remain open because of springs." The document also describes the grayling fishery as "high quality." (page 35)
- "The mountain areas immediately adjacent to the proposed river segment have been identified by the Alaska Department of Fish and Game, in the publication, Alaska's Wildlife and Habitat, January 1973, as important habitat areas for Dall sheep. The river valley is also listed as a significant winter concentration area for moose." (page 35)
- "For the novice or intermediate canoeist, especially family or youth groups, the 135-mile segment of Beaver Creek included in the proposal offers an outstanding recreation opportunity. There are no rapids or serious obstacles." (page 40)

Beaver Creek River Log. The U.S. Bureau of Outdoor Recreation conducted a field inspection of Beaver Creek in August 1976, consisting of a flow trip down the river. The following pertinent statements on the values of the river are included in the river log (BOR 1973).

- "The thick forested area and the clear waters of Beaver Creek combine with the White Mountains to create a beautiful scene for a float trip".
- "Grayling fishing was excellent". "Grayling fishing continued to be excellent."
- "Good campsites continued to be plentiful and the scenery pleasing".
- "It [Beaver Creek] and Nome Creek offered good Class I water on the International Water Scale."
- "Scenery at the "Big Bend"...was superb. Hiking opportunities are excellent along the river in this area."
- Rock outcroppings rise occasionally from the rivers edge in this section of the river [Fossil Creek] adding-to the scenery".
- "...the view from the river-continued to be excellent of the White Mountains, paralleling forested hills, and rock outcroppings at the rivers edge".
- "Scenery was excellent until we got several miles passed Victoria Creek where it was pleasing but without the sheer rock cliffs and the close mountains were not as grand as before."
- "It's scenery, grayling fishery and recreational opportunities are three of its outstanding features".
- Numerous references to wildlife sighting including black bear, Dall sheep, moose, beaver, ducks eagles, and peregrine falcons, and wolf and lynx tracks.

Alaska National Interest Lands Conservation Act (ANILCA) December 1980. Congress established the Beaver Creek WSR in ANILCA Section 603 in which the Wild and Scenic River Act was amended to add the following paragraph:

"Beaver Creek, Alaska: The segment of the main stem from the vicinity of the confluence of the Bear and Champion Creeks downstream to its exit from the northeast corner of township 12 north,

range 6 east, Fairbanks meridian within the White Mountains National recreational Area, and the Yukon Flats National Wildlife Refuge, to be administered by the Secretary of the Interior."

ANILCA designated Beaver Creek as a "wild" pursuant to the WSR Act. The values of the river were not discussed. ANILCA further directed the Secretary of the Interior to establish detailed boundaries and to prepare a management and development plan.

Beaver Creek River Management Plan. This document was prepared by the BLM and USFWS, December 1983. It determined the detailed boundaries for the river corridor and established a management and development plan. While values in the river corridor were discussed, ORVs were not determined. Pertinent statements on the values of the river in the River Management Plan include:

- "Scenic views from Beaver Creek are one of the region's most valuable recreational opportunities." (page 7)
- "Excellent opportunities for Arctic grayling fishing exist on Beaver Creek, primarily from river miles 20–100…." (page 7)

Findings for Beaver Creek

The following paragraphs evaluate the scenic, recreational, geologic, fish, wildlife, cultural, historic, and other values for Beaver Creek WSR. See section E.1 Overview of the Process for a description of BLM criteria used to interpret these values.

Scenic

Evaluation of Present Situation:

The Beaver Creek WSR Corridor lies within the Yukon-Tanana Uplands which has a scenic quality of "A" according to BLM's VRM process. See Appendix D Visual Resource Inventory.

Beaver Creek winds through the heart of the White Mountains with adjacent peaks averaging 2,000 to 5,000 feet in elevation. These exposed outcroppings of white limestone and other variegated bedrock form almost a continuous backdrop for the river and contrast with the diverse vegetation types. The overall length of the designated "wild" segment of Beaver Creek can be broken down into generally five separate distinct scenic reaches. The upper section between river mile 0 and 35 is characterized by the low rolling hills to the south and the higher rolling hills to the north. The river is flows gently and there are numerous gravel bars. Tall white spruce predominate the river corridor. Numerous wildfires have scarred the hillsides through the years and offer a beautiful mosaic of vegetative color and a dynamic look at the different successional stages of the vegetation as it reestablishes.

The second section begins at approximately mile 35, an area known as "Big Bend," where a significant limestone outcropping rises up abruptly nearly 1,200 feet in front of the river user. This massive uplift of jagged limestone is a well known landmark by local users and small plane pilots flying over the area. The distinct white exposed cliffs contrasting with the rolling hills. As implied by the name, Big Bend also marks a distinct change in direction for the river. As Beaver Creek flows around the tip of Big Bend it changes over 90 degrees from a westerly direction to a north-easterly direction. Continuing on to roughly mile 50, Beaver Creek flows primarily north through a relatively deep narrow valley with the steep ragged peaks of the White Mountains rising up on the east side. Long talus slopes with limestone outcrops and streaks of vegetation make

for breathtaking vistas. Through the river remains a Class I (flatwater) float, large rocks become numerous at times and gravel bars tend to be a bit shorter.

Near river mile 50, Beaver Creek moves away from the main ridge of the White Mountains. This section to mile 80 opens up with rolling hills to the west and a more broad distant view to the White Mountains. The river speed decreases and white spruce no longer is the dominate vegetative type along the river. Cottonwood and poplar are more frequent as areas open with some groves of black spruce. The river has larger meanders with some sections breaking into multiple channels.

Between mile 80 and 110, Beaver Creek swings back to an easterly direction and the valley narrows. Tall rugged mountains rise to the north reaching 4,500 feet, and mountains encroach on the river from the south. Steep bluffs, some 200 feet high, are not uncommon. The river speed increases and there are fewer, shorter gravel bars.

In the last section, between mile 110 and 127, the river quickly begins to transition out into the Yukon Flats. After Victoria Mountain and Lime Peak, the broad, flat, horizon predominates. Although the terrain seems to flatten, the river maintains a good gradient with active gravel bars and quick turns.

Finding:

The change in elevation and topography of this river and the surrounding environment result in a highly diverse scenic and visual attraction. The back-and-forth transition from broad valleys with rolling hills and mountains to narrow valleys with steep rugged mountains; the transition between heavily forested and vegetated areas to areas where talus slopes and rocky outcroppings predominate; and the notable white limestone offer an ever changing visual quality. The small number of cabins found along the river blend with the landscape and are mostly hidden from view adding some variety and points of interest to the area. The variety of vegetation types and the seasonal colors are an exemplary example for Interior Alaska. The scenic value of Beaver Creek is found to be outstandingly remarkable.

Recreational

Evaluation of the Present Situation:

Beaver Creek offers outstanding recreational opportunities for non-motorized float-boat use for the novice or intermediate river floaters. Group sizes are generally small, two to four persons, and are comprised of persons originating from local, out-of-state, and international. Beaver Creek is one of the very few clearwater rivers in Alaska with some level of road access on an otherwise undisturbed river segment. Although the put-in is easily road accessible, the majority of users arrange a pickup from a small plane on a primitive, unmaintained, gravel bar airstrip near Victoria Creek. For those users who choose to float out to the next and only road accessible point, the Yukon River bridge, this may offer the longest road to road float opportunity in the nation, a distance of approximately 365 miles. Floaters experience solitude, closeness with nature and wildlife, escape from personal pressures, everyday demands of life and crowds, and exploration of new areas. Almost every book or website with information about floating Alaskan rivers includes information about floating Beaver Creek.

Beaver Creek is recognized for providing recreational users the opportunity for a truly wilderness type experience in a scenically diverse river setting. Along with the high scenic qualities, Beaver Creek offers outstanding sight-seeing, photographic, fishing and wildlife viewing opportunities.

A healthy and voracious population of Arctic grayling inhabits the river and few groups of users float the river without at least one meal of fish. Moose, bear, and Dall sheep sightings along the river are common. Wolf sightings occur occasionally. Moose hunting season brings the greatest concentration of users to the river. From the last week of August through mid-September, an estimated 15–20 groups of hunters take to the river. In contrast to non-hunting river users, hunters tend to lengthen their time on the river by spending multiple nights at the same campsite or spending time looking over particular areas. Hunters on Beaver Creek also tend to use a greater variety of gravel bars to fly out of and return from their trip.

Finding:

Beaver Creek is recognized regionally, nationally and internationally as truly wilderness type experience on an easy Class I river. The rivers setting within the heart of the White Mountains presents outstanding scenic and geological opportunities which are unique within the region. The presence of diverse wildlife and the possibility of seeing them in a natural setting enhance the experience. The recreational value of Beaver Creek is found to be outstandingly remarkable.

Geologic

Evaluation of the Present Situation:

In its upper reaches, Beaver Creek WSR flows around a prominent ridge of Early Silurian white Tolovana Limestone, for which the White Mountains were named. The Tolovana Limestone along the river weathers into distinctive crags and cliffs that are home to numerous rare plant species. The Tolovana Limestone includes karst (limestone dissolution) features such as caves, natural arches, sinkholes, cold springs, and underground streams that, in Alaska, have been widely documented only in the Southeast. Development of karst features in high-latitude locations is thought to be impeded by seasonal freezing of near-surface groundwater or by destruction during periods of glaciation (Jennings 1983). The White Mountains represent one of the few recorded locations of such features in northern or western Alaska (ADF&G 2006). The Ordovician Fossil Creek Volcanics underlying the limestone are a productive source of fossils.

The Serpentine Slide Research Natural Area, located partly within the river corridor, contains a notable outcrop of serpentine, an unusual iron- and magnesium-rich rock thought to originate at seafloor spreading centers.

Beaver Creek's usually clear water is characteristic of certain Interior rivers that, unlike most rivers in the state, drain terrain that did not experience extensive continental and/or alpine glaciation. Active rockfalls, a large landslide (Serpentine Slide), and thawing permafrost along the river provide opportunities to observe dynamic and ongoing geologic processes typical of an Interior river.

Finding:

Beaver Creek's limestone outcrops and associated karst features, as well as Serpentine Slide, represent geologic features that are rare and unusual in the geographic region. The geologic value of Beaver Creek is found to be outstandingly remarkable.

Fish Populations and Habitat

Evaluation of the Present Situation:

Beaver Creek is a highly productive river system known to support up to 10 species of fish including populations of Chinook, summer chum, and coho salmon.

Chinook: Beaver Creek Chinook salmon were designated a BLM Alaska sensitive species in 2004 due to a downward trend of this small population of Chinook salmon. The BLM monitored Beaver Creek Chinook salmon escapement from 1996–2000 and the data revealed a declining trend similar to the overall decline of Yukon River Chinook salmon. Various environmental factors make it difficult at best to gather population data for Beaver Creek Chinook salmon and therefore the relative health of Beaver Creek Chinook salmon may be assessed to some extent by the health of Yukon River Chinook salmon which are still experiencing below average returns (Volk et al. 2009). Beaver Creek and a few of its tributaries including Victoria, Ophir, and Nome Creek are known to provide critical spawning and rearing habitat for Chinook salmon. Beaver Creek Chinook were reclassified from a BLM Alaska sensitive species to a BLM Alaska Watch List species in 2010.

Other salmon species: Beaver Creek also supports small but viable populations of summer chum and coho salmon.

Resident species: The river is known for its healthy populations of Arctic grayling and northern pike which provide excellent sport fishing opportunities for recreational anglers floating Beaver Creek. Beaver Creek also supports populations of round whitefish, sheefish, least cisco, burbot, slimy sculpin, and blackfish.

Habitat: The river provides exceptionally high quality habitat for fish species indigenous to the region. This high quality habitat includes, but is not limited to, crucial spawning and rearing areas for 3 species of salmon.

A lack of major land-disturbing activities (some tributaries previously placer mined) in the watershed contribute to the near natural habitat conditions found in Beaver Creek. This pristine habitat supports one of the most diverse fisheries for both anadromous and resident species in the region.

Finding:

Beaver Creek contains a BLM Alaska watch list species (Chinook salmon) and fisheries diversity is one of highest in the region. Unique concentrations of Arctic grayling are highly important for recreational fishing. The near pristine aquatic habitat in Beaver Creek provides crucial spawning and rearing habitat for the survival and recovery of Chinook salmon. The populations of regionally significant fish species and the river's pristine habitat combine to a finding that fisheries is an outstanding remarkable value for Beaver Creek.

Wildlife Populations and Habitat

Evaluation of the Present Situation:

Dall sheep are uncommon inhabitants of Interior Alaska outside of the major Alaska Range and Brooks Range mountains, occurring only in small, scattered populations in the Yukon-Tanana Uplands and along the border with Canada in the Ogilvie Mountains. Beaver Creek lies at the westward limit of Dall sheep in central Interior Alaska; the White Mountains Dall sheep population centers on and occurs primarily within the Beaver Creek Drainage. In this region of generally rounded terrain, Dall sheep inhabit small scattered areas of rugged topography which provides escape terrain. The limestone outcroppings near Beaver Creek provide a unique,

low-elevation habitat—extensive rocky terrain below elevational treeline. The river has exposed mineral deposits used as licks by Dall sheep in four locations along Beaver Creek and created bluff or cliff habitats used by sheep while visiting the licks. A high proportion of two nearby sheep sub-populations travel through areas with little or no escape terrain (such as tussock tundra) to visit these licks.

A full complement of Interior Alaska wildlife species occur along Beaver Creek in natural levels of abundance and in a natural setting. Abundant grayling in Beaver Creek support numerous river otters. BLM-sensitive species harlequin ducks and trumpeter swans occur on the river. Bald eagles nest in balsam poplar trees and peregrine falcons (a BLM Alaska sensitive species and federally endangered at the time of river designation) nest on river bluffs or limestone outcroppings, along with a diversity of other raptors. The riparian areas are important moose habitat (especially in late winter or deep snow conditions) and the river receives its greatest use during moose hunting season. Grizzly bears use the river more heavily during salmon runs and black bears are common along the lower river. The White Mountains caribou herd uses the river corridor (as did the Fortymile herd historically) and caribou are sometimes observed crossing Beaver Creek. River habitats in Alaska are typically highly diverse; the presence within the Beaver Creek WSR Corridor of a range of habitats from broad river floodplain wetlands to steep alpine tundra and barren ridges increases that diversity.

Finding:

The wildlife value of Beaver Creek can be considered an ORV of at least regional significance. It provides important and unique habitat for an atypical Dall sheep population. This wildlife population, in combination with others, provides a highly diverse assemblage of wildlife in a state of natural abundance.

Cultural

Evaluation of the Present Situation:

There are no known cultural or prehistoric sites in the river corridor.

An evaluation of other rivers in the region of comparison with similar topographic settings and riverine resources indicates that prehistoric sites that are likely to be found include late prehistoric short-term campsites and overlook hunting sites, neither of which would be considered rare in the region. Examples of such prehistoric sites that may be considered rare in the region, and thus may contribute to any future re-evaluation of Beaver Creek cultural or prehistoric outstanding remarkable values, would be caribou drive line and butchery sites, permanent or winter village sites, and fisheries (e.g., salmon) extraction and processing sites.

Finding:

At present, cultural or prehistoric archaeology is not an ORV.

Historic

Evaluation of the Present Situation:

There are about 14 historic-era sites known within or immediately adjacent to the corridor. Of these, four cabin sites have since eroded away with no or very little remaining evidence of their existence, and one other was burnt over by a wildland fire likely in the 1990s and cannot be

relocated. One other is a stilt cache site apparently without an accompanying permanent cabin, which unfortunately had no datable refuse in the vicinity. A 1920s-era site has a separate large, collapsing log cabin some 22 meters away that was built with the aid of a chainsaw and appears to date within the last 50 years. The remaining eight historic sites are spruce log cabin sites, only one of which is accompanied by a cache. All but one of these eight are collapsing, the sole exception a refurbished cabin still occupied today that was likely originally constructed pre-World War II, based upon degree of weathering of the wall logs. The artifacts accompanying these eight sites all date to the 1920s to 1940s. Most of the sites, even those that have since eroded or burned away, are smaller cabins with features and artifacts that indicate a trapping enterprise. Only a few of the sites are, or were, larger cabins with gable roofs, more typical of those found associated with miners elsewhere in the region of comparison. These larger cabins might also represent home base trapping cabins from which forays were made to smaller, temporary trapping line cabins.

Of the eight sites that have components older than 50 years and that have not eroded away, none have been evaluated for eligibility to the National Register of Historic Places. Field notes indicate, however, that most of these sites have undisturbed cultural deposits, which along with other variables, may make them eligible to the Register.

As most historic-era sites leave at least some type of surface presence, it is likely that most cabin ruins or above-ground structure ruins have been identified inside the corridor. Any undiscovered ruin sites will most likely represent more examples of the type already found; that is, 1920s–1940s-era trapping cabins. It is also known that a portion of the historic Fairbanks-Beaver sled trail passed along a portion of Beaver Creek that is inside the WSR corridor considered here. The trail was built and maintained by the Alaska Road Commission in the early-mid 20th century. Traces of this historic trail, as evinced by a thin cut swath through the boreal forest, are seen today, as the trail intersects the corridor in the vicinity of Big Bend, and paralleling along the creek as it proceeds downstream, before crossing over the divide into upper Victoria Creek. This trail has not been evaluated for eligibility to the National Register. Historic maps indicate two Alaska Road Commission shelter cabins along this stretch of the trail. Neither of these two cabin ruins, if they still exist, has been identified on the ground. Regardless, dozens of similar shelter cabins exist elsewhere within the region of comparison.

With further intensive archaeological survey, other historic site types that can probably be found along Beaver Creek, but have not been discovered, are those that leave more ephemeral traces, such as graves, mining prospect and other types of sub-surface pits, and short-term camps that did not include permanent buildings. Examples of rare historic sites that may be present in the corridor, and that would likely contribute to history being an ORV in any future re-evaluation of Beaver Creek, include (1) definitive pre-Klondike era historic mining/prospecting sites, and (2) any early historic or protohistoric Alaska Native sites typifying traditional land use or subsistence practices.

Finding:

The historic traces found inside the Beaver Creek WSR Corridor (i.e., trapping, Alaska Road Commission sled trail) are typical of this and many other river settings in the region. None of the known historic sites are particularly unusual or rare within the region of comparison. The known historic sites inside the corridor are typical of their site types, of which there are many more known scattered throughout the region of comparison, both on BLM and non-BLM lands. The historic sites found inside the Beaver Creek corridor do not constitute an ORV.

Conclusion:

The scenic, recreation, geologic, fish, and wildlife values of Beaver Creek WSR are determined to be outstandingly remarkable.

E.2.3. Outstandingly Remarkable Values for the Fortymile River

The Fortymile WSR consists of the main stem of the Fortymile River and its major tributaries. River segments are classified as either "wild," "scenic" or "recreational." Classification is a determination based on existing characteristics of a river area resulting from human-caused change or levels of development. Congress mandated that those segments be managed according to the following objectives:

- Wild rivers will "be free of impoundments and generally inaccessible except by trail with watersheds or shorelines primitive, and waters unpolluted. These represent the vestiges of primitive America."
- Scenic rivers will be managed to be "free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads."
- Recreational rivers will be managed to be "readily accessible by road or railroad" and "may have some development along their shorelines, and…may have undergone some impoundment or diversion in the past."

The Fortymile River WSR segments, start and end points, and classification are presented below.

Class	Segment	Start Upstream	End Downstream	Miles
"wild"	Champion Creek	FM, T. 4S., R. 30E., Sec. 1	Confluence with North Fork	28
"wild"	Joseph Creek	FM, T. 5S., R. 21E., Sec. 33, headwaters	Confluence with Middle Fork	22
"wild"	Middle Fork	Confluence with Joseph Creek	Confluence with North Fork	42
"wild"	Mosquito Fork	Confluence with Kechumstuk Creek	Confluence with Ingle Creek	30
"wild"	North Fork	Confluence with Slate and Independence Creeks	Confluence with Main Stem and South Fork	57
"scenic"	Mosquito Fork	Confluence with Ingle Creek	Confluence with Dennison and South Forks	8
"scenic"	Dennison Fork	Confluence with West Fork of Dennison Fork	Confluence with South and Mosquito Forks	19
"scenic"	Dennison Fork (West Fork)	Confluence with Logging Cabin Creek	Confluence with Dennison Fork	13
"scenic"	Fortymile River (Main Stem)	Confluence with North and South Forks	Alaska-Yukon Territory border	39
"scenic"	Franklin Creek	CRM, T. 28N., R. 17E., Sec. 31; CRM, T. 28N., R. 18E., Sec. 36, headwaters	Confluence with South Fork	6
"scenic"	Hutchinson Creek	FM, T. 7S., R. 28E., Sec. 31, headwaters	Confluence with North Fork	19
"scenic"	Logging Cabin Creek	CRM, T. 22N., R. 16E., Sec. 11, headwaters	Confluence with West Fork of Dennison Creek	17
"scenic"	Napoleon Creek	CRM, T. 27N., R. 19E., Sec. 1, headwaters	Confluence with South Fork	7
"scenic"	O'Brien Creek	Confluence with King Solomon Creek and Liberty Fork	Confluence with Main Stem	27
"scenic"	South Fork	Confluence with Mosquito and Dennison Forks	Confluence with North Fork and Main Stem	27
"scenic"	Uhler Creek	FM, T. 8S., R. 31W., Sec. 24, headwaters	Confluence with South Fork	9

Class	Segment	Start Upstream	End Downstream	Miles
"scenic"	Walker Fork	Downstream of Liberty Creek	Confluence with South Fork	12
"recre-ational"	Wade Creek	Confluence of Grace and Warner Creek, CRM, T. 28N., R. 20E., Sec. 26	Confluence with Walker Fork	10

Historical Review Fortymile River

Fortymile River Trip Log. In 1967, BLM and ADF&G staff floated the Fortymile River from the Mosquito Fork down to the Yukon River (BLM 1967). The trip log does not note any specific values for the Fortymile River.

The Fortymile National Wild and Scenic River Final Environmental Statement . This document was prepared by the Alaska Planning Group of the U.S. Department of the Interior in 1973 (DOI 1973b). It proposed and evaluated adding 392 miles of the more than 1,000 miles of the Fortymile River and its principal tributaries together with 320,000 acres of land comprising the immediate environment of the rivers to the NWSR. Specific values of the river were discussed in the section "Description of the Environment," however no formal determination of ORVs was completed.

Pertinent statements on the values of the Fortymile River in the Environmental Statement include:

- "The Fortymile River basin is the location of several events and items having historical and cultural importance. These include the site of the first gold discovered in Interior Alaska; cabins, settlements, and equipment associated with past and present gold mining; the abandoned Eagle to Valdez military telegraph line which is today part of the Washington-Alaska Military Cable and Telegraph System. Two segments of this system in the Fortymile River basin, Joseph Creek to Kechumstuk and Eagle to Kechumstuk, are being considered for nomination by the State to the National Register of Historic Places in accordance with provisions of the National Historic Preservation Act of 1966 (80 Stat. 915)." (page 33)
- "Glistening vertical rock strata in an otherwise forested valley form especially scenic vistas in the vicinity of the confluence of the Middle Fork with the North Fork. The lower portion of the North Fork is deeply entrenched with bluffs up to 400 feet high rising from the river's edge." (page 48)
- In reference to the South Fork and Fortymile River: "The steep, bare outcrops of bedrock flanking the riverbed are noteworthy—a shining, glacier-like exposure of white marble downstream from the confluence of the North and South Forks; and colorful banded strata near O'Brien Creek." (page 50)
- In reference to the South Fork and Fortymile River: "A distinctive feature of the river area in that segment is the presence of past and present gold mining activities and contains several sites which may be of historic significance." (page 50)
- "Grayling appear to constitute the majority of the sports catch. Fishing in the Fortymile drainage is considered fair to excellent." (page 68)
- "Because the upper Yukon River is a northward extension of the Great Plains and is also on the fringe of coastal areas, there is a mixture of bird life in the Fortymile River basin not typical of Interior Alaska." (page 69)

A Proposal for Protection of Eleven Alaskan Rivers, Final Environmental Statement (DOI, Heritage Conservation and Recreation Service 1980). This statement evaluates the impact of protecting the natural environment within a four-mile corridor along eleven rivers in Alaska,

including the Fortymile River and major tributaries. No specific values were noted for the proposed Fortymile River segments.

Fortymile Management Framework Plan (BLM 1980). This plan addresses the management of a large area, including the Fortymile WSR Corridor. No specific values were noted for the proposed Fortymile River segments.

Alaska National Interest Lands Conservation Act (ANILCA) December 1980. Congress established the Fortymile Wild and Scenic River in Section 603 of ANILCA in which the WSR Act was amended to add the following paragraph: "(48) FORTYMILE, ALASKA.—The main stem within the State of Alaska; O'Brien Creek; South Fork; Napoleon Creek. Franklin Creek, Uhler Creek, Walker Fork downstream from the confluence of Liberty Creek; Wade Creek; Mosquito Fork downstream from the vicinity of Kechumstuk; West Fork Dennison Fork downstream from the confluence of Logging Cabin Creek; Dennison Fork downstream from the confluence of West Fork Dennison Fork; Logging Cabin Creek; North Fork; Hutchison Creek; Champion Creek; the Middle Fork downstream from the confluence of Joseph Creek; and Joseph Creek; to be administered by the Secretary of the Interior."

The values of the river were not discussed. ANILCA further directed the Secretary of the Interior to establish detailed boundaries and to prepare a management and development plan.

Fortymile River Management Plan. This document was prepared by the BLM and published December 1983. This document determined the detailed boundaries for the river corridor and established a management and development plan. While values in the river corridor were discussed, ORVs were not determined.

Pertinent statements on the values of the river in the Fortymile River Management Plan include:

- In reference to the Middle Fork below Joseph Creek: "The water quality is excellent and this section represents a truly wild river. Numerous class II rapids challenge the boater and outstanding scenic views, particularly to the south, are a feature of this section." (page 8)
- "Glistening folded rock strata in an otherwise forested valley form especially scenic vistas in the vicinity of the two forks' [North Fork and Middle Fork] confluence." (page 9)
- "The Kink, located on the North Fork at mile 34.5, is a unique area in the Fortymile drainage. In 1898 a group of Danish prospectors blasted away a 100-foot rock ridge, draining a 2.8-mile long meander. The dry bed was worked for gold but proved to be poor ground, and was abandoned by 1905. While appearing an easy task to compete with today's technology, the Kink was a major engineering feat in that time and place. It was accomplished in a relatively uncharted wilderness without benefit of any developed transportation or communication system. The area is now on the National Register of Historic Places." (page 9)
- In reference to the lakes in the old river channel of the Kink: "These lakes are not typical of this section of the Fortymile; and, combined with the remote location, provide excellent wildlife habitat. The birdlife is particularly noticeable, with abundant waterfowl…. Peregrine falcons, and endangered species, nest in the area." (page 9)
- "The high rock walls, rushing whitewater and somber spruce forests make the Kink a memorable stop on a float trip…. The Kink remains a significant historic, recreation and ecological resource of the Fortymile." (page 9)
- In reference to Mosquito Fork, downstream 3 miles from the upper reaches of the designated river: "This section is quite remote, with little summer use, offering excellent opportunities for a primitive experience." (page 10)

- In reference to Joseph Creek: "It is probably the area of the wild, scenic and recreational corridor that is most accurately a vestige of primitive America." (page 11)

Findings for the Fortymile River

The following paragraphs evaluate the scenic, recreational, geologic, fish, wildlife, cultural, historic, and other values for the Fortymile WSR. See section E.1 Overview of the Process for a description of BLM criteria used to interpret these values.

Scenic

Evaluation of Present Situation:

The Fortymile WSR lies within the Yukon-Tanana Uplands which has a scenic quality of "A" according to BLM's VRM process. See Appendix D Visual Resource Inventory.

The Fortymile WSR uplands are characterized by appreciable topographic relief with the lowest area at approximately 1,100 feet elevation and the highest mountains between 5,000 to 6,200 feet elevation with a local relief of about 2,000 feet or greater. Terraced uplands, prominent peaks and rolling hills provide unique backdrops for many river segments.

The Mosquito Fork and the Dennison Fork flow clear water with extensive gravel and sand bars through wide river valleys with relatively low stream gradients. Relatively uniform gently rolling hills and ridges provide the backdrop to the shallow streams with small rapids and occasional pools. Ice lenses occur along the drainages providing unique opportunities to see permafrost and thermokarst formations creating contrast with the adjacent vegetated landscape, gravel bars and rock cliffs. Vegetation characteristics vary from muskeg marshes to alpine tundra. Attractive homogenous spruce forests, mixed with muskeg and mixed deciduous forests provide ever-changing stream side color and texture contrasts. These range from low mat herbaceous and shrubby plants to closed spruce-hardwood forests with black spruce and tall shrub, to more open hardwood forests with birch, aspen and associated shrub understory. Many areas show various stages of growth after wildland fires creating a stunning contrast of colors. The variety of plant communities, with different species characteristics, create a mosaic in line, color, form and texture which changes along each segment of the river system.

The headwater areas of the North Fork, Champion Creek, Joseph Creek, O'Brien Creek, Walker Fork, West Fork and Logging Cabin Creek are characterized as meandering streams that are incised in canyons with steep stream gradients. Exposed rock surfaces offer contrast with the water and surrounding vegetation from muskeg marshes to alpine tundra. Attractive spruce forests, contrast with muskeg and mixed deciduous forests provide ever-changing stream side color and texture changes. These range from low mat herbaceous and shrubby plants to forests and tall shrub. The variety of plant communities with different species characteristics create a mosaic in line, color, form and texture which changes along each segment of the river system. High rugged or terraced mountains serve as a backdrop for many of these segments.

Other segments like those along the Middle Fork, Lower North Fork, Main Stem and South Fork are characterized by deeply entrenched canyons with cut bedrock on most of their riffles interspersed in broader valleys. The average stream gradient is moderately steep but numerous small rapids formed from exposed bedrock and boulders. Larger rapids, such as the Kink, Bald Eagle, the Chute, the Falls, Claghorn and Deadman's Riffle offer challenge for float boaters and outstanding scenic views. Glistening vertical rock strata, shining white marble and colorful

banded bluffs up to 400 feet high, rise from the river's edge in places contrasting with water and vegetation, from muskeg and black spruce to open hardwood forests with tall shrub. Scour holes can be seen in some areas of exposed bedrock, such as the Chute, Kink and Falls. All of these features add diversity, interest and color to the landscape.

Findings:

The Fortymile River system's presentation of diverse geological and landform values from wide valleys, stretches of bedrock outcrops, sheer cliffs, and an entrenched river system is unique within the region. The diversity of plant communities with a variety of colors, hues and textures create contrast within itself and against adjacent landforms, geologic formations, and cultural modifications. Many of the cultural modifications blend with the landscape and add variety and points of interest to segments. The combination of geologic formations, the overall landforms and the variety of vegetation creates a mosaic of scenery that is unique on each segment and along the river system. The Middle Fork, North Fork, South Fork, Main Stem, O'Brien Creek and Walker Fork all exhibit variety, creating interest in a dramatically changing landscape as someone moves along these travel routes, resulting in an outstandingly remarkable scenic value. Though not common travel routes, Joseph Creek, Champion Creek, Mosquito Fork, West Fork, Dennison Fork, and Logging Cabin Creek also have outstandingly remarkable scenic values for the same reasons.

Recreational

Evaluation of the Present Situation:

The Fortymile WSR offers a wide range of recreation experiences in a spacious setting ranging from areas without substantial evidence of humans' activities to those areas where there may be substantial past and present activities. Ever changing vegetation and landforms offer outstanding scenery along this clear water river system.

A primitive, wildland experience is offered on a five to 10 day float trip from Joseph to the Fortymile bridge. This trip includes the Middle Fork, Lower North Fork and Main Stem. The North Fork from Slate Creek to the confluence with the Middle Fork offers a slightly different multi-day wildland, primitive experience. On either trip, floaters test their skills through a number of riffles and rapids in a remote area. Because of the system's spider web character, youthful nature and the presence of permafrost, rain induced rises in water levels can suddenly challenge floaters. A diversity of vegetative communities found along these river segments from muskeg marshes to alpine tundra provides a variety of colors and textures that enhance the overall visual quality of the recreation experience. Floaters experience solitude, a closeness with nature and a test of skills.

The West Fork float provides a shorter wildland experience with a more historical flavor for the less experienced or those seeking an easier family experience. This two to four day trip includes the West Fork, the Dennison Fork and the South Fork from the West Fork Highway bridge at Taylor Highway Mile 42 to the South Fork bridge. Past scars from wildland fires create a mosaic of color and texture from different stages of vegetative growth that adds to the experience. Floaters experience remoteness and a closeness with nature in a small group setting.

The South Fork trip offers a look into past and present mining activities on a three to five-day float or single day motorized boat trip with a few rapids for challenge. This trip includes the South Fork and the Main Stem from the South Fork bridge to the Fortymile River bridge. Floaters experience closeness with nature and a chance to explore history with family or friend groups.

The Main Stem downriver to Canada with a take-out at either Clinton Creek or Eagle via the Yukon River offers unique multi-day international float trips with many different aspects of interest. Diverse cliffs line sections of the river, past and present mining activities can be seen. Wildlife is not uncommon and a number of rapids and riffles challenge the floater. Because of the system's spider web character and the entrenched character of this segment, rain induced rises in water levels can also challenge the floater's skills. The clear water Main Stem contrasts with the glacier fed Yukon River adding a unique transition. River users experience closeness to nature, a connection to the past and a sense of isolation and independence.

Wade Creek offers an up close look at past and present mining activities. River actions over time deposited gold along ancient stream beds. These beds have been and are currently mined. Many visitors like to try their hand at panning for gold along this segment. The main experiences for visitors are learning about the past, exploring the area, and seeing new and different things.

The historic mining district with associated dredges, cabins, tools and equipment is an attraction to many river users, including current mining activities. An interest with the past is enhanced by comparing modern operations to historic operations. Many of the historic resources blend with the surrounding landscape and provide a sense of exploration for floaters on many section of the river. Historic hunting and trapping cabins sites dot the landscape while the historic Washington-Alaska Military Cable and Telegraph System (WAMCATS) line follows Champion Creek and the section of the North Fork between Champion Creek and the Middle Fork, where the line crosses the river before heading cross-country again. Short sections of WAMCATS may be found within the corridor along Hutchinson Creek and Mosquito Fork. The Kink and old communities such as Franklin, Jack Wade, and Steele Creek, offer a chance to explore the past, enhancing the recreationists experience of gold mining and life along the river. Past or current mining activities occur along the North Fork, South Fork, Mosquito Fork, Walker Fork, Wade Creek and the Main Stem. Old dredge parts and other signs or mining activities can still be seen along these segments.

Sport fishing for grayling is fair to moderate depending on past influences to the naturalness of the river. Popular segments include the Mosquito Fork, Walker Fork, West Fork and the South Fork. The Kink also attracts anglers on a remote float trip. The Fortymile River has a variety of wildlife including moose, caribou, wolves, black and grizzly bear, lynx, fox, peregrine falcon and other raptors, all may be seen while floating the river. Some areas of Mosquito and Dennison Forks provide nesting habitat for waterfowl. While these are not ORVs, fishing and wildlife viewing enhances the overall river experience for many recreationists.

The use of the area in general and site-specific locations such as Ketchumstuk and Joseph by native peoples and more recent use by miners and trappers enhance the overall experience of exploration, learning, and contemplating the human's relationship with the land.

Pleistocene fossils may be found along some segments including the South Fork and the Main Stem. Amateur rock hounds can find a number of different metamorphic, igneous and sedimentary rocks, which are readily visible in a variety of bedrock outcrops and cliff areas. These displays of bedrock and geological features provide a diversity of backdrops, enhancing the overall river experience for many recreationists.

Finding:

The Fortymile River system is recognized regionally and nationally as an accessible, fresh-water river system with interspersed whitewater and flat water areas providing a variety of multi-day floating and camping experiences that are considered unique. The river's presentation of diverse

geological values with stretches of whitewater caused by bedrock outcrops, human manipulation of the landscape, and an entrenched river system; the mix of cultural and historic values including native and non-native use; the diverse wildlife viewing opportunities and the sheer size of the system is unique within the region. The diversity of vegetation types and landform enhance the river experience. The recreational values of the Middle Fork, Lower North Fork, South Fork and Main Stem, as well as West Fork, Dennison Fork, and Wade Creek are found to be outstandingly remarkable.

Geologic

Evaluation of the Present Situation:

The Fortymile River's geomorphology distinguishes it from most rivers in the Yukon-Tanana Uplands. The upper portion of the river, particularly the Dennison, Mosquito, and Middle Forks, flow sluggishly through relatively flat, wide valleys dotted with lakes, sloughs, and marshlands. In stark contrast, the lower portion is incised in deep valleys with steep-walled canyons cut into bedrock. The canyon slopes and rapids expose intensely folded metamorphic rocks.

Signs of the regional uplifting and fluvial downcutting that produced the deep canyons can be seen numerous places on the sides of the valleys, where gravel river terraces are perched up to 750 feet above the current river level (Pinney 2001). Examples of these terraces may be seen on the South Fork from the Taylor Highway and near Steele Creek along the Main Stem and South Fork segments. Walker Fork and O'Brien Creek segments illustrate downcutting.

In many places bluffs and rapids along the river expose folded Paleozoic metamorphic rocks that have been intruded by Tertiary to Mesozoic plutons and dikes (Foster 1976). Most prominent of these are steeply tilted beds of white marble interspersed with gneiss and schist. Examples of such locations include the Chute Rapids, the Kink Rapids, the bluffs at Long Bar and upstream of the Taylor Highway bridge by O'Brien Creek, and the Canyon Rapids, located along the North Fork and Main Stem segments.

Significant amounts of placer gold have been mined from the river and at least 10 of its tributaries since the late 19th century. The history of mining in the region is discussed in more detail in the section on the river's historical resources.

The Fortymile River's usually clear water is characteristic of Interior rivers that, unlike most rivers in the state, drain terrain that did not experience extensive continental and/or alpine glaciation.

Active rockfalls and landslides, many of them related to recent wildland fire, including thawing permafrost exposed by the river, provide opportunities to observe dynamic and ongoing geologic processes typical of an Interior river.

Finding:

For the most part, the Fortymile River region is characterized by geologic features that are neither rare nor unusual in the geographic region. However, the river's geomorphology — particularly its deeply incised valleys, entrenched meanders, and high gravel terraces — is regionally distinctive and has been described as "spectacular evidence of Pleistocene and (or) Holocene downcutting" (Foster 1969). The geologic value of the Fortymile River is found to be outstandingly remarkable along the North Fork downstream from its confluence with the Middle Fork (Lower North Fork), the Main Stem, the South Fork, the Walker Fork and O'Brien Creek.

Fish Populations and Habitat

Evaluation of the Present Situation:

The Fortymile River and its tributaries have a relatively low (less than five) diversity of fish species relative to the size of the basin.

Salmon species: The ADF&G states that, dating back to the 1960s, only 16 juvenile and two adult Chinook salmon, 16 adult chum salmon and one unidentified salmon have been observed by state, federal and private entities in the Alaskan portion of the Fortymile River (ADF&G 1999). Their conclusion is that anadromous fish runs in the Fortymile River are at the upper limit of their natural distribution and may not successfully reproduce on an annual basis partly due to marginal habitat.

Resident species: Arctic grayling are the dominant fish species in the basin but are not particularly abundant.

Habitat: The Fortymile River does not contain exceptionally high quality fish habitat. Placer mining began over one hundred years ago in the Fortymile River drainage and continues today. These activities have resulted in the reduction of available fish habitat within the drainage. Since pre-mining fisheries data are unavailable, the full extent to which mining activities have impacted fish populations in the Fortymile River basin is unknown (ADF&G 1987b). It is unknown whether mining activities adversely affected any outstanding and remarkable values for fish habitat that may have existed prior to mining.

Finding:

The Fortymile River does not contain outstanding and remarkable values for fish populations or fish habitat. At this time, there are no unique stocks or populations of State, federally listed, or candidate threatened and endangered fish species within the Fortymile River.

Wildlife Populations and Habitat

Evaluation of the Present Situation:

The Fortymile WSR supports a dense and increasing regionally important population of American peregrine falcon (*Falco peregrines anatum*). Peregrines in the Fortymile WSR nest on sheer cliff faces of up to 100 meters (109 yards), grassy bluffs broken by rock outcrops and small cliffs, and sloping, grassy bluffs that are treeless. In 2008 the distance between nest sites within the Fortymile Peregrine Falcon Monitoring Area was 3.9 river km (2.4 river miles). Densities of nests are higher in the Fortymile WSR than on the neighboring Upper Yukon and Upper Tanana rivers. The current occupancy rate of approximately 70 percent (number of Traditional Nesting Territories occupied) and the increase use of irregularly occupied territories indicates that the populations will continue to expand.

Finding:

Peregrine falcon are an outstandingly remarkable wildlife value of regional significance in the Fortymile WSR due to the high nest density and amount of available habitat providing opportunity for population increase. Even though peregrine nest throughout the river, segments with the greatest value for wildlife (peregrine falcon) are: 1) the Middle Fork, 2) the North Fork, 3) the South Fork, 4) Dennison Fork and 5) the Main Stem.

Cultural

Evaluation of the Present Situation:

There are very few known cultural, Native American, or prehistoric sites inside the river corridor (six percent of the total number of sites known). Nine of these sites are surface lithic sites associated with hunting lookout sites, one is a historic Native American burial site, and another is a buried seasonal camp site located at the confluence of Wade Creek and Walker Fork. Most of the area inside the corridor has not been surveyed intensively for prehistoric remains, and it is likely that more sites are present and will be found in the future. An evaluation of other rivers in the region with similar topographic settings and riverine resources indicates that Native American or prehistoric sites likely to be found include additional late prehistoric short-term campsites and overlook hunting sites neither of which would be considered rare in the region. Examples of sites that may be considered rare in the region, and thus may contribute to any future re-evaluation of Fortymile River drainage cultural or prehistoric ORVs, would be caribou drive line and butchery sites, permanent or winter village sites, and fisheries (e.g., salmon) extraction or processing sites.

Finding:

At present, cultural or prehistoric archaeology is not an ORV.

Historic

Evaluation of the Present Situation:

The Fortymile River is of interest in the history of Alaska, and of eastern Interior Alaska in particular, because of its association with the first gold rush stampede in Alaska. The strike, September 1886, in the vicinity of Franklin Creek along the South Fork of the Fortymile, was the first coarse gold discovery of gold on the Yukon River or any of its tributaries. From 1886 to 1893, the Fortymile drainage in Alaska was truly the only gold producing area in the entire Yukon basin, outside of a few, much smaller camps along the Upper Yukon in Canada. Subsequent discoveries along the Yukon and its tributaries in Canada and Alaska would expand the breadth of gold mining throughout most of central Interior Alaska. Prospectors quickly fanned out in the Fortymile area following the initial discovery, locating in succession what would be the major placer gold-bearing creeks in the drainage: South Fork/Franklin Bar (1886), main stem Fortymile (1886), Franklin Creek (1886 or 1887), Walker Fork (1888), Chicken Creek (early-1890s), Canyon Creek and tributaries (early-1890s), Dome Creek (1893), Napoleon Creek (1893), Wade Creek (1895), Lost Chicken Creek (1895-96), Ingle Creek (late-1890s), Uhler Creek (early-1900s), and Buckskin Creek (early-1900s).

In response to this increased and sustained development, the Fortymile drainage in Alaska developed a series of small communities by the late-19th and early-20th centuries to meet the transportation and supply needs of the developing population at Franklin, Jack Wade, Chicken, Steele Creek, and Liberty. Much of the mining population of the Fortymile would empty back into Canada during the huge stampede following the 1896 discovery of gold up the Klondike River, only to drift back again over the next few years following the subsequent demographic saturation of that area. The Fortymile has seen near-continuous placer gold mining since its date of discovery up to the present time.

In terms of the physical remains of these activities, about 170 historic sites are present within the confines of the Fortymile WSR Corridor, the vast majority of them related to mining during the late-19th and first half of the 20th centuries. They cover all manner of site types, including historic trails, portions of the WAMCATS along with buildings and structures associated with

that system, gold dredges and associated camps, miners' log cabins and adjacent worked ground, small abandoned communities, isolated boilers and other large mining equipment, trappers' log cabins, woodchoppers' cabins, airstrips, roadhouses, and several cemeteries and isolated graves.

Of particular note, the following abandoned communities are located on BLM-managed lands inside the corridor: Steele Creek, along the main stem Fortymile River; Franklin, at the mouth of Franklin Creek on the South Fork; and Jack Wade, along Wade Creek. Also, two sites inside the corridor are currently on the National Register of Historic Places: (1) the Kink, a cultural channel blasted through a ridge of land by miners on the North Fork in the early-20th century to divert the river for placer operations, and (2) the Steele Creek Roadhouse, a log building on the main stem of the Fortymile River built to provide shelter for travelers and to supply the local mining population. Other sites have also been found eligible to be nominated to the Register through consultation with the State Historic Preservation Office, but have not been through the formal nomination process. There is also an intact portion of the WAMCATS telegraph line, built by the Army's Signal Corps between 1900–1904, found down Champion Creek to its mouth, and from there down a portion of the North Fork, including tripods that held up the wire cross-country, and several telegraph posts and stations.

Not surprisingly, the greatest numbers of sites in the corridor are located on the creeks that received the most attention from mining activities over the past 125 years. Those creeks that are part of the Fortymile Wild and Scenic River corridor that have the greatest density of such sites include the main stem Fortymile River, the South Fork, the North Fork, Napoleon Creek, Uhler Creek, and Wade Creek. Hutchinson Creek can be added to this list. Historically, Hutchinson itself did not contain large amounts of placer gold, but two of its tributaries did, Confederate and Montana creeks. As a result, Hutchinson itself has an outstanding quantity of historic mining sites along its length owing to the large amount of prospecting that occurred along it, and the fact that it was never disturbed by subsequent large-scale mining operations.

Finding:

The historic sites found inside the following portions of the Fortymile WSR Corridor have outstanding remarkable historical values: (1) the Main Stem, (2) the South Fork, (3) the North Fork, (4) Napoleon Creek, (5) Uhler Creek, (6) Wade Creek, (7) Hutchinson Creek, (8) Franklin Creek, and (9) Champion Creek.

Other Similar Values

Evaluation of the Present Situation:

The Fortymile River is the largest of the northerly flowing tributaries to the Yukon River in this area and drains about one-sixth of the Yukon-Tanana region. It is an international river with the lower 20 miles flowing easterly through the Yukon Territory, Canada, to its confluence with the Yukon River approximately midway between Dawson, Yukon Territory, and Eagle, Alaska. Water quality, chemistry and color characteristics of the Fortymile River and its tributaries are similar to those commonly found in other Interior Alaska rivers.

Finding:

Field observations by the interdisciplinary planning team and reviews of selected references support the finding that there are no ORVs associated with the hydrologic features of the Fortymile WSR Corridor.

Conclusion:

The ORVs for the Fortymile WSR are listed in the following table in alphabetical order by river segment.

Table E.4. Outstandingly Remarkable Values for the Fortymile River

Segment	Start Upstream	End Downstream	Outstandingly Remarkable Values
Champion Creek	FM, T. 4S., R. 30E., Sec. 1, headwaters	Confluence with North Fork	Scenic, Historic
Dennison Fork	Confluence with West Fork	Confluence with South and Mosquito Fork	Scenic, Recreation, Wildlife
Fortymile River (Main Stem)	Confluence with North and South Forks	Alaska-Yukon Territory Border	Scenic, Recreation, Geologic, Historic, Wildlife
Franklin Creek	CRM, T. 28N., R. 17E., Sec. 31; CRM, T. 28N., R. 18E., Sec. 36, headwaters	Confluence with West Fork	Historic
Hutchinson Creek	FM, T. 7S., R. 28E., Sec. 31, headwaters	Confluence with North Fork	Historic
Joseph Creek	FM, T. 5S., R. 21E., Sec 33, headwaters	Confluence with Middle Fork	Scenic
Logging Cabin Creek	CRM, T. 22N., R. 16E., Sec. 11, headwaters	Confluence with West Fork of Dennison Creek	Scenic
Napoleon Creek	CRM, T. 27N., R. 19E., Sec. 1, headwaters	Confluence with South Fork	Historic
Middle Fork	Confluence with Joseph Creek	Confluence with North Fork	Scenic, Recreation, Wildlife
Mosquito Fork	Confluence with Kechumstuk Creek	Confluence with Dennison Fork	Scenic
Upper North Fork	Confluence with Slate and Independence Creeks	Confluence with Middle Fork	Scenic, Historic, Wildlife
Lower North Fork	Confluence with Middle Fork	Confluence with Main Stem	Scenic, Recreation, Geologic, Historic, Wildlife
O'Brien Creek	Confluence with King Solomon Creek and Liberty Fork	Confluence with Main Stem	Scenic, Geologic
South Fork	Confluence with Mosquito and Dennison Forks	Confluence with North Fork and Main Stem	Scenic, Recreation, Geologic, Historic, Wildlife
Uhler Creek	FM, T. 8S., R. 31W., Sec. 24, headwaters	Confluence with South Fork	Historic
Wade Creek	Confluence with Grace and Warner Creeks	Confluence with Walker Fork	Recreation, Historic
Walker Fork	Downstream of Liberty Creek	Confluence with South Fork	Scenic, Geologic
West Fork	Confluence with Logging Cabin Creek	Confluence with Dennison Fork	Scenic, Recreation

Appendix F. Wilderness Characteristics Inventory

F.1. Introduction

BLM's Land Use Planning Handbook H-1601-1 requires that the BLM identify decisions related to areas with wilderness characteristics. The Eastern Interior Field Office conducted an inventory to determine lands with wilderness characteristics in the Eastern Interior Planning Area (BLM 2011a). This appendix summarizes the methodology and results of the inventory, which is incorporated by reference into the RMP/EIS. Maps of inventory units are available in BLM's Fairbanks District Office.

The policy allows for citizen's to submit wilderness characteristics inventory. No citizen's inventory was submitted for the Eastern Interior RMP.

F.1.1. Methodology

All BLM-managed lands addressed in the RMP/EIS were inventoried for wilderness characteristics following BLM Manual 6310. To be identified during the inventory process as having wilderness characteristics, lands must:

- Be a roadless area of sufficient size as to make practicable its preservation and use in an unimpaired condition;
- Generally appear to have been affected primarily by the forces of nature; and,
- Have outstanding opportunities for solitude, or a primitive and unconfined type of recreation.

The BLM used in-house expertise to assess whether or not specific lands possess wilderness characteristics. The BLM will also rely on public comments obtained on the Draft RMP/EIS to bring forth other sources of knowledge to potentially modify the inventory.

If the wilderness characteristics criteria listed above are met, the following facilities, activities and uses consistent with ANILCA may occur in areas having wilderness characteristics: public use cabins; administrative sites and visitor facilities; temporary facilities and equipment for hunting, fishing, and camping; airplane use and landings; and motorboat, snowmobile, and all-terrain motor vehicle use. The critical question to consider is not whether these facilities, activities or uses exist in the relevant tract, but whether they singly or in combination with other factors have altered the character of the land from one that "generally appears to have been affected primarily by the forces of nature" and precludes the land from having "outstanding opportunities for solitude and/or a primitive and unconfined type of recreation." In general, substantial active or remnant evidence of mining or oil and gas extraction facilities, above-ground pipelines or powerlines, intensive recreational developments, and similar intrusions on the land may render such lands as inappropriate for identification in the inventory stage as having wilderness characteristics.

Within each of the four planning subunits (Fortymile, Steese, Upper Black River, and White Mountains), inventory units were identified, using known areas of significant disturbance as boundaries (such as roads, mining activity). In areas containing less significant disturbance, management boundaries (such as Special Recreation Management Areas, Wild and Scenic River Corridors, and land ownership boundaries) were used.

The first step was to determine if the inventory unit meet the 5,000 acre size criteria. Units of less than 5,000 acres could be considered if they meet one of the following exceptions:

- They are contiguous with lands which have been formally determined to have wilderness or potential wilderness values, or any federal lands managed for the protection of wilderness characteristics.
- It is demonstrated that the area is of sufficient size as to make practicable its preservation and use in an unimpaired condition.

If the inventory unit did not meet the size criteria no further evaluation was done. If the unit met the size criteria, then naturalness was considered.

To meet the naturalness criterion, human disturbance must be substantially unnoticeable and the area must retain its natural character. An area may include some human impacts if they are substantially unnoticeable in the area as a whole. Apparent naturalness refers to whether or not an area looks natural to the visitor who is not familiar with the biological composition of natural ecosystems.

If the inventory unit was found not to possess naturalness, no further evaluation was done. If the inventory unit was determined to possess naturalness, then opportunities for solitude or a primitive and unconfined type of recreation were evaluated. The area does not need to posses outstanding opportunities for both elements and does not need to have outstanding opportunities on every acre.

If it was determined that an area met the criteria of size, naturalness, and had either outstanding opportunities for solitude or Primitive recreation, it was concluded that the inventory unit possesses wilderness characteristics.

Supplemental values are ecological, geological, or other features of scientific, educational, scenic, or historical value. Supplemental values are not required to be present to classify an area as lands with wilderness characteristics, but their presence was documented and taken into account where they were known to exist in units determined to be have wilderness characteristics.

F.2. Results of Inventory

The following tables summarize wilderness characteristics inventory results for each planning subunit.

Table F.1. Fortymile Subunit Wilderness Characteristics Inventory Results

Unit Name and Number	Size (acres)	Meets size criteria	Is Natural	Solitude or Primitive Recreation	Special Values	Conclusion
South Fortymile, AKF020–143	855,464	Yes	Yes	Yes	Fortymile caribou calving and postcalving habitat	Has wilderness characteristics
Central Fortymile, AKF020–103	135,157	Yes	Yes	Yes	Fortymile caribou calving and postcalving habitat	Has wilderness characteristics
North Fortymile Area, AKF020–137	426,099	Yes	Yes	Yes	Fortymile caribou calving and postcalving habitat; ungulate mineral licks	Has wilderness characteristics
North Fortymile River, AKF020–138/139	129,728	Yes	Yes	Yes	Fortymile caribou calving and postcalving habitat	Has wilderness characteristics
East Fortymile, AKF020–111	69,215	Yes	Yes	Yes	None known	Has wilderness characteristics
Washington Creek, AKF020–170	43,296	Yes	Yes	Yes	None known	Has wilderness characteristics
Mosquito Fork, AKF020–134	20,296	Yes	Yes	Yes	Outstanding scenic and recreational values	Has wilderness characteristics
Dennison Fork Area, AKF020–108	17,058	Yes	Yes	Yes	Outstanding scenic and recreational values; peregrine nesting habitat	Has wilderness characteristics
Fortymile River, AKF020–120	28,049	Yes	Yes	Yes	Outstanding scenic, recreation, geologic, historic, and wildlife values	Has wilderness characteristics
South Fork Fortymile River, AKF020–143	48,857	Yes	Yes	Yes	Outstanding scenic, recreation, geologic, historic, and wildlife values	Has wilderness characteristics
Yukon-Charley Rivers Parcels, AKF020–123/172/173	6,130	Yes, contiguous with NPS	Yes	Yes	Fortymile caribou calving and postcalving habitat	Has wilderness characteristics
Fortymile Subunit Scattered Parcels[a]	255,600	Yes	Yes	Yes	Fortymile caribou calving and postcalving habitat	Has wilderness characteristics
Logging Cabin Creek (Upper and Lower), AKF020–130/132	6,300	Yes	No	N/A	N/A	No wilderness characteristics
Dome Creek (Upper and Lower), AKF020–165/131	1,684	Yes	No	N/A	N/A	No wilderness characteristics
Tetlin Area, AKF020–153	5,300	Yes	No	N/A	N/A	No wilderness characteristics

Unit Name and Number	Size (acres)	Meets size criteria	Is Natural	Solitude or Primitive Recreation	Special Values	Conclusion
Hutchinson Creek Mining Claims, AKF020–128	394	Yes	No	N/A	N/A	No wilderness characteristics
Walker Fork, AKF020–169	1,501	No	N/A	N/A	N/A	No wilderness characteristics
Wade Creek, AKF020–167	2,852	No	N/A	N/A	N/A	No wilderness characteristics
Fortymile Non-contiguous Parcels[b]	21,154	No	N/A	N/A	N/A	No wilderness characteristics
Fortymile Mining Claims[c]	1,785	No	No	N/A	N/A	No wilderness characteristics

[a]Includes the following inventory units: AKF020–100/112/124/125/127/142/171

[b]Includes the following inventory units: AKF020–101/102/105 to 107/109/110/113 to 119/126/129/133/140/141/145/224/147 to 152/154 to 163/166

[c]Inlcude the following inventory units: AKF020–104/121/122/136/144/164/168

Table F.2. Steese Subunit Wilderness Characteristics Inventory Results

Unit Name and Number	Size (acres)	Meets size criteria	Is Natural	Solitude or Primitive Recreation	Special Values	Conclusion
North Steese, AKF020–219	522,379	Yes	Yes	Yes	Mount Prindle RNA; ungulate mineral licks; Dall sheep habitat; Pinnell Mtn. Trail	Has wilderness characteristics
Wolf Creek, AKF020–233	496,803	Yes	Yes	Yes	Fortymile caribou calving and postcalving habitat; ungulate mineral licks; Big Windy Hot Springs RNA.	Has wilderness characteristics
Birch Creek, AKF020–202	87,400	Yes	Yes	Yes	Outstanding scenic, recreational and fisheries values	Has wilderness characteristics
North Birch Creek, AKF020–217	117,034	Yes	Yes	Yes	None known	Has wilderness characteristics
Circle Area Units, AKF020–202/203/212	40,060	Yes	Yes	Yes	None known	Has wilderness characteristics
Harrison Creek, AKF020–215	6,041	Yes	Yes	Yes	None known	Has wilderness characteristics
Harrison Creek Road, AKF020–216	514	No	No	N/A	N/A	No wilderness characteristics
Clums–Volcano Mines, AKF020–210	270	No	No	N/A	N/A	No wilderness characteristics
Bachelor Creek Mines, AKF020–201	137	No	No	N/A	N/A	No wilderness characteristics
Fryingpan Creek, AKF020–214	77	No	No	N/A	N/A	No wilderness characteristics
Fourteen Mile Creek -Yukon River South, AKF020–213	1,280	No	N/A	N/A	N/A	No wilderness characteristics
Steese Scattered Parcels and Mining Claims outside of the Steese National Conservation Area[a]	4,968	No	N/A	N/A	N/A	No wilderness characteristics

[a]Includes the following inventory units: AKF020–205 to 209/211/218/225 to 232

Table F.3. Upper Black River Subunit Wilderness Characteristics Inventory Results

Unit Name and Number	Size (acres)	Meets size criteria	Is Natural	Solitude or Primitive Recreation	Special Values	Conclusion
Black River, AKF020–300	2,230,888	Yes	Yes	Yes	Nesting bald eagles in Salmon Fork	Has wilderness characteristics
Upper Kevinjik Creek, AKF020–305	49,776	Yes	Yes	Yes	None known	Has wilderness characteristics
Black River Scattered Parcels, AKF020–301/ 303/304/306	76,918	Yes	Yes	Yes	None known	Has wilderness characteristics
East Central-Big Creek, AKF020–302	3,840	No	N/A	N/A	N/A	No wilderness characteristics

Table F.4. White Mountains Subunit Wilderness Characteristics Inventory Results

Unit Name and Number	Size (acres)	Meets size criteria	Is Natural	Solitude or Primitive Recreation	Special Values	Conclusion
White Mountains, AKF020–418	1,014,463	Yes	Yes	Yes	Outstanding scenic, geologic, recreational, fisheries and wildlife values on Beaver Creek; Dall sheep habitat; Limestone Jags, Mount Prindle and Serpentine Slide RNAs.	Has wilderness characteristics
Nome Creek Valley, AKF020–411/412/413/414/417	1,741	No	No	N/A	N/A	No wilderness characteristics
Recreation Withdrawals, AKF020–400/415/416	538	No	N/A	N/A	N/A	No wilderness characteristics
White Mountains Scattered Parcels and Mining Claims[a]	3,495	No	N/A	N/A	N/A	No wilderness characteristics
Wickersham Trailhead, AKF020–419	45	No	N/A	N/A	N/A	No wilderness characteristics

[a]Include the following inventory units: AKF020–401 to 410

Appendix G. Land Tenure and Withdrawals

G.1. Land Tenure

During the land use planning process, the BLM identifies lands for either disposal or retention. Lands are to be retained in federal ownership unless it is determined that disposal of a particular parcel will serve the national interest (FLMPA section 102(a)(1)).

The BLM may dispose of lands through a variety of authorities, provided they meet the criteria in FLPMA. Disposal authorities include (1) exchanges and sales under FLPMA; and (2) transfers to other governmental units for public purposes.

Parcels identified as Zone 3 in this Proposed RMP/Final EIS are those that are potentially suitable for disposal through public land sales. Lands identified as Zone 2 are potentially suitable for exchange. Land exchanges are a common-sense tool that enables the Bureau of Land Management (BLM) and other landowners to improve land management, consolidate ownership, and protect environmentally sensitive areas. By exchanging public land that is isolated and difficult to manage, the BLM is able to acquire other lands with importance for recreation, wildlife, fisheries, wetlands, habitat for threatened and endangered species, wilderness, open space, scenic, cultural and other resource conservation purposes. Land exchange allows the BLM to reposition lands into more manageable units and to meet community expansion needs.

Even though land use plans identify lands for potential disposal, the BLM must still complete many procedural requirements before these lands can be for sale. These processes and legal requirements can be costly and time-consuming. In some cases, the process can result in a decision not to dispose of the public lands. The BLM will make a final determination on suitability for disposal when there is actually a proposal to implement a disposal action under the approved Record of Decision for the Proposed RMP/Final EIS.

G.1.1. Land Tenure Adjustment Criteria

In accordance with the Federal Land Policy and Management Act (FLPMA) and other laws, Executive Orders, and Departmental and BLM policies, when evaluating opportunities for disposal or acquisition of lands or interests in lands, the following factors will be included. This list is not all inclusive, but represents the major factors to consider.

General Land Tenure Adjustment Evaluation Factors

- Improves manageability of specific areas.
- Maintains or enhances important public values and uses.
- Consolidates federal mineral estate or reunites split surface and mineral estates.
- Facilitates development of energy and mineral potential.
- Reduces difficulty or cost of public land administration.
- Provides access to land for public recreation and other uses.
- Amount of public investments in facilities or improvements and the potential for recovering those investments.
- Suitability of land for management by another federal agency.
- Significance of decision in stabilizing or enhancing lifestyles, business, social, and economic conditions.
- Meets long-term public management goals.

- Facilitates national, state, and local BLM priorities or mission statement needs.
- Consistent with cooperative agreements and plans or policies of other agencies.
- Facilitates implementation of other aspects of the approved resource management plans.

Acquisition Criteria

- Secures lands adjacent to other Zone 1 lands.
- Facilitates access to public land and resources retained for long-term public use.
- Secures Threatened or Endangered or Sensitive plant and animal species habitat.
- Protects riparian areas and wetlands.
- Contributes to biodiversity.
- Protects high-quality scenery.
- Enhances the opportunity for new or emerging public land uses or values.
- Facilitates management.
- Protects significant cultural resources and sites eligible for inclusion on the National Register of Historic Places.
- Provides land for BLM administrative sites.

Disposal Criteria

- Lands of limited public value.
- Widely scattered parcels that have no significant values and are difficult for the BLM to manage beyond custodial administration.
- Lands with high public values for proper management by other federal agencies, or by state and local governments.
- Land that would aid in aggregating or repositioning other public lands or public land resource values, where the public values to be acquired outweigh the public values to be exchanged.

G.1.2. Zone Definitions

Zone 1 – Retention and Acquisition

Retain lands in Zone 1 under BLM administration. Consider acquisition of inholdings in Zone 1 areas, from willing landowners, using the appropriate acquisition authority. Acquired lands would be managed the same as surrounding lands after acquisition. Lands in Zone 1 include:

- National Landscape Conservation System designated lands;
- National Recreation Areas;
- National Recreation Trails;
- Areas of critical environmental concern;
- Research natural areas;
- Developed recreation and administrative sites;
- Designated critical habitat for threatened or endangered species;
- Riparian conservation areas;
- Most of Black River subunit, exclusive of Circle lands.

Zone 2- Suitable for Consolidation

Lands in Zone 2 will be available for acquisition and disposal, including exchange, to enhance public resource values, improve management capabilities, or reduce the potential for land use conflict. For example: Isolated parcels may result from Native- and State-selected lands that are not conveyed and lands relinquished under withdrawal by federal agencies. Zone 2 lands consist of all lands not listed in the descriptions of Zone 1 and Zone 3 lands.

Zone 3- Suitable for Disposal

Lands in Zone 3 will be available for disposal. These lands will include but are not limited to those parcels or areas listed below, in Table G.1, "Potential Zone 3 Lands in the Planning Area, Fortymile Subunit "

- Lands that are either not practical to manage, or are uneconomical to manage (because of their intermingled location and nonsuitability for management by another federal agency).
- Federal mining claims, that are outside of Zone 1 lands and outside of large blocks of BLM-managed lands, that become null and void (mining claims that are surrounded by large blocks of state land and thus difficult to manage).
- Survey hiatuses (gap or space unintentionally left, when describing adjoining parcels of land).
- Encroachments (trespass or intrusion onto another's property).
- Lands subject to PLO 1613 (Alaska highway right-of-way adjustments).
- Reserved federal interests in split-estate lands may be considered for conveyance out of federal ownership.

G.1.3. Zone 3 Lands

The table below describes currently know Zone 3 lands. Zone 3 lands include but are not limited to the parcels described in the table. Many of these parcels are State- or Native-selected. If the parcels are not conveyed, they would become available for disposal.

Table G.1. Potential Zone 3 Lands in the Planning Area, Fortymile Subunit

Legal Location	Selection Status	Other Comments
Copper River Meridian		
T. 14 N., R. 20 E., Secs. 1, 2, 11, 12, and 13 (3,200 acres[a])	State selection	Low priority selection
T. 18 N., R. 12 E., Sec. 25, S ½ SW and SWSE; Sec. 36 NWNE (40 acres)	Village selection, F-14943-B and State selection F-024798	No selection priority indicated
T. 18 N., R. 13 E., Sec. 31, W ½ W ½, (40 acres)	State selection F-27600	Low priority selection
T. 20 N., R. 10 E., Secs. 14, 22, 27, and 34 (2,560 acres)	Village selection, F-14943-B with state topfiling	Lake Mansfield has been conveyed under Interim Conveyance 1508.
T. 21 N., R. 8 E., Sec. 35 (640 acres)	Regional corporation selection F-22481 with state topfiling	
T. 21 N., R. 8 E., Sec. 6 (640 acres)	Village selection, F-14852-B	
T. 23 N., R. 7 E., Sec. 35 (640 acres)	Regional corporation selection F14852-B with state topfiling	
T. 24 N., R. 5 E., Sec. 31 (744 acres)	Regional corporation selection F14852-B with state topfiling	
T. 18 N., R. 11 E., Portions of Sections 3, 4, 8, 9, and 10 (3,400 acres)	State topfiled, low priority	U.S. Survey 2631, known as Tanacross Airfield
T. 18 N., R. 11 E., Lot 5 of USS 2631 (100 acres)	State topfiled, low priority	PLO 1768, Tanacross Fire Control Station administrative site
T. 18 N., R. 11 E., Sec. 12, Lot 5 (90 acres)	State topfiled, low priority	Known as the Tank Farm, under General Services Administration, PLO 1887 (Department of Army)
T. 18 N., R. 15E., Tract A	State selection	Known as Four Mile Lake, located at four mile Taylor Highway.

Legal Location	Selection Status	Other Comments
T. 15 N., R. 12 E., Sections 28-33 with portions of 27 and 34 within Tract A (12,500 acres)	State topfiled on all of Tract A, low priority	Withdrawn for ANCSA Sec. 14 (h) selection
T. 15 N., R. 8 E., Sections 1-27 and 31-34 (19,000 acres)	State topfiled	Withdrawn for ANCSA Sec. 14 (h) selection; Township on the south is interim conveyed.
Fairbanks Meridian		
T. 1 S., R. 16 E., Sec. 24 NW (160 acres)	Withdrawn for Village/Regional Corporation selection by PLO 5563	Known as Salcha East Hot Springs
T. 9 S., R. 10 E., Sec. 3 SW (160 acres)		Withdrawn under PLO 5190 for a Utility Corridor
T. 10 S., R. 10 E., Sec. 2 SWNW, SENW, W ½ SW and S ½ SWSW (80 acres)	State selection	Withdrawn under PLO 5190
T 10 S, R 10 E, Sec. 3 Lots 13, 14 (PLO 5190) and 10, 11, 12, 15, 50, 53 and 55 (50 acres)	State selection	
T. 10 S., R. 10 E., Sec. 11 NESE, S ½ SWSENE (60 acres)	State selection	
T. 10 S., R. 10 E., Sec. 23 USS 3293: Blocks 1, 8, 15, 16, 17, 18, and 19 (100 acres)	State selection	Federal, school or park reserves surveyed for Big Delta townsite platting
T. 1 S., R. 1 W., Sec. 18 S ½NE (5 acres)	Withdrawn by PLO 2550	
Abbreviations: NE (northeast quarter); NW (northwest quarter); SE (southeast quarter); SW (southwest quarter).		

[a]all acres are approximate

G.2. Withdrawals

Virtually all of BLM-managed lands within the planning area are under some type of withdrawal pursuant to the Alaska Native Claims Settlement Act (ANCSA), Alaska National Interest Lands Conservation Act (ANILCA), the Wild and Scenic Rivers Act, or some other federal law. Some areas are covered by multiple withdrawals. The BLM reviews all withdrawals and makes recommendations in the RMP to retain, modify, or revoke withdrawals.

Section 3.3.8 of this document provides more background information on existing withdrawals. The purpose of this Appendix is to provide a more in depth discussion for some of the withdrawals listed in Table 3.35 and the process for modifying or revoking these withdrawals. There are two primary types of withdrawals: public land orders (PLOs) issued by the Secretary of the Interior and legislative withdrawals implemented by Congress through legislation.

ANCSA authorized the Secretary of the Interior (Secretary) to withdraw and reserve public lands for study and classification. This was done through a series of public land orders (PLOs) issued between 1972 and 1975. These are referred to as ANCSA 17(d)(1) withdrawals. The PLOs generally closed the lands to all forms of appropriation under public laws, including mining and mineral leasing. The withdrawals kept the lands unencumbered for selection by ANCSA corporations, and prevented the creation of new third-party interests that would interfere with land conveyance. The withdrawals also allowed the BLM time to study and classify the lands.

Portions of six 17(d)(1) withdrawals cover lands in the Eastern Interior Planning Area. All of the PLOs close lands to the mineral leasing laws. Some close the lands to all types of mining. Others close the lands to mining for non-metalliferous minerals, but allow for metalliferous mining. Additionally, most of these 17(d)(1) PLOs were modified several times. The modifications generally opened lands to state selection, or added additional lands to the withdrawal. One other withdrawal of note, PLO 5150 for a utility corridor (the Trans-Alaska Pipeline), covers land in the Wickersham Dome area, just outside of the White Mountains NRA. That PLO closes these lands to non-metalliferous mining, mineral leasing, and state or native selection.

In addition to the 17(d)(1) withdrawals, some lands in the planning area are withdrawn from the mining laws by legislation. Subject to valid existing rights, Section 402(b) of ANILCA withdraws the Steese National Conservation Area from location, entry, and patent under U.S. mining laws. Subject to valid existing rights, ANILCA Section 1312(b) withdraws the White Mountains NRA from state selection under the Alaska Statehood Act, or other law, and from location, entry, and patent under U.S. mining laws. Lands within one-half mile of Birch Creek Wild and Scenic River (WSR), Beaver Creek WSR, and the wild segments of the Fortymile WSR, are also withdrawn under the Wild and Scenic Rivers Act, pursuant to ANILCA. These legislative withdrawals overlap the 17(d)(1) withdrawals.

Modifying or revoking the 17(d)(1) withdrawals would open some lands in the planning area to mineral leasing and mining of various types of locatable minerals. In some areas however, lifting the 17(d)(1) withdrawals would not have an immediate effect. Lands selected by ANCSA corporations and the State of Alaska would remain "segregated" (unavailable) to mineral leasing or locatable mineral entry (staking of mining claims). If the selections in these areas are relinquished, the lands would then be available for location. Additionally, the White Mountains NRA, the Steese National Conservation Area, and some lands within WSR corridors are withdrawn from mineral entry pursuant to ANILCA. In most cases the ANILCA withdrawals apply to public lands that are also subject to 17(d)(1) withdrawals. In areas withdrawn pursuant

to ANILCA, removal of the 17(d)(1) withdrawals could result in opening the area to leasable minerals, but would not open it to locatable minerals unless Congress modifies the ANILCA withdrawal to allow for location.

A common misconception is that a withdrawal is needed to close lands to leasable minerals. The BLM can close lands to leasable minerals through a land use plan decision. Withdrawals are only needed to close lands to location and entry for locatable minerals under the Mining Law of 1872. Because the ANCSA 17(d)(1) PLOs closed lands to leasing under the Minerals Leasing Act of 1920, any planning recommendations to open areas to leasing do not become immediately effective and will require the revocation or modification of the withdrawal. Revocation or modification orders are signed by the Secretary of the Interior.

Table G.2. Existing Mineral Withdrawals in the Eastern Interior Planning Area and Process for Change

Type of Withdrawal	Authorization	Description	Effect	Process for Change
Secretarial	PLO 5150 – Wickersham Dome area	Withdrawal for Utility Corridor (TAPs) as amended.	Subject to valid existing rights, closes described lands to location and entry under the mining laws (except for location of metalliferous minerals), to leasing under the mineral leasing laws and to selection by the State under the Alaska Statehood Act.	To open described lands to public land laws, the Secretary of the Interior issues a new PLO (which partially revokes the existing PLO) and opening order; The new PLO becomes effective the date of publication in the *Federal Register*. The Final EIS associated with the RMP provides NEPA compliance for the revocation order/opening order. No additional public notification is required.
Secretarial 17(d)(1)	PLO 5180 – White Mountains NRA and Steese National Conservation Area	Withdrawal for Classification and for Protection of Public Interest in lands; amended by PLOs 5193, 5242, 5250, 5251, 5254, 5257, 5321, 5391, 5418, 5657, 6092.	Subject to valid existing rights, closes described lands to location and entry under the mining laws (except for location of metalliferous minerals) and to leasing under the mineral leasing laws.	
Secretarial 17(d)(1)	PLO 5186 – Fairbanks area	Withdrawal for Classification and Protection of Public Interest in Lands Not Selected by State. Amended by PLOs 5254, 5242, and 5776.		
Secretarial 17(d)(1)	PLO 5173 –Black River / Fortymile Subunits	Withdrawal for selection by Regional Corporation; amended by PLOs 5252, 5321, 5391, and 5657	Subject to valid existing rights, closes described lands to location and entry under the mining and to leasing under the mineral leasing laws.	
Secretarial 17(d)(1)	PLO 5179 –Birch, Beaver, and Fortymile WSR corridors,	Withdrawal in Aid of Legislation concerning addition to or creation of conservation units (wild and scenic rivers); modified by PLOs 5192,		

Type of Withdrawal	Authorization	Description	Effect	Process for Change
	plus additional lands.	5250, 5251, 5257, 5254, 5657, 6092		
Secretarial 17(d)(1)	PLO 5184 – Fortymile Subunit / Circle lands	Withdrawal for Classification or Reclassification of some areas withdrawn by Section 11 of ANCSA		
Congressional	ANILCA 402(b) 43 U.S.C. 1716(b)	Withdraws Steese National Conservation Area	Subject to valid existing rights, withdraws lands from location, entry, and patent under U.S. mining laws; where consistent with land use plan mineral development may be permitted under the Minerals Leasing Act or the Minerals Materials Act. No federal lands shall be transferred out of public ownership except by exchange pursuant to FLPMA.	Secretary can modify to open lands to entry, location, and patent under the U.S. mining laws. Changes would be made through a PLO and opening order, similar to the process for 17(d)(1)
Congressional	ANILCA 1312(b) 16 U.S.C 460MM-4	Withdraws White Mountains NRA	Subject to valid existing rights, withdraws lands from location, entry, and patent under U.S. mining laws and state selection.	Secretary may permit the removal of nonleasable minerals and leasable minerals. Only Congress can change to allow for staking of new mining claims.
Congressional	ANILCA 606(a)(2) 16 U.S.C. 1285b	Amends Section 15 of the WSR Act to withdraw lands within ½ mile of bed and banks of Beaver Creek and Birch Creek WSR; and lands within ½ mile of bed and banks of wild segments of the Fortymile WSR.	Subject to valid existing rights, withdraws lands from all forms of appropriation under the mining laws and from operation of the mineral leasing laws including amendments thereto.	Only Congress can open lands to prohibited activities.

G.3. Process for Revocation

G.3.1. Steps for Revoking 17(d)(1) Withdrawals

After a record of decision (ROD) recommending revocation for one or more PLOs is issued for the Proposed RMP/Final EIS, the BLM would follow the general process outlined below to implement the revocation. In most cases, it would be a partial revocation as these PLOs extend beyond the planning area boundaries and the ROD only addresses those portions of the PLOs within the planning area. After the ROD is issued, no further public notice is required to proceed with the revocation. The Proposed RMP/Final EIS covers the environmental impacts of opening lands to the public land laws and provides compliance with NEPA.

The revocation is affected by issuing a new PLO, which either replaces the existing PLO or amends it. As part of this new PLO, an opening order is also issued. Once approved by the Secretary, this combination of a new PLO and opening order opens the lands described in the PLO to the referenced public land laws.

1. BLM Alaska drafts a new PLO including a legal land description that describes the areas where the existing PLO would be revoked. Land descriptions are separated into paragraphs describing the action (such as opening lands to FLPMA sales, mineral leasing laws, or the Mining Law of 1872) that would apply to each legal description.

2. BLM Alaska submits this PLO/opening order and related documents through the Director of the BLM to the Secretary of the Interior for review and approval. Related documents include pertinent portions of the administrative record for the Eastern Interior RMP, such as the Section 810 analysis.

3. The Secretary's Office reviews the PLO package and submits it to the Secretary for signature.

4. Once signed, the PLO and opening order are published in the *Federal Register*. The actions take effect on the publication date of the PLO.

5. If any of the lands opened by the new PLO are selected by the State or Native corporations, these lands would remain closed until the selections were relinquished or the lands conveyed.

G.3.2. Modifying Legislative Withdrawal in the Steese National Conservation Area

Section 402(b) of ANILCA withdraws the Steese National Conservation Area from location, entry, and patent under U.S. mining laws, but also authorizes the Secretary to open such lands through the planning process. Under Alternatives C and D of this Proposed RMP/Final EIS, the BLM recommends that the Secretary open portions of the Conservation Area to mineral location and entry. If this recommendation was carried forward into the ROD, the process of opening the Conservation Area would be similar to that described above for revocation of 17(d)(1) withdrawals. Because the Conservation Area is also covered by 17(d)(1) withdrawals, PLO 5180 and PLO 5179, these PLOs would need to be partially revoked and an opening order issued to fully open the area.

G.3.3. Process for new FLPMA Withdrawals

Alternatives B–E in the Proposed RMP/Final EIS recommends new withdrawals from mineral location and entry to protect resources. After the ROD is approved, a separate withdrawal process will need to be followed. The requirements for the withdrawal process are covered at 43 CFR 2300 and involve filing a petition/application with the Secretary of the Interior and the completion of reports and studies, including a mineral potential report. In Alaska, note that any new withdrawals over 5,000 acres are subject to Section 1326 of ANILCA, which states, "...the President or the Secretary may withdraw public lands in the State of Alaska exceeding five thousand acres in the aggregate, which withdrawal shall not become effective until notice is provided in the *Federal Register* and to both Houses of Congress. Such withdrawal shall terminate unless Congress passes a joint resolution of approval within one year after the notice of such withdrawal has been submitted to Congress."

New FLPMA withdrawals from mineral location and entry are proposed for all action alternatives (B-E) in the Proposed RMP/Final EIS (Maps 90-93). New withdrawals would not be needed in the Steese National Conservation Area, Beaver Creek, and White Mountains NRA, as these areas are withdrawn from mineral location and entry by ANILCA. However, small withdrawals of lands adjacent to these areas (such as Wickersham Dome) are proposed in most alternatives. In Birch Creek and the wild segments of the Fortymile WSRs, the ANILCA withdrawal from mineral entry and location extends one-half mile from the bed and banks of the river. In some areas the designated corridor is wider than the one-half-mile withdrawal. In these areas new FLPMA withdrawal from mineral location and entry of any lands within the designated corridor that are not withdrawn by ANILCA is proposed. Also riparian conservation areas along Birch Creek are recommended for withdrawal from mineral entry and location to protect fisheries and aquatic habitat. New withdrawals are proposed in the scenic and recreational sections of the Fortymile WSR in Alternatives B, C, and E as these areas are not withdrawn by ANILCA.

Type of Withdrawal	Authority	Description	Effect	Process for Change
New FLPMA withdrawals	FLMPA 204	New withdrawals from mineral location and entry under FLPMA are proposed in Alternatives B–E. ANCSA withdrawals would be retained until new withdrawals are in effect (approved by Congress). FLPMA withdrawals are subject to review and renewal every 20 years.	Withdraw lands from location and entry under U.S. mining law.	Secretary of the Interior approves PLO withdrawing lands; Published in *Federal Register*; if over 5,000 acres submitted to Congress; Terminates if Congress does not approve within one year of notification.

G.3.4. Effects of Alternatives

No new withdrawals or withdrawal revocations would be recommended under the Alternative A (No Action). In all action alternatives (B-E) there would be new FLPMA withdrawals from mineral entry and location recommended. Additionally revocation of all 17(d)(1) withdrawals is recommended, but in some areas revocation would be delayed until the new withdrawal is in place. Under Alternatives C and D, the BLM recommends the Secretary exercise their authority to open portions of the Steese National Conservation Area to new mineral entry. Under Alternative D the BLM recommends the Secretary exercise their authority to allow for leasing of locatable minerals in the White Mountains. Recommended withdrawal acres in the following table are estimated through GIS and generally rounded to the nearest 1,000 acres. Acres may change before any withdrawal recommendations are implemented because the BLM will continue to convey land to the State and Native corporations in the planning area until land entitlements are met. Additionally, the BLM's withdrawal database used to calculate these acreages has some errors.

Table G.3. Recommended Withdrawal Actions by Alternative

Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Recommended new FLPMA withdrawals, all Subunits combined	No Action on withdrawals	In areas recommended closed to mineral location, retain ANSCA 17(d)(1) withdrawals (portions of PLOs 5173, 5179, 5180, 5186 and 5184 as amended) until new FLPMA withdrawals can be put into place. Once FLPMA withdrawals are in place, partially revoke ANCSA withdrawals.			
	No Action on withdrawals	3,362,000 acres new FLPMA withdrawals proposed	541,000 acres new FLPMA withdrawals proposed	83,000 acres new FLPMA withdrawals proposed	2,500,000 acres new FLPMA withdrawals proposed
New FLPMA Fortymile Subunit	No Action on withdrawals	970,000 acres new FLPMA withdrawals proposed	511,000 acres new FLPMA withdrawals proposed	52,000 acres new FLPMA withdrawals proposed	649,000 acres new FLPMA withdrawals proposed
New FLPMA Steese Subunit	No Action on withdrawals	18,000 acres new FLPMA withdrawals proposed			25,000 acres new FLPMA withdrawals proposed
New FLPMA Upper Black River Subunit	No Action on withdrawals	2,360,000 acres new FLPMA withdrawals proposed	None		1,813,000 acres new FLPMA withdrawals proposed
New FLPMA White Mountains Subunit	No Action on withdrawals	13,000 acres new FLPMA withdrawals proposed			
Recommended Partial Revocation of ANCSA 17(d)(1) All subunits combined	No Action on withdrawals	In areas recommended open to mineral location and leasing, issue partial revocations or modification of PLOs 5173, 5179, 5180, 5186 and 5184 as amended in the planning area.			
	No Action on withdrawals	3,162,000[a] acres recommended for immediate revocation; 3,361,000 acres revocation delayed until new FLPMA withdrawals in place.	5,981,000 [a] acres recommended for immediate revocation; 542,000 acres revocation delayed until new FLPMA withdrawals in place.	6,471,000 [a] acres recommended for immediate revocation; 52,000 acres revocation delayed until new FLPMA withdrawals in place.	4 million[a] acres recommended for immediate revocation; 2,500,000 acres revocation delayed until new FLPMA withdrawals in place.
Recommended Modification of PLO 5150	No modification	Retain those portions of PLO 5150 and PLO 5180 that overlap with the White Mountains Special Recreation Management area (in the Wickersham Dome area) until a new FLPMA withdrawal can be implemented to withdraw this area from metalliferous mineral entry. The new FLPMA withdrawal would include approximately 13,000 acres and would modify PLO 5150. Once the FLPMA withdrawal is in place partially revoke PLO 5180.			
Recommended Openings in the Steese National Conservation Area	No opening orders	None. Partially revoke PLOs 5180 and 5179 where they overlap with the National Conservation Area.	Issue opening order to open 241,000 acres to locatable mineral entry. Partially revoke PLOs 5180 and 5179 where they overlap with the National Conservation Area.	Issue opening order to open 646,000 acres to locatable mineral entry. Partially revoke PLOs 5180 and 5179 where they overlap with the National Conservation Area.	Same as B.

Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Recommended Openings White Mountains NRA	No opening orders	None. Partially revoke PLOs 5180 and 5179 where they overlap with the NRA.		Issue opening order to open 160,000 acres to leasing of locatable minerals. Partially revoke PLO 5180 and 5179 where they overlap with NRA.	Same as B and C.
Birch Creek WSR new FLPMA withdrawals	No Action on withdrawals	Recommend new FLPMA withdrawal on 1,600 acres that are within the designated corridor, but outside of the ½ mile buffer withdrawn by the Wild and Scenic Rivers Act pursuant to ANILCA. This only applies to the portion of Birch Creek that is outside of the Steese National Conservation Area and includes small acreage on both upper and lower Birch Creek.			
Fortymile WSR – wild segments	No Action on withdrawals	Recommend new FLPMA withdrawal on approximately 48,000 acres on the wild segments of the river; includes lands outside of the ½ mile buffer withdrawn by the Wild and Scenic Rivers Act pursuant to ANILCA, but inside of the designated corridor.			
Fortymile WSR – scenic segments	No Action on withdrawals	Recommend new FLPMA withdrawal of approximately 100,000 acres in the designated scenic river corridor.		No new FLPMA withdrawal recommended	Same as B and C.
Fortymile WSR – recreational segments	No Action on withdrawals	Recommend new FLPMA withdrawal of approximately 3,400 acres in the designated recreational river corridor.			

[a] Includes areas covered by ANILCA withdrawal such as the Steese National Conservation Area and White Mountains NRA. Acres are appoximate

Appendix H. Recreation Management Zones

Chapter 2 of the Proposed RMP/Final EIS delineates Recreation Management Zones (RMZs) within each Special Recreation Management Area. The tables in this appendix provide additional information on how each RMZ would be managed.

Each RMZ would have the following characteristics:

1. Serve a different recreation niche within the primary recreation market;
2. Produce a different set of recreation opportunities and facilitate the attainment of different experience and benefit outcomes (to individuals, households and communities, economies, and the environment);
3. Require a different set of recreation provider actions to meet strategically-targeted primary recreation market demand; and,
4. Has distinctive recreation setting character as described in the Recreation Setting Character matrix (RSC).Table 2.5, "Recreation Setting Character Matrix for the Eastern Interior Planning Area"

For each RMZ, the following implementation decisions would be made:

1. Identify the corresponding recreation niche to be served;
2. Write explicit recreation management objectives for the specific recreation opportunities to be produced and the outcomes to be attained (activities, experiences, and benefits);
3. Prescribe recreation setting character conditions required to produce recreation opportunities and facilitate the attainment of both recreation experiences and beneficial outcomes, as targeted above (the Recreation Opportunity Spectrum is one of the existing tools for both describing existing setting character and prescribing desired setting character); and,
4. Briefly describe an activity planning framework that addresses the recreation management, Information and Education, monitoring, and administrative support actions (e.g., visitor services, permits and fees, recreation concessions, and appropriate use restrictions) necessary to achieve the recreation management objectives and setting prescriptions.

The following sections include tables that depict the four recreation decisions that would be made for each RMZ. Those RMZs that have management common to more than one alternative are only discussed under the first alternative in which they occur.

H.1. Fortymile Special Recreation Management Area

The Fortymile Special Recreation Management Area (SRMA) includes up to ten RMZs. The number and boundaries of RMZs vary by alternative, as does the management. Specific management for each RMZ, by alternative, is described in the following sections.

H.1.1. Fortymile Alternative B

The following tables outline management decisions and objectives for each RMZ in Alternative B. The Fortymile SRMA includes lands outside the Fortymile WSR Corridor and is divided into the following RMZs, displayed on Map 44.

- RMZ 2, North Fork Fortymile
- RMZ 3, Mosquito Fork Fortymile
- RMZ 4, Fortymile

- RMZ 5, West Fork Fortymile
- RMZ 8, Wade Creek
- RMZ 9, Chicken
- RMZ 10, Eagle

Table H.1. Alternative B, North Fork Fortymile, Recreation Management Zone 2

Fortymile SRMA - RMZ 2 -North Fork Fortymile		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day recreational float boat opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Semi-Primitive Interior Alaska river setting, on one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5=totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating, river camping **Secondary:** Trapping, snowmobiling, hunting	**Primary:** Escaping crowds, experiencing solitude, enjoying the sights, sounds and smells of nature, experiencing adventure **Secondary:** Testing your abilities	**Personal:** Enhanced sense of personal freedom, enhanced sense of competence, greater sense of adventure **Community/Social:** Heightened awareness of the natural world **Environmental:** Reduced negative human impacts such as litter, vegetative trampling, and unplanned trail construction
SETTING CHARACTER DECISION SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage these waterways for non-motorized float boating and dispersed river camping opportunities. Emphasis would be placed on providing Semi-Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to Alaska float boaters seeking a Semi-Primitive river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts to the river environment by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities, experiences and outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be permissible through ANILCA 1110(a) . Airboat, hovercraft, and personal watercraft use would not be allowed on "wild" non-navigable segments of the river. General: Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purpose of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.2. Alternative B, Mosquito Fork Fortymile, Recreation Management Zone 3

Fortymile SRMA - RMZ 3 -Mosquito Fork Fortymile		
SRMA DESCRIPTION		
The focus this zone would be to provide trapping opportunities for users who desire an experience characterized by self-reliance and challenge in a Semi-Primitive Interior Alaska river setting, with access to one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Trapping **Secondary:** Snowmobiling, Hunting	**Primary:** Escaping crowds, experiencing solitude, experiencing adventure **Secondary:** Testing your ability	**Personal:** Enhanced sense of personal freedom, better understanding of wildlife's contribution to my own quality of life, greater sense of adventure **Community/Social:** Enlarged sense of community dependency on public lands **Economic:** More positive contributions to local/regional economy
SETTING CHARACTER DECISION SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage this zone for local trapping opportunities. Emphasis would be placed on providing Semi-Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to local trappers seeking a Semi-Primitive experience. Establish a relationship with stakeholders to reduce negative environmental impacts by promoting the principles of the Tread Lightly and Leave No Trace programs.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities, experiences and outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be permissible through ANILCA 1110(a) . Airboat, hovercraft, and personal watercraft use would not be allowed on "wild" non-navigable segments of the river. General: Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.3. Alternative B, Fortymile, Recreation Management Zone 4

Fortymile SRMA - RMZ 4 - Fortymile		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day recreational float boat opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge, and risk in a Backcountry Interior Alaska river setting, on one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating; river camping **Secondary:** Fishing; hunting; trapping; snowmobiling; OHV Use	**Primary:** Escaping crowds; experiencing solitude; enjoying the sights, sounds and smells of nature; experiencing adventure **Secondary:** Having time to reflect	**Personal:** Greater connection with nature; Improved outlook on life; Increased self-confidence **Community/Social:** Greater awareness of minimal impact recreation **Environmental:** Increased awareness and protection of natural landscapes **Economic:** More positive contributions to local/regional economy
SETTING CHARACTER DECISION BACKCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Backcountry classification. The primary focus would be to manage these waterways for float boating and river camping opportunities. Emphasis would be placed on providing Backcountry recreation experiences by maintaining the naturally-appearing landscape, providing some facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to Alaska float boaters seeking a Backcountry river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts to the river environment by promoting the principles of the Tread Lightly and Leave No Trace programs.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Backcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only (Map 44). A permit or Plan of Operations would be required for all other OHV use. Aircraft, motorboats, airboats, hovercraft and personal watercraft use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.4. Alternative B, West Fork Fortymile, Recreation Management Zone 5

Fortymile SRMA - RMZ 5 -West Fork Fortymile		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day recreational float boat opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge, and risk in a Backcountry Interior Alaska river setting, on one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating; river camping **Secondary:** Fishing; Hunting; Trapping; Snowmobiling; OHV use	**Primary:** Escaping crowds; Experiencing solitude; Enjoying the sights, sounds and smells of nature; Experiencing adventure **Secondary:** Having time to reflect	**Personal:** Greater connection with nature; Improved outlook on life; Increased self-confidence **Community/Social:** Greater awareness of minimal impact recreation **Environmental:** Increased awareness and protection of natural landscapes **Economic:** More positive contributions to local/regional economy
SETTING CHARACTER DECISION BACKCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Backcountry classification. The primary focus would be to manage for float boating and dispersed river camping opportunities. Emphasis would be placed on providing Backcountry recreation experiences by maintaining the naturally-appearing landscape, providing some facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to Alaska float boaters seeking a Backcountry river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts by promoting the principles of the Tread Lightly and Leave No Trace programs.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Backcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only (Map 44). A permit or Plan of Operations would be required for all other OHV use. Aircraft, motorboats, airboats, hovercraft and personal watercraft use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.5. Alternative B Wade Creek, Recreation Management Zone 8

Fortymile SRMA - RMZ 8-Wade Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality scenic driving and cultural and historical appreciation opportunities for a variety of users in a partially modified Frontcountry setting, in an area well known for its high concentrations of mineral deposits, such as gold.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Scenic Driving **Secondary:** Developed camping; Hiking/walking; Gold panning (hobby mineral collecting); Snowmobiling; OHV use	**Primary:** Connecting with history; Experiencing new and different things; Spending time with family and friends; Getting away from the usual demands of life **Secondary:** Having time to reflect; Relieving stress	**Personal:** Improved outdoor knowledge; Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Heightened awareness of the natural world **Environmental:** Increased awareness and protection of natural landscapes **Economic:** More positive contributions to local/regional economy
SETTING CHARACTER DECISION FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for scenic driving and cultural and historical appreciation opportunities. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, providing improved yet modest facility development and visitor services, routine social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to scenic drivers seeking a Frontcountry experience. Establish a relationship with stakeholders to maintain positive contributions to the local and regional economy.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only (Map 44). A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.6. Alternative B, Chicken, Recreation Management Zone 9

Fortymile SRMA - RMZ 9-Chicken		
SRMA DESCRIPTION		
The focus this zone would be to provide scenic driving and historic and cultural appreciation opportunities for users who desire a Middlecountry recreation experience characterized by increased modifications to the landscape with access to a historic mining region located in east Alaska's Interior, in an area well known for its unique tourism opportunities.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)es.		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Scenic driving, Cultural/historic appreciation **Secondary:** Developed camping, float boating, Snowmobiling, OHV Use	**Primary:** Enjoying the scenery and natural landscapes **Secondary:** Spending time with family and friends; experiencing new and different things	**Personal:** Improved outlook on life **Community/Social:** Greater protection of cultural history sites; improved family bonding **Environmental:** Sustainability of communities historical and cultural heritage **Economic:** More positive contributions to local/regional economy; Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits
SETTING CHARACTER DECISION MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage this zone for scenic driving opportunities related to cultural and historic appreciation. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified yet generally naturally-appearing landscape, and by providing moderate levels of facility development, visitor services and social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to scenic drivers seeking a Middlecountry experience. Establish a relationship with stakeholders to maintain the sustainability of the community's historic and cultural heritage.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middlecountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only (Map 44). A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.7. Alternative B, Eagle, Recreation Management Zone 10

Fortymile SRMA - RMZ 10-Eagle		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality cultural and historical appreciation opportunities for a variety of users in a developed setting at Fort Egbert, one of east Alaska's only National Historic Sites.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Cultural/historic appreciation **Secondary:** Developed camping; Hiking/walking; photography; Snowmobiling; OHV use	**Primary:** Experiencing cultural history **Secondary:** Spending time with family and friends; Enjoying the sights, sounds, and smells of nature	**Personal:** Improved outdoor knowledge; Improved mental health; Greater connection with nature **Community/Social:** Greater protection of cultural history sites **Environmental:** Greater protection of area historic structures and sites **Economic:** Increased local tourism revenue
SETTING CHARACTER DECISION RURAL (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Rural classification. The primary focus would be to manage this zone for cultural and historic appreciation opportunities. Emphasis would be placed on providing Rural recreation experiences by maintaining the substantially modified landscape, providing significant facility development and visitor services, a significant level of social encounters, restricted mechanized/motorized use, and significant administrative presence.	
Information and Education	Provide outreach to international, national, regional, state and local users seeking a Rural setting. Establish a relationship with stakeholders to achieve greater protection of cultural history sites.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Rural recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only (Map 44). A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. . General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

H.1.2. Fortymile Alternative C

The following tables outline management decisions and objectives for each RMZ in the Fortymile SRMA under Alternative C. Under this alternative, the SRMA only includes lands within the Fortymile WSR Corridor. The SRMA is divided into nine RMZs under this alternative, thus the numbering of the RMZs is not consecutive. Alternative C includes the following RMZ (Map 45):

- RMZ 1, Middle Fork Fortymile
- RMZ 3, Mosquito Fork (Same as Alternative B, Table H.2, "Alternative B, Mosquito Fork Fortymile, Recreation Management Zone 3")
- RMZ 4, Fortymile
- RMZ 5, West Fork Fortymile
- RMZ 6, Logging Cabin Creek
- RMZ 7, O'Brien Creek
- RMZ 8, Wade Creek
- RMZ 9, Chicken
- RMZ 10, Eagle

Table H.8. Alternatives C and D, Middle Fork Fortymile, Recreation Management Zone 1

Fortymile SRMA - RMZ 1 -Middle Fork Fortymile		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day recreational float boat opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge, and risk in a Semi-Primitive Interior Alaska river setting, on one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating, river camping. **Secondary:** Snowmobiling, hunting, trapping	**Primary:** Escaping crowds; experiencing solitude; experiencing adventure; enjoying the sights, sounds, and smells of nature **Secondary:** Testing your abilities	**Personal:** Enhanced sense of personal freedom; enhanced sense of competence; greater sense of adventure **Community/Social:** Heightened awareness of natural world **Environmental:** Reduced negative human impacts such as litter, vegetative trampling, and unplanned trail construction
Recreation Setting Character Description SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage this zone for non-motorized boating, trapping, and dispersed river camping opportunities. Emphasis would be placed on providing Semi-Primitive. recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use (see administrative section below), and minimal administrative presence.	
Information and Education	Provide outreach to Alaska float boaters seeking a Semi-Primitive river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts to the river environment by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities, experiences and outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be permissible through ANILCA 1110(a) . Airboat, hovercraft, and personal watercraft use would not be allowed on "wild" non-navigable segments of the river. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.9. Alternative C, Fortymile, Recreation Management Zone 4

Fortymile SRMA - RMZ 4 -Fortymile		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day recreational float boat opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge, and risk in a Backcountry Interior Alaska river setting, on one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating, River camping **Secondary:** Fishing, Hunting, Trapping, Snowmobiling, OHV Use	**Primary:** Escaping crowds; Experiencing solitude; Enjoying the sights, sounds, and smells of nature; Experiencing adventure **Secondary:** Having time to reflect	**Personal:** Greater connection with nature; Improved outlook on life; Increased self-confidence **Community/Social:** Greater awareness of minimal impact recreation **Environmental:** Increased awareness and protection of natural landscapes **Economic:** More positive contributions to local/regional economy
Recreation Setting Character Description BACKCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Backcountry classification. The primary focus would be to manage these waterways for float boating and river camping opportunities. Emphasis would be placed on providing Backcountry recreation experiences by maintaining the naturally-appearing landscape, providing some facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to Alaska float boaters seeking a Backcountry river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts to the river environment by promoting the principles of the Tread Lightly and Leave No Trace programs.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Backcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only, except for game retrieval (Map 45). A permit or Plan of Operations would be required for all other OHV use. Aircraft, motorboats, airboats, hovercraft and personal watercraft use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.10. Alternative C, West Fork Fortymile, Recreation Management Zone 5

Fortymile SRMA - RMZ 5 -West Fork Fortymile		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day recreational float boat opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge, and risk in a Backcountry Interior Alaska river setting, on one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating, River camping **Secondary:** Fishing, Hunting, Trapping, Snowmobiling, OHV Use	**Primary:** Escaping crowds, Experiencing solitude, Enjoying the sights, sounds, and smells of nature, Experiencing adventure **Secondary:** Having time to reflect	**Personal:** Greater connection with nature; Improved outlook on life; Increased self-confidence **Community/Social:** Greater awareness of minimal impact recreation **Environmental:** Increased awareness and protection of natural landscapes **Economic:** More positive contributions to local/regional economy
Recreation Setting Character Description BACKCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Backcountry classification. The primary focus would be to manage for float boating and dispersed river camping opportunities. Emphasis would be placed on providing Backcountry recreation experiences by maintaining the naturally-appearing landscape, providing some facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to Alaska float boaters seeking a Backcountry river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts by promoting the principles of the Tread Lightly and Leave No Trace programs.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Backcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only, except for game retrieval (Map 45). A permit or Plan of Operations would be required for all other OHV use. Aircraft, motorboats, airboats, hovercraft and personal watercraft use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.11. Alternative C, Logging Cabin Creek, Recreation Management Zone 6

Fortymile SRMA - RMZ 6 -Logging Cabin Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality scenic driving opportunities for users who desire a Middlecountry recreation experience characterized by easy access to historical and cultural features in a Middlecountry Interior Alaska setting, with access to one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Scenic driving **Secondary:** Developed camping; Hunting; Snowmobiling; OHV Use	**Primary:** Enjoying scenery and natural landscape **Secondary:** Spending time with family and friends; Experiencing new and different things	**Personal:** Greater connection with nature; Improved outlook on life **Community/Social:** Greater protection of cultural history sites; Improved family bonding **Environmental:** **Economic:** Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for scenic driving opportunities. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified yet generally naturally-appearing landscape, and by providing moderate levels of facility development, visitor services and social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to scenic drivers seeking a Middlecountry recreation experience. Establish a relationship with stakeholders to maintain protection of cultural history sites.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middlecountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only, except for game retrieval (Map 45). A permit or Plan of Operations would be required for all other OHV use. Aircraft use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.12. Alternative C, O'Brien Creek, Recreation Management Zone 7

Fortymile SRMA - RMZ 7 -O'Brien Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality scenic driving opportunities for users who desire a recreation experience characterized by easy access to historical and cultural features in a Middlecountry Interior Alaska setting, with access to one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Scenic driving **Secondary:** Trapping; Hunting; Snowmobiling; OHV Use	**Primary:** Enjoying scenery and natural landscape **Secondary:** Spending time with family and friends; Experiencing new and different things	**Personal:** Greater connection with nature **Community/Social:** Improved family bonding **Environmental:** **Economic:** Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for scenic driving opportunities. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified yet generally naturally-appearing landscape, and by providing moderate levels of facility development, visitor services and social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to scenic drivers seeking a Middlecountry recreation experience. Establish a relationship with stakeholders to ensure the ability for visitors to find areas that produce desired recreation opportunities, experiences and benefits.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middlecountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only, except for game retrieval (Map 45). A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.13. Alternative C, Wade Creek, Recreation Management Zone 8

Fortymile SRMA - RMZ 8 -Wade Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality scenic driving and cultural and historical appreciation opportunities for a variety of users in a partially modified Frontcountry setting, in an area well known for its high concentrations of mineral deposits, such as gold.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Scenic driving **Secondary:** Developed camping, Hiking/walking, Gold panning (hobby mineral collecting), Snowmobiling, OHV Use	**Primary:** Connecting with history; Experiencing new and different things; Spending time with family and friends; Getting away from the usual demands of life **Secondary:** Having time to reflect; Relieving stress	**Personal:** Improved outdoor knowledge; Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Heightened awareness of the natural world **Environmental:** Increased awareness and protection of natural landscapes **Economic:** More positive contributions to local/regional economy
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for scenic driving and cultural and historical appreciation opportunities. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, providing improved yet modest facility development and visitor services, routine social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to scenic drivers seeking a Frontcountry experience. Establish a relationship with stakeholders to maintain positive contributions to the local and regional economy.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only, except for game retrieval (Map 45). A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.14. Alternative C, Chicken, Recreation Management Zone 9

Fortymile SRMA - RMZ 9 -RMZ Chicken		
SRMA DESCRIPTION		
The focus this zone would be to provide scenic driving and historic and cultural appreciation opportunities for users who desire a Frontcountry recreation experience characterized by increased modifications to the landscape with access to a historic mining region located in east Alaska's Interior, in an area well known for its unique tourism opportunities.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Scenic driving; Cultural/historic appreciation **Secondary:** Developed camping; Float boating; Snowmobiling; OHV Use	**Primary:** Enjoying the scenery and natural landscape **Secondary:** Spending time with family and friends; Experiencing new and different things	**Personal:** Improved outlook on life **Community/Social:** Greater protection of cultural history sites; Improved family bonding **Environmental:** Sustainability of communities historical and cultural heritage **Economic:** More positive contributions to local/regional economy; Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage this zone for scenic driving opportunities related to cultural and historic appreciation. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, providing improved yet modest facility development and visitor services, routine social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to scenic drivers seeking a Frontcountry experience. Establish a relationship with stakeholders to maintain the sustainability of the community's historic and cultural heritage.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED: All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only, except for game retrieval (Map 45). A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General: Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.15. Alternative C, Eagle, Recreation Management Zone 10

Fortymile SRMA - RMZ 10 -Eagle		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality cultural and historical appreciation opportunities for a variety of users in a developed setting at Fort Egbert, one of east Alaska's only National Historic Sites.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Cultural/historic appreciation **Secondary:** Developed camping; hiking/walking; Photography; Snowmobiling/ OHV Use	**Primary:** Experiencing cultural history **Secondary:** Spending time with family and friends; Enjoying the sights, sounds, and smells of nature	**Personal:** Improved outdoor knowledge; Improved mental health; Greater connection with nature **Community/Social:** Greater protection of cultural history sites **Environmental:** Greater protection of area historic structures and sites **Economic:** Increased local tourism revenue
Recreation Setting Character Description RURAL (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Rural classification. The primary focus would be to manage this zone for cultural and historic appreciation opportunities. Emphasis would be placed on providing Rural recreation experiences by maintaining the substantially modified landscape, providing significant facility development and visitor services, a significant level of social encounters, restricted mechanized/motorized use, and significant administrative presence.	
Information and Education	Provide outreach to international, national, regional, state and local users seeking a Rural setting. Establish a relationship with stakeholders to achieve greater protection of cultural history sites.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Rural recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only, except for game retrieval (Map 45). A permit or Plan of Operations would be required for all other OHV use. Aircraft use and motorboat would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

H.1.3. Fortymile Alternative D

The following tables outline management decisions and objectives for each RMZ in the Fortymile SRMA under Alternative D. Under this alternative, the SRMA only includes lands within the Fortymile WSR Corridor. The SRMA is divided into ten RMZs under this alternative which are displayed on Map 46. Alternative D includes the following RMZ:

- RMZ 1, Middle Fork Fortymile (Same as Alternative C, Table H.8, "Alternatives C and D, Middle Fork Fortymile, Recreation Management Zone 1")
- RMZ 2, North Fork Fortymile
- RMZ 3, Mosquito Fork
- RMZ 4, Fortymile
- RMZ 5, West Fork Fortymile
- RMZ 6, Logging Cabin Creek
- RMZ 7, O'Brien Creek
- RMZ 8, Wade Creek
- RMZ 9, Chicken
- RMZ 10, Eagle

Table H.16. Alternative D, North Fork Fortymile, Recreation Management Zone 2

Fortymile SRMA - RMZ 2 -North Fork Fortymile		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day recreational float boat opportunities for users who desire a recreation experience characterized by solitude, self-reliance, challenge, and risk in a Backcountry Interior Alaska river setting, on one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating; River camping **Secondary:** Trapping; Snowmobiling; Hunting; OHV Use	**Primary:** Escaping crowds; Experiencing solitude; Enjoying the sights, sounds, and smells of nature; Experiencing adventure **Secondary:** Testing your abilities	**Personal:** Enhanced sense of personal freedom; Enhanced sense of competence; Greater sense of adventure **Community/Social:** Heightened awareness of natural world **Environmental:** Reduced negative human impacts such as litter, vegetative trampling, and unplanned trail construction
Recreation Setting Character Description BACKCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Backcountry classification. The primary focus would be to manage these waterways for non-motorized boating, trapping, and dispersed river camping opportunities. Emphasis would be placed on providing Backcountry recreation experiences by maintaining the naturally-appearing landscape, providing some facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to Alaska float boaters seeking a Backcountry river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts by promoting the principles of the Tread Lightly and Leave No Trace programs.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Backcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Cross-country summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be permissible through ANILCA 1110(a). Airboat, hovercraft, and personal watercraft would not be allowed on river segments above the Kink. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.17. Alternative D, Mosquito Fork, Recreation Management Zone 3

Fortymile SRMA - RMZ 3 -Mosquito Fork		
SRMA DESCRIPTION		
The focus this zone would be to provide trapping opportunities for users who desire an experience characterized by self-reliance and challenge in a Backcountry Interior Alaska river setting, with access to one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Trapping **Secondary:** Snowmobiling; Hunting; OHV Use	**Primary:** Escaping crowds; Experiencing solitude; Experiencing adventure **Secondary:** Testing your abilities	**Personal:** Enhanced sense of personal freedom; Better understanding of wildlife's contribution to my own quality of life; Greater sense of adventure **Community/Social:** Enlarged sense of community dependency on public lands **Economic:** More positive contributions to local/regional economy
Recreation Setting Character Description BACKCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Backcountry classification. The primary focus would be to manage this zone for local trapping opportunities. Emphasis would be placed on providing Backcountry recreation experiences by maintaining the naturally-appearing landscape, providing some facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to local trappers seeking a Backcountry experience. Establish a relationship with stakeholders to reduce negative environmental impacts to the river environment by promoting the principles of the Tread Lightly and Leave No Trace programs.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Backcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Cross-country summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be permissible through ANILCA 1110(a). Airboat, hovercraft, and personal watercraft would not be allowed on river segments above the Mosquito Fork confluence with Ingle Creek. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.18. Alternative D, Fortymile, Recreation Management Zone 4

Fortymile SRMA - RMZ 4 -Fortymile		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, recreational float boat and dispersed camping opportunities for users who desire a Middlecountry recreation experience characterized by increased modifications to the landscape with access to a historic mining region in east Alaska's Interior, on one of America's nationally designated Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating; River camping **Secondary:** Fishing; Hunting; Trapping; Snowmobiling; OHV Use	**Primary:** Escaping crowds; Experiencing solitude; Enjoying the sights, sounds, and smells of nature; Experiencing adventure **Secondary:** Having time to reflect	**Personal:** Greater connection with nature; Improved outlook on life; Increased self-confidence **Community/Social:** Greater awareness of minimal impact recreation **Environmental:** Increased awareness and protection of natural landscapes **Economic:** More positive contributions to local/regional economy
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for float boating and river camping opportunities. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified yet generally naturally-appearing landscape, and by providing moderate levels of facility development, visitor services and social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to Alaska float boaters seeking a Middlecountry river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts by promoting the principles of the Tread Lightly and Leave No Trace programs.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middlecountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Cross-country summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.19. Alternative D, West Fork Fortymile, Recreation Management Zone 5

Fortymile SRMA - RMZ 5 -West Fork Fortymile		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day recreational float boat opportunities for users who desire a recreation experience characterized by self-reliance, challenge, and risk in a Middlecountry Interior Alaska river setting, on one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating; River camping **Secondary:** Fishing; Hunting; Trapping; Snowmobiling; OHV Use	**Primary:** Escaping crowds; Experiencing solitude; Enjoying the sights, sounds, and smells of nature; Experiencing adventure **Secondary:** Having time to reflect	**Personal:** Greater Connection with Nature; Improved outlook on life; Increased self-confidence **Community/Social:** Greater awareness of minimal impact recreation **Environmental:** Increased awareness and protection of natural landscapes **Economic:** More positive contributions to local/regional economy
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for float boating and river camping opportunities. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified yet naturally-appearing landscape, providing moderate facility development and visitor services, periodic social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to Alaska float boaters seeking a Middlecountry river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts by promoting the principles of the Tread Lightly and Leave No Trace programs.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middlecountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Cross-country summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.20. Alternative D, Logging Cabin Creek, Recreation Management Zone 6

Fortymile SRMA - RMZ 6 -Logging Cabin Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, scenic driving opportunities for users who desire a recreation experience characterized by easy access to historical and cultural features in a Frontcountry Interior Alaska setting, on one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Scenic driving **Secondary:** Developed camping; Hunting; Snowmobiling; OHV Use	**Primary:** Enjoying scenery and natural landscape **Secondary:** Spending time with family and friends; Experiencing new and different things	**Personal:** Greater connection with nature; Improved outlook on life; **Community/Social:** Greater protection of cultural history sites; Improved family bonding **Economic:** Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for scenic driving opportunities. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, providing improved yet modest facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to scenic drivers seeking a Frontcountry recreation experience. Establish a relationship with stakeholders to maintain protection of cultural history sites.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Cross-country summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.21. Alternative D, O'Brien Creek, Recreation Management Zone 7

Fortymile SRMA - RMZ 7 - O'Brien Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality scenic driving opportunities for users who desire a recreation experience characterized by easy access to historical and cultural features in a Frontcountry east-Interior Alaska setting, with access to one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Scenic driving **Secondary:** Developed camping; Hunting; Snowmobiling; OHV Use	**Primary:** Enjoying scenery and natural landscape **Secondary:** Spending time with family and friends; Experiencing new and different things	**Personal:** Greater connection with nature; Improved outlook on life **Community/Social:** Greater protection of cultural history sites; Improved family bonding **Economic:** Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for scenic driving opportunities. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, and by providing improved yet modest levels of facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to scenic drivers seeking a Frontcountry recreation experience. Establish a relationship with stakeholders to ensure the ability for visitors to find areas that produce desired recreation opportunities, experiences and benefits.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Cross-country summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.22. Alternative D, Wade Creek, Recreation Management Zone 8

Fortymile SRMA - RMZ 8 -Wade Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality scenic driving and cultural and historical appreciation opportunities for a variety of users in a partially modified Frontcountry setting, in an area well known for its high concentrations of mineral deposits, such as gold.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Scenic driving **Secondary:** Developed camping; Hiking/walking; Gold panning (hobby mineral collecting); Snowmobiling; OHV use	**Primary:** Connecting with history; Experiencing new and different things; Spending time with family and friends; Getting away from the usual demands of life **Secondary:** Having time to reflect; Relieving stress	**Personal:** Improved outdoor knowledge; Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Heightened awareness of the natural world **Environmental:** Increased awareness and protection of natural landscapes **Economic:** More positive contributions to local/regional economy
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for scenic driving and cultural and historical appreciation opportunities. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, providing improved yet modest facility development and visitor services, routine social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to scenic drivers seeking a Frontcountry experience. Establish a relationship with stakeholders to maintain positive contributions to the local and regional economy.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Cross-country summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.23. Alternative D, Chicken, Recreation Management Zone 9

Fortymile SRMA - RMZ 9 - Chicken		
SRMA DESCRIPTION		
The focus this zone would be to provide scenic driving and historic and cultural appreciation opportunities for users who desire a Rural recreation experience characterized by increased modifications to the landscape with access to a historic mining region located in east Alaska's Interior, in an area well known for its unique tourism opportunities.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Scenic driving; Cultural/historic appreciation **Secondary:** Developed camping; Float boating; Snowmobiling; OHV use	**Primary:** Enjoying the scenery and natural landscape **Secondary:** Spending time with family and friends; Experiencing new and different things	**Personal:** Improved outlook on life **Community/Social:** Greater protection of cultural history sites; Improved family bonding **Environmental:** Sustainability of communities historical and cultural heritage **Economic:** More positive contributions to local/regional economy; Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits
Recreation Setting Character Description RURAL (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Rural classification. The primary focus would be to manage this zone for scenic driving opportunities related to cultural and historic appreciation. Emphasis would be placed on providing Rural recreation experiences by maintaining the substantially modified landscape, providing significant facility development and visitor services, a significant level of social encounters, restricted mechanized/motorized use, and significant administrative presence.	
Information and Education	Provide outreach to scenic drivers seeking a Rural experience. Establish a relationship with stakeholders to maintain the sustainability of the community's historic and cultural heritage.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Rural recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Cross-country summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. . General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.24. Alternative D, Eagle, Recreation Management Zone 10

Fortymile SRMA - RMZ 10 -Eagle		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality cultural and historical appreciation opportunities for a variety of users in a developed setting at Fort Egbert, one of east Alaska's only National Historic Sites.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Cultural/historic appreciation **Secondary:** Developed Camping; Hiking/walking; Photography; Snowmobiling; OHV use	**Primary:** Experiencing cultural history **Secondary:** Spending time with family and friends; Enjoying the sights, sounds, and smells of nature	**Personal:** Improved outdoor knowledge; Improved mental health; Greater connection with nature **Community/Social:** Greater protection of cultural history sites **Environmental:** Greater protection of area historic structures and sites **Economic:** Increased local tourism revenue
Recreation Setting Character Description RURAL (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Rural classification. The primary focus would be to manage this zone for cultural and historic appreciation opportunities. Emphasis would be placed on providing Rural recreation experiences by maintaining the substantially modified landscape, providing significant facility development and visitor services, a significant level of social encounters, restricted mechanized/motorized use, and significant administrative presence.	
Information and Education	Provide outreach to international, national, regional, state and local users seeking a Rural setting. Establish a relationship with stakeholders to achieve greater protection of cultural history sites.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Rural recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Cross-country summer use of OHVs 1,500 pounds curb weight and less would be allowed May 1 to October 14. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Fire pans and portable toilets would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

H.1.4. Fortymile Alternative E

The following tables outline management decisions and objectives for each RMZ in the Fortymile SRMA under Alternative E. Under this alternative, the SRMA only includes lands within the Fortymile WSR Corridor. The SRMA is divided into five RMZs which are displayed on Map 47. Alternative E includes the following RMZ:

- RMZ 1, Middle Fork/Mosquito Fork Fortymile
- RMZ 2, West Fork/Main Fortymile
- RMZ 3, Logging Cabin/O'Brien Creek
- RMZ 4, Wade Creek/Chicken
- RMZ 5, Eagle

Table H.25. Alternative E, Middle Fork/Mosquito Fork Fortymile, Recreation Management Zone 1

Fortymile SRMA - RMZ 1 - Middle Fork/Mosquito Fork Fortymile		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day recreational float boat opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge, and risk in a Semi-Primitive Interior Alaska river setting, on one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating, river camping, trapping **Secondary:** Snowmobiling, hunting	**Primary:** Escaping crowds; experiencing solitude; experiencing adventure; enjoying the sights, sounds, and smells of nature **Secondary:** Testing your abilities	**Personal:** Enhanced sense of personal freedom; enhanced sense of competence; greater sense of adventure **Community/Social:** Heightened awareness of natural world **Environmental:** Reduced negative human impacts such as litter, vegetative trampling, and unplanned trail construction
Recreation Setting Character Description SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage this zone for non-motorized boating, trapping, and dispersed river camping opportunities. Emphasis would be placed on providing Semi-Primitive. recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use (see administrative section below), and minimal administrative presence.	
Information and Education	Provide outreach to Alaska float boaters seeking a Semi-Primitive river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts to the river environment by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be completed within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.26. Alternative E, West Fork/Main Fortymile, Recreation Management Zone 2

Fortymile SRMA - RMZ 2 - West Fork/Main Fortymile		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day recreational float boat opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge, and risk in a Backcountry Interior Alaska river setting, on one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating, River camping **Secondary:** Fishing, Hunting, Trapping, Snowmobiling, OHV Use	**Primary:** Escaping crowds; Experiencing solitude; Enjoying the sights, sounds, and smells of nature; Experiencing adventure **Secondary:** Having time to reflect	**Personal:** Greater connection with nature; Improved outlook on life; Increased self-confidence **Community/Social:** Greater awareness of minimal impact recreation **Environmental:** Increased awareness and protection of natural landscapes **Economic:** More positive contributions to local/regional economy
Recreation Setting Character Description BACKCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Backcountry classification. The primary focus would be to manage these waterways for float boating and river camping opportunities. Emphasis would be placed on providing Backcountry recreation experiences by maintaining the naturally-appearing landscape, providing some facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to Alaska float boaters seeking a Backcountry river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts to the river environment by promoting the principles of the Tread Lightly and Leave No Trace programs.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Backcountry recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be completed within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.27. Alternative E, Logging Cabin/O'Brien Creek, Recreation Management Zone 3

Fortymile SRMA - RMZ 3 - Logging Cabin/O'Brien Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality scenic driving opportunities for users who desire a Middlecountry recreation experience characterized by easy access to historical and cultural features in a Middlecountry Interior Alaska setting, with access to one of America's nationally designated Wild and Scenic Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Scenic driving **Secondary:** Developed camping; Hunting; Snowmobiling; OHV Use	**Primary:** Enjoying scenery and natural landscape **Secondary:** Spending time with family and friends; Experiencing new and different things	**Personal:** Greater connection with nature; Improved outlook on life **Community/Social:** Greater protection of cultural history sites; Improved family bonding **Environmental:** **Economic:** Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for scenic driving opportunities. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified yet generally naturally-appearing landscape, and by providing moderate levels of facility development, visitor services and social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to scenic drivers seeking a Middlecountry recreation experience. Establish a relationship with stakeholders to maintain protection of cultural history sites.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middle-country recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be com-pleted within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.28. Alternative E, Wade Creek/Chicken, Recreation Management Zone 4

Fortymile SRMA - RMZ 4 - Wade Creek/Chicken		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality scenic driving and cultural and historical appreciation opportunities for a variety of users in a partially modified Frontcountry setting, in an area well known for its high concentrations of mineral deposits, such as gold.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Scenic driving; Cultural/historic appreciation **Secondary:** Developed camping, Hiking/walking, Gold panning (hobby mineral collecting), Snowmobiling, OHV Use, floatboating	**Primary:** Connecting with history; Experiencing new and different things; Spending time with family and friends; Getting away from the usual demands of life **Secondary:** Having time to reflect; Relieving stress	**Personal:** Improved outdoor knowledge; Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Greater protection of cultural history sites; Improved family bonding **Environmental:** Sustainability of communities historical and cultural heritage **Economic:** More positive contributions to local/regional economy; Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for scenic driving and cultural and historical appreciation opportunities. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, providing improved yet modest facility development and visitor services, routine social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to scenic drivers seeking a Frontcountry experience. Establish a relationship with stakeholders to maintain the sustainability of the community's historic and cultural heritage. .	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be completed within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.29. Alternative E, Eagle, Recreation Management Zone 5

Fortymile SRMA - RMZ 5 - Eagle		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality cultural and historical appreciation opportunities for a variety of users in a developed setting at Fort Egbert, one of east Alaska's only National Historic Sites.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Cultural/historic appreciation **Secondary:** Developed camping; hiking/walking; Photography; Snowmobiling/OHV Use	**Primary:** Experiencing cultural history **Secondary:** Spending time with family and friends; Enjoying the sights, sounds, and smells of nature	**Personal:** Improved outdoor knowledge; Improved mental health; Greater connection with nature **Community/Social:** Greater protection of cultural history sites **Environmental:** Greater protection of area historic structures and sites **Economic:** Increased local tourism revenue
Recreation Setting Character Description RURAL (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Rural classification. The primary focus would be to manage this zone for cultural and historic appreciation opportunities. Emphasis would be placed on providing Rural recreation experiences by maintaining the substantially modified landscape, providing significant facility development and visitor services, a significant level of social encounters, restricted mechanized/motorized use, and significant administrative presence.	
Information and Education	Provide outreach to international, national, regional, state and local users seeking a Rural setting. Establish a relationship with stakeholders to achieve greater protection of cultural history sites.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Rural recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be completed within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

H.2. Steese Special Recreation Management Area

The Steese Special Recreation Management Area (SRMA) includes up to ten RMZs. The number and boundaries of RMZs vary by alternative, as does the management. Specific management for each RMZ is described in the tables in the following sections.

H.2.1. Steese Alternative B

The following tables outline management decisions and objectives for each RMZ in the Steese SRMA under Alternative B. The SRMA is divided into seven RMZs, which are listed below and are displayed on Map 49.

- RMZ 1, Birch Creek
- RMZ 2, Pinnell Mountain Trail
- RMZ 3, Mount Prindle Research Natural Area
- RMZ 4, Big Windy Research Natural Area
- RMZ 5, Preacher Creek
- RMZ 6, Harrison Creek
- RMZ 7, Wolf Creek

Table H.30. Alternative B Birch Creek Recreation Management Zone 1

Steese SRMA - RMZ 1 -Birch Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day road accessible recreational float boat opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge, and risk in a Semi-Primitive Interior Alaska setting, on one of America's nationally designated "Wild" Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating; Camping	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature; Exploring new and different things **Secondary:** Testing your abilities	**Personal:** More exercise-oriented lifestyle; Greater connection with nature; Greater sense of adventure; Enhanced sense of competence **Community/Social:** Greater awareness of minimal impact recreation; Greater opportunities for youth **Environmental:** Heightened awareness of the natural world; Greater protection of fish and wildlife habitat **Economic:** Increased local tourism revenue
Recreation Setting Character Description SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage this zone for non-motorized float-boating and river camping opportunities. Emphasis would be placed on providing Semi-Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to national, state and local float-boaters seeking a Semi-Primitive river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be permissible through ANILCA 1110(a). Airboats, hovercraft, and personal watercraft would not be allowed on wild river segments above the confluence of Birch Creek and an unnamed creek in FM T. 6 N., R, 17 E., Section 8. General Fire pans would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.31. Alternative B, Pinnell Mountain, Recreation Management Zone 2

Steese SRMA - RMZ 2 -Pinnell Mountain		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, backpacking (multi-day) and hiking (day use) opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Primitive Interior Alaska setting, on one of America's National Recreation Trails.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Backpacking; Hiking/walking	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature; Exploring new and different things; Exercise/physical fitness	**Personal:** Improved outlook on life; Improved physical fitness; Improved mental health; Greater connection with nature; Enhanced sense of competence **Community/Social:** Greater awareness of minimal impact recreation; Greater opportunities for youth **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized backpacking and hiking opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, rare social encounters, restricted mechanized/motorized use, and rare administrative presence.	
Information and Education	Provide outreach to national, state and local backpackers and hikers seeking a Primitive recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be permissible through ANILCA 1110(a). The Pinnell Mountain National Recreation Trail would be designated as non-motorized. General Stoves would be required for permitted commercial activities. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.32. Alternative B Mt. Prindle Research Natural Area, Recreation Management Zone 3

Steese SRMA - RMZ 3 - Mt. Prindle Research Natural Area		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, climbing, hunting and research opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Primitive Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Climbing; Hunting; Nature study (research)	**Primary:** Competence testing; Escaping crowds; Experiencing nature	**Personal:** Improved outlook on life; Improved physical fitness; Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Positive economic contributions to communities **Environmental:** Heightened awareness of the natural world; Greater protection of distinctive natural landscapes **Economic:** Increased local tourism revenue
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized climbing, hunting and research opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, providing minimal facility development and visitor services, providing infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to climbers, hunters and researches seeking a Primitive recreation experience. Establish a relationship with stakeholders to maintain positive economic contributions to local communities.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = CLOSED All forms of non-motorized use would be allowed. A permit or Plan of Operations would be required for all OHV use. Closed to camping. Trails may be developed outside the RNA. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.33. Alternative B Big Windy Research Natural Area, Recreation Management Zone 4

Steese SRMA - RMZ 4 -Big Windy Research Natural Area		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality research opportunities for users who desire an experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Primitive Interior Alaska setting containing an undeveloped hot springs system, uncommon and isolated plant species, and delicate geologic structures.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Nature study (research)	**Primary:** Competence testing; Escaping crowds; Experiencing nature	**Personal:** Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Greater community involvement in land use planning process **Environmental:** Greater protection of distinctive natural landscapes
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized research opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, rare social encounters, restricted mechanized/motorized use, and rare administrative presence.	
Information and Education	Provide outreach to researches seeking a unique and scientific Primitive experience. Establish a relationship with stakeholders to increase community involvement with BLM's planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = CLOSED All forms of non-motorized use would be allowed. A permit or Plan of Operations would be required for all OHV use. Closed to camping. Trails may be developed outside the RNA. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.34. Alternative B, Preacher Creek, Recreation Management Zone 5

Steese SRMA - RMZ 5 - Preacher Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality backpacking (multi-day), hiking and gold panning (day use) opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Primitive Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Backpacking; Hiking/walking; Recreational Gold Panning	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature; Exploring new and different things; Exploration of the area	**Personal:** Improved outlook on life; Improved physical fitness; Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Positive economic contributions to communities **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized backpacking, hiking, and gold panning opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, rare social encounters, restricted mechanized/motorized use, and rare administrative presence.	
Information and Education	Provide outreach to state and local backpackers, hikers and gold panners seeking a Primitive recreation experience. Establish a relationship with stakeholders to maintain positive economic contributions to local communities.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be permissible through ANILCA 1110(a). Airboats, hovercraft, and personal watercraft would not be allowed. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.35. Alternative B, Harrison Creek, Recreation Management Zone 6

Steese SRMA - RMZ 6 - Harrison Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide hunting, photography and wildlife viewing opportunities for users who desire a recreation experience characterized by solitude, self-reliance, challenge, and risk in a Backcountry Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hunting, Photography, Wildlife viewing	**Primary:** Escaping crowds; Escaping personal pressures; Experiencing nature	**Personal:** Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Greater community involvement in the land use planning process **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description BACKCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Backcountry classification. The primary focus would be to manage for hunting, photography and wildlife viewing opportunities. Emphasis would be placed on providing Backcountry recreation experiences by maintaining the naturally-appearing landscape, and by providing some additional facility development and visitor services, periodic social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to state and local hunters, photographers and wildlife viewers seeking a Backcountry recreation experience. Establish a relationship with stakeholders to provide a greater level of involvement with BLM's planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Backcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be permissible through ANILCA 1110(a). Airboats, hovercraft, and personal watercraft would not be allowed General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.36. Alternative B, Wolf Creek, Recreation Management Zone 7

Steese SRMA - RMZ 7 - Wolf Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide hunting, photography and wildlife viewing opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Primitive Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hunting; Photography; Wildlife; Viewing	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature	**Personal:** Greater connection with nature; Enhanced sense of competence **Community/Social:** Greater community involvement in the land use planning process **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized hunting, photography and wildlife viewing opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, rare social encounters, restricted mechanized/motorized use, and rare administrative presence.	
Information and Education	Provide outreach to national, state and local hunters, photographers and wildlife viewers seeking a Primitive recreation experience. Establish a relationship with stakeholders to increase community involvement in BLM's planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be permissible through ANILCA 1110(a). Airboats, hovercraft, and personal watercraft would not be allowed. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

H.2.2. Steese Alternative C

The following tables outline management decisions and objectives for each RMZ in the Steese SRMA under Alternative C. The SRMA is divided into 10 RMZs, which are listed below and displayed on Map 50.

- RMZ 1, Birch Creek
- RMZ 2, Pinnell Mountain Trail
- RMZ 3, Mount Prindle Research Natural Area
- RMZ 4, Big Windy Research Natural Area
- RMZ 5, Preacher Creek
- RMZ 6, Harrison Creek
- RMZ 7, Wolf Creek
- RMZ 8, Rock Creek
- RMZ 9, Clums
- RMZ 10, Rocky Mountain Uplands

Table H.37. Alternatives C and D, Birch Creek Recreation Management Zone 1

Steese SRMA - RMZ 1 -Birch Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day road accessible recreational float boat opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge, and risk in a Semi-Primitive Interior Alaska setting, on one of America's nationally designated "Wild" Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating; Camping	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature; Exploring new and different things **Secondary:** Testing your abilities	**Personal:** More exercise-oriented lifestyle; Greater connection with nature; Greater sense of adventure; Enhanced sense of competence **Community/Social:** Greater awareness of minimal impact recreation; Greater opportunities for youth **Environmental:** Heightened awareness of the natural world; Greater protection of fish and wildlife habitat **Economic:** Increased local tourism revenue
Recreation Setting Character Description SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage this zone for non-motorized float-boating and river camping opportunities. Emphasis would be placed on providing Semi-Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to national, state and local float-boaters seeking a Semi-Primitive river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be permissible through ANILCA 1110(a). Airboats, hovercraft, and personal watercraft would not be allowed on wild river segments above the confluence of Birch Creek and an unnamed creek in FM T. 6. N., R, 17. E., Section 8. General Fire pans would be required for permitted commercial river use. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.38. Alternatives C and D, Pinnell Mountain Trail, Recreation Management Zone 2

Steese SRMA - RMZ 2 - Pinnell Mountain Trail		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality backpacking (multi-day) and hiking (day use) opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Semi-Primitive Interior Alaska setting, on one of America's formally designated National Recreation Trails.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Backpacking; Hiking/walking	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature; Exploring new and different things; Exercise/physical fitness	**Personal:** Improved outlook on life; Improved physical fitness; Improved mental health; Greater connection with nature; Enhanced sense of competence **Community/Social:** Greater awareness of minimal impact recreation; Greater opportunities for youth **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage for non-motorized backpacking and hiking opportunities. Emphasis would be placed on providing Semi-Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to national, state and local backpackers and hikers seeking a Semi-Primitive recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be permissible through ANILCA 1110(a). Airboats, hovercraft, and personal watercraft would not be allowed. The Pinnell Mountain National Recreation Trail would be designated non-motorized. General Stoves would be required for permitted commercial activities. Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.39. Alternatives C and D, Mt. Prindle Research Natural Area, Recreation Management Zone 3

Steese SRMA - RMZ 3 - Mt. Prindle Research Natural Area		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, climbing, hunting and research opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Primitive Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Climbing; Hunting; Nature study (research)	**Primary:** Competence testing; Escaping crowds; Experiencing nature	**Personal:** Improved outlook on life; Improved physical fitness; Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Positive economic contributions to communities **Environmental:** Heightened awareness of the natural world; Greater protection of distinctive natural landscapes **Economic:** Increased local tourism revenue
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized climbing, hunting and research opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, providing minimal facility development and visitor services, providing infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to climbers, hunters and researches seeking a Primitive recreation experience. Establish a relationship with stakeholders to maintain positive economic contributions to local communities.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = CLOSED All forms of non-motorized use would be allowed. A permit or Plan of Operations would be required for all OHV use. Primitive camping and hiking trails would be allowed. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.40. Alternatives C and D, Big Windy Research Natural Area, Recreation Management Zone 4

Steese SRMA - RMZ 4 -Big Windy Research Natural Area		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality research opportunities for users who desire an experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Primitive Interior Alaska setting containing an undeveloped hot springs system, uncommon and isolated plant species, and delicate geologic structures.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Nature study (research)	**Primary:** Competence testing; Escaping crowds; Experiencing nature	**Personal:** Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Greater community involvement in land use planning process **Environmental:** Greater protection of distinctive natural landscapes
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized research opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, rare social encounters, restricted mechanized/motorized use, and rare administrative presence.	
Information and Education	Provide outreach to researches seeking a unique and scientific Primitive experience. Establish a relationship with stakeholders to increase community involvement with BLM's planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = CLOSED All forms of non-motorized use would be allowed. A permit or Plan of Operations would be required for all OHV use. Primitive camping and hiking trails would be allowed. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.41. Alternative C, Preacher Creek, Recreation Management Zone 5

Steese SRMA - RMZ 5 -Preacher Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide backpacking, hiking, gold panning, and OHV use opportunities for users who desire a recreation experience characterized by self-reliance, challenge and a moderate level of risk in a Middlecountry Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Backpacking; Hiking/walking; Recreational Gold Panning; OHV use	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature; Exploring new and different things; Exploration of the area	**Personal:** Improved outlook on life; Improved physical fitness; Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Positive economic contributions to communities **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for backpacking, hiking, gold panning, and OHV opportunities. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified landscape, and by providing improved yet modest facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to state and local backpackers, hikers, gold panners and OHV users seeking a Middlecountry recreation experience. Establish a relationship with stakeholders to maintain positive economic contributions to local communities.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middlecountry recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,000 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only, except for game retrieval (Map 50). A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.42. Alternative C, Harrison Creek, Recreation Management Zone 6

Steese SRMA - RMZ 6 - Harrison Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide hunting, photography, wildlife viewing, and OHV use opportunities for users who desire a recreation experience characterized by self-reliance, challenge, and a relatively low degree of risk in a Frontcountry Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hunting; Photography; Wildlife viewing; OHV use	**Primary:** Escaping crowds; Escaping personal pressures; Experiencing nature	**Personal:** Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Greater community involvement in the land use planning process **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for hunting, photography, wildlife viewing, and OHV opportunities. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, and by providing improved yet modest levels of facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to state and local hunters, photographers, wildlife viewers and OHV users seeking a Frontcountry recreation experience. Establish a relationship with stakeholders to provide increased community involvement in the land use planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,000 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only, except for game retrieval (Map 50). A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.43. Alternative C, Wolf Creek, Recreation Management Zone 7

Steese SRMA - RMZ 7 - Wolf Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide hunting, photography and wildlife viewing opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Semi-Primitive Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hunting; Photography; Wildlife; Viewing	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature	**Personal:** Greater connection with nature; Enhanced sense of competence **Community/Social:** Greater community involvement in the land use planning process **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage for non-motorized hunting, photography and wildlife viewing opportunities. Emphasis would be placed on providing Semi-Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to national, state and local hunters, photographers and wildlife viewers seeking a Semi-Primitive recreation experience. Establish a relationship with stakeholders to increase community involvement in BLM's planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.44. Alternative C, Rock Creek, Recreation Management Zone 8

Steese SRMA - RMZ 8 - Rock Creek		
SRMA DESCRIPTION		
The focus this zone would be to high quality backpacking, hunting, photography, and wildlife viewing opportunities for users who desire an experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Semi-Primitive Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Backpacking; Hunting; Photography; Wildlife viewing	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature; Exploring new and different things	**Personal:** Improved outlook on life; Improved physical fitness; Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Positive economic contribution to communities **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage for non-motorized backpacking, hunting photography, and wildlife viewing opportunities. Emphasis would be placed on providing Semi-Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to state and local backpackers, hunters, photographers, and wildlife viewers seeking a Semi-Primitive recreation experience.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.45. Alternative C, Clums, Recreation Management Zone 9

Steese SRMA - RMZ 9 - Clums		
SRMA DESCRIPTION		
The focus this zone would be to provide hunting, photography, wildlife viewing, and OHV use opportunities for users who desire a recreation experience characterized by self-reliance, challenge, and a lower degree of risk in a Middlecountry Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hunting; Photography; Wildlife viewing; OHV use	**Primary:** Escaping crowds; Escaping personal pressures; Experiencing nature	**Personal:** Enhanced sense of personal freedom; Greater connection with nature **Community/Social:** Greater community involvement in the land use planning process **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for both non-motorized (hunting, photography and wildlife viewing) and motorized (OHV use) opportunities. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified yet generally naturally-appearing landscape, and by providing moderate levels of facility development, visitor services and social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to state and local users seeking a Middlecountry recreation experience. Establish a relationship with stakeholders to provide a greater level of involvement with BLM's planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middlecountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of OHVs 1,000 pounds curb weight and less would be allowed May 1 to October 14 on existing routes only, except for game retrieval (Map 50). A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.46. Alternatives C and D, Rocky Mountain Uplands, Recreation Management Zone 10

Steese SRMA - RMZ 10 - Rocky Mountain Uplands		
SRMA DESCRIPTION		
The focus this zone would be to provide hunting, climbing and snowmobiling opportunities for users who desire a recreation experience characterized by solitude, self-reliance, challenge, and risk in a Backcountry Interior Alaska river setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hunting; Climbing; Snowmobiling	**Primary:** Escaping crowds; Escaping personal pressures; Experiencing nature; Experiencing new and different things	**Personal:** Greater connection with nature; Improved outlook on life; Improved physical fitness; Enhanced sense of personal freedom **Community/Social:** Positive economic contributions to communities **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description BACKCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Backcountry classification. The primary focus would be to manage for hunting, climbing and snowmobiling opportunities. Emphasis would be placed on providing Backcountry recreation experiences by maintaining the naturally-appearing landscape, and by providing some additional facility development and visitor services, periodic social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to state and local hunters. climbers and snowmobilers seeking a Backcountry recreation experience. Establish a relationship with stakeholders to provide positive economic contributions to local communities.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Backcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

H.2.3. Steese Alternative D

The following tables outline management decisions and objectives for the RMZ in the Steese SRMA under Alternative D. The SRMA is divided into nine RMZs under this alternative, which are listed below and displayed on Map 51. Tables for RMZs where management is the same as an earlier alternative are not displayed in this section (e.g., RMZs one to four, and 10).

- RMZ 1, Birch Creek (Same as Alternative C,Table H.37, "Alternatives C and D, Birch Creek Recreation Management Zone 1")
- RMZ 2, Pinnell Mountain Trail (Same as Alternative C, Table H.38, "Alternatives C and D, Pinnell Mountain Trail, Recreation Management Zone 2")
- RMZ 3, Mount Prindle Research Natural Area (Same as Alternative C, Table H.39, "Alternatives C and D, Mt. Prindle Research Natural Area, Recreation Management Zone 3")
- RMZ 4, Big Windy Research Natural Area (Same as Alternative C, Table H.40, "Alternatives C and D, Big Windy Research Natural Area, Recreation Management Zone 4")
- RMZ 5, Preacher Creek
- RMZ 6, Harrison Creek
- RMZ 7, Wolf Creek
- RMZ 9, Clums
- RMZ 10, Rocky Mountain Uplands (Same as Alternative C, Table H.46, "Alternatives C and D, Rocky Mountain Uplands, Recreation Management Zone 10")

Table H.47. Alternative D, Preacher Creek, Recreation Management Zone 5

Steese SRMA - RMZ 5 - Preacher Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide backpacking, hiking, gold panning, and OHV use opportunities for users who desire a recreation experience characterized by self-reliance, challenge and a moderate level of risk in a Frontcountry Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Backpacking; Hiking/walking; Recreational Gold Panning; OHV use	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature; Exploring new and different things; Exploration of the area	**Personal:** Improved outlook on life; Improved physical fitness; Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Positive economic contributions to communities **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for backpacking, hiking, gold panning, and OHV opportunities. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified landscape, and by providing improved yet modest facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to state and local backpackers, hikers, gold panners and OHV users seeking a Middlecountry recreation experience. Establish a relationship with stakeholders to maintain positive economic contributions to local communities.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middlecountry recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Cross-country summer use (May 1 to October 14) of OHVs weighing 1,000 pounds curb weight and less would be allowed. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.48. Alternative D, Harrison Creek, Recreation Management Zone 6

Steese SRMA - RMZ 6 - Harrison Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide hunting, photography, wildlife viewing, and OHV use opportunities for users who desire a recreation experience characterized by self-reliance, challenge, and a relatively low degree of risk in a Frontcountry Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hunting; Photography; Wildlife viewing; OHV use	**Primary:** Escaping crowds; Escaping personal pressures; Experiencing nature	**Personal:** Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Greater community involvement in the land use planning process **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for hunting, photography, wildlife viewing, and OHV opportunities. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, and by providing improved yet modest levels of facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to state and local hunters, photographers, wildlife viewers and OHV users seeking a Frontcountry recreation experience. Establish a relationship with stakeholders to provide increased community involvement in the land use planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Cross-country summer use of OHVs 1,000 pounds curb weight and less would be allowed May 1 to October 14. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.49. Alternative D, Wolf Creek, Recreation Management Zone 7

Steese SRMA - RMZ 7 - Wolf Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide hunting, photography, wildlife viewing, and OHV opportunities for users who desire a recreation experience characterized by solitude, self-reliance, challenge and risk in a Backcountry Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hunting; Photography; Wildlife Viewing; Snowmobiling	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature	**Personal:** Greater connection with nature; Enhanced sense of competence **Community/Social:** Greater community involvement in the land use planning process **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description BACKCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Backcountry classification. The primary focus would be to manage for hunting, photography, wildlife viewing, and snowmobiling opportunities. Emphasis would be placed on providing Backcountry recreation experiences by maintaining the naturally-appearing landscape, and by providing some additional facility development and visitor services, periodic social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to national, state and local hunters, photographers, wildlife viewers, and snowmobilers seeking a Backcountry recreation experience. Establish a relationship with stakeholders to increase community involvement in BLM's planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Backcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.50. Alternative D, Clums, Recreation Management Zone 9

Steese SRMA - RMZ 9 - Clums		
SRMA DESCRIPTION		
The focus this zone would be to provide hunting, photography, wildlife viewing, and OHV use opportunities for users who desire a recreation experience characterized by self-reliance, challenge, and a lower degree of risk in a Middlecountry Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hunting; Photography; Wildlife viewing; OHV use	**Primary:** Escaping crowds; Escaping personal pressures; Experiencing nature	**Personal:** Enhanced sense of personal freedom; Greater connection with nature **Community/Social:** Greater community involvement in the land use planning process **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for both non-motorized (hunting, photography and wildlife viewing) and motorized (OHV use) opportunities. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified yet naturally-appearing landscape, and by providing moderate levels of facility development, visitor services and social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to state and local users seeking a Middlecountry recreation experience. Establish a relationship with stakeholders to provide a greater level of involvement with BLM's planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middlecountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Cross-country summer use of OHVs 1,000 pounds curb weight and less would be allowed May 1 to October 14. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

H.2.4. Steese Alternative E

The following tables outline management decisions and objectives for each RMZ in the Steese SRMA under Alternative E. The SRMA is divided into nine RMZs under this alternative, which are listed below and displayed on Map 52. Alternative E includes the following RMZs:

- RMZ 1, Birch Creek
- RMZ 2, Pinnell Mountain Trail
- RMZ 3, Mount Prindle Research Natural Area
- RMZ 4, Big Windy Research Natural Area
- RMZ 5, Preacher Creek
- RMZ 6, Harrison Creek
- RMZ 7, Wolf Creek
- RMZ 8, Clums
- RMZ 9, Bachelor Creek

Table H.51. Alternative E, Birch Creek Recreation Management Zone 1

Steese SRMA - RMZ 1 -Birch Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day road accessible recreational float boat opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge, and risk in a Semi-Primitive Interior Alaska setting, on one of America's nationally designated "Wild" Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating; Camping	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature; Exploring new and different things **Secondary:** Testing your abilities	**Personal:** More exercise-oriented lifestyle; Greater connection with nature; Greater sense of adventure; Enhanced sense of competence **Community/Social:** Greater awareness of minimal impact recreation; Greater opportunities for youth **Environmental:** Heightened awareness of the natural world; Greater protection of fish and wildlife habitat **Economic:** Increased local tourism revenue
Recreation Setting Character Description SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage this zone for non-motorized float-boating and river camping opportunities. Emphasis would be placed on providing Semi-Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to national, state and local float-boaters seeking a Semi-Primitive river recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be completed within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.52. Alternative E, Pinnell Mountain, Recreation Management Zone 2

Steese SRMA - RMZ 2 -Pinnell Mountain		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, backpacking (multi-day) and hiking (day use) opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Primitive Interior Alaska setting, on one of America's National Recreation Trails.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Backpacking; Hiking/walking	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature; Exploring new and different things; Exercise/physical fitness	**Personal:** Improved outlook on life; Improved physical fitness; Improved mental health; Greater connection with nature; Enhanced sense of competence **Community/Social:** Greater awareness of minimal impact recreation; Greater opportunities for youth **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized backpacking and hiking opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, rare social encounters, restricted mechanized/motorized use, and rare administrative presence.	
Information and Education	Provide outreach to national, state and local backpackers and hikers seeking a Primitive recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be completed within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.53. Alternative E, Mt. Prindle Research Natural Area, Recreation Management Zone 3

Steese SRMA - RMZ 3 - Mt. Prindle Research Natural Area		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, climbing, hunting and research opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Primitive Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Climbing; Hunting; Nature study (research)	**Primary:** Competence testing; Escaping crowds; Experiencing nature	**Personal:** Improved outlook on life; Improved physical fitness; Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Positive economic contributions to communities **Environmental:** Heightened awareness of the natural world; Greater protection of distinctive natural landscapes **Economic:** Increased local tourism revenue
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized climbing, hunting and research opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, providing minimal facility development and visitor services, providing infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to climbers, hunters and researches seeking a Primitive recreation experience. Establish a relationship with stakeholders to maintain positive economic contributions to local communities.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be completed within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.54. Alternative E, Big Windy Research Natural Area, Recreation Management Zone 4

Steese SRMA - RMZ 4 -Big Windy Research Natural Area		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality research opportunities for users who desire an experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Primitive Interior Alaska setting containing an undeveloped hot springs system, uncommon and isolated plant species, and delicate geologic structures.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Nature study (research)	**Primary:** Competence testing; Escaping crowds; Experiencing nature	**Personal:** Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Greater community involvement in land use planning process **Environmental:** Greater protection of distinctive natural landscapes
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized research opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, rare social encounters, restricted mechanized/motorized use, and rare administrative presence.	
Information and Education	Provide outreach to researches seeking a unique and scientific Primitive experience. Establish a relationship with stakeholders to increase community involvement with BLM's planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be completed within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.55. Alternative E, Preacher Creek, Recreation Management Zone 5

Steese SRMA - RMZ 5 - Preacher Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality backpacking (multi-day), hiking and gold panning (day use) opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Primitive Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Backpacking; Hiking/walking; Recreational Gold Panning	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature; Exploring new and different things; Exploration of the area	**Personal:** Improved outlook on life; Improved physical fitness; Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Positive economic contributions to communities **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized backpacking, hiking, and gold panning opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, rare social encounters, restricted mechanized/motorized use, and rare administrative presence.	
Information and Education	Provide outreach to state and local backpackers, hikers and gold panners seeking a Primitive recreation experience. Establish a relationship with stakeholders to maintain positive economic contributions to local communities.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be completed within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.56. Alternative E, Harrison Creek, Recreation Management Zone 6

Steese SRMA - RMZ 6 - Harrison Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide hunting, photography and wildlife viewing opportunities for users who desire a recreation experience characterized by solitude, self-reliance, challenge, and risk in a Backcountry Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hunting, Photography, Wildlife viewing	**Primary:** Escaping crowds; Escaping personal pressures; Experiencing nature	**Personal:** Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Greater community involvement in the land use planning process **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description BACKCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Backcountry classification. The primary focus would be to manage for hunting, photography and wildlife viewing opportunities. Emphasis would be placed on providing Backcountry recreation experiences by maintaining the naturally-appearing landscape, and by providing some additional facility development and visitor services, periodic social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to state and local hunters, photographers and wildlife viewers seeking a Backcountry recreation experience. Establish a relationship with stakeholders to provide a greater level of involvement with BLM's planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Backcountry recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be completed within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.57. Alternative E, Wolf Creek, Recreation Management Zone 7

Steese SRMA - RMZ 7 - Wolf Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide hunting, photography and wildlife viewing opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Primitive Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hunting; Photography; Wildlife; Viewing	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature	**Personal:** Greater connection with nature; Enhanced sense of competence **Community/Social:** Greater community involvement in the land use planning process **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized hunting, photography and wildlife viewing opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, rare social encounters, restricted mechanized/motorized use, and rare administrative presence.	
Information and Education	Provide outreach to national, state and local hunters, photographers and wildlife viewers seeking a Primitive recreation experience. Establish a relationship with stakeholders to increase community involvement in BLM's planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be completed within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.58. Alternative E, Clums, Recreation Management Zone 8

Steese SRMA - RMZ 8- Clums		
SRMA DESCRIPTION		
The focus this zone would be to provide hunting, photography, wildlife viewing, and OHV use opportunities for users who desire a recreation experience characterized by self-reliance, challenge, and a lower degree of risk in a Middlecountry Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hunting; Photography; Wildlife viewing; OHV use	**Primary:** Escaping crowds; Escaping personal pressures; Experiencing nature	**Personal:** Enhanced sense of personal freedom; Greater connection with nature **Community/Social:** Greater community involvement in the land use planning process **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for both non-motorized (hunting, photography and wildlife viewing) and motorized (OHV use) opportunities. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified yet generally naturally-appearing landscape, and by providing moderate levels of facility development, visitor services and social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to state and local users seeking a Middlecountry recreation experience. Establish a relationship with stakeholders to provide a greater level of involvement with BLM's planning process.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middle-country recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be com-pleted within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.59. Alternative E, Preacher Creek, Recreation Management Zone 9

Steese SRMA - RMZ 9- Bachelor Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality backpacking (multi-day), hiking and gold panning (day use) opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Primitive Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Backpacking; Hiking/walking; Recreational Gold Panning	**Primary:** Escaping personal pressures; Escaping crowds; Experiencing nature; Exploring new and different things; Exploration of the area	**Personal:** Improved outlook on life; Improved physical fitness; Greater connection with nature; Enhanced sense of personal freedom **Community/Social:** Positive economic contributions to communities **Environmental:** Heightened awareness of the natural world **Economic:** Increased local tourism revenue
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized backpacking, hiking, and gold panning opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, rare social encounters, restricted mechanized/motorized use, and rare administrative presence.	
Information and Education	Provide outreach to state and local backpackers, hikers and gold panners seeking a Primitive recreation experience. Establish a relationship with stakeholders to maintain positive economic contributions to local communities.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes, and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation: LIMITED Travel management plan will be completed within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

H.3. White Mountains Special Recreation Management Area

The White Mountains Special Recreation Management Area (SRMA) includes up to seven RMZs. The number and boundaries of RMZs vary by alternative, as does the management. Specific management for each RMZ is described in the tables in the following sections.

H.3.1. White Mountains Alternative B

The following tables outline management decisions and objectives for each RMZ in the White Mountains SRMA under Alternative B. The SRMA is divided into seven RMZs, which are listed below and displayed on Map 53.

- RMZ 1, Research Natural Areas and White Mountains Spine
- RMZ 2, White Mountains Highlands
- RMZ 3, Beaver Creek Corridor (management is the same under Alternatives B, C, and D)
- RMZ 4, Cache Mountain (management is the same under Alternatives B, C, and D)
- RMZ 5, White Mountains Foothills
- RMZ 6, Nome Creek
- RMZ 7, Wickersham/Blixt Cabin

Table H.60. Alternative B, Research Natural Areas and White Mountains Spine, Recreation Management Zone 1

White Mountains SRMA - RMZ 1 - Research Natural Areas and White Mountains Spine		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, hiking, backpacking and hunting opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk, in a rugged, remote and Primitive Interior Alaska setting with amazing geologic and topographic features, which are not common in the region.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hiking; Backpacking; Hunting **Secondary:** Dispersed camping	**Primary:** Escaping crowds; Enjoying scenery and natural landscape; Experiencing adventure **Secondary:** Competence testing	**Personal:** Enhanced sense of personal freedom; Enhanced sense of competence **Community/Social:** Heightened awareness of natural world **Environmental:** Increased awareness and protection of natural landscapes
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized hiking, backpacking and hunting opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, rare social encounters, restricted mechanized/motorized use, and rare administrative presence.	
Information and Education	Provide outreach to state and local hikers, backpackers and hunters seeking a Primitive recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts to the environment by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less outside of the Serpentine Slide, Limestone Jag, and Mount Prindle RNA's would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. RNAs are closed to camping. Aircraft landings would be allowed within the Primitive Zone, with the following provisions: No clearing of vegetation would be allowed without a permit. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.61. Alternatives B and C, White Mountains Highlands, Recreation Management Zone 2

White Mountains SRMA - RMZ 2 - White Mountains Highlands		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality backpacking and hunting opportunities for users who desire a recreation experience characterized by solitude, self-reliance, challenge and risk in a rugged, remote and Semi-Primitive Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Backpacking; Hunting **Secondary:** Dispersed camping; Trapping; Snowmobiling	**Primary:** Escaping crowds; Enjoying scenery and natural landscape; Experiencing adventure **Secondary:** Competence testing	**Personal:** Enhanced sense of personal freedom; Enhanced sense of competence **Community/Social:** Heightened awareness of natural world **Environmental:** Increased awareness and protection of natural landscapes
Recreation Setting Character Description SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage for backpacking and hunting opportunities. Emphasis would be placed on providing Semi-Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to state and local backpackers and hunters seeking a Semi-Primitive recreation experience. Establish a relationship with stakeholders to reduce negative impacts to the environment by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.62. Alternatives B, C, and D, Beaver Creek, Recreation Management Zone 3

White Mountains SRMA - RMZ 3 - Beaver Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day road accessible recreational float boat opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Semi-Primitive Interior Alaska setting, on one of America's nationally designated "Wild" Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating; Camping **Secondary:** Fishing; Hunting; Snowmobiling; Dog sledding; Skiing	**Primary:** Escaping crowds; Enjoying scenery and natural landscape; Experiencing adventure **Secondary:** Escaping personal social pressures	**Personal:** Enhanced sense of personal freedom; Enhanced sense of competence **Community/Social:** Heightened awareness of natural world **Environmental:** Reduced negative human impacts such as litter, vegetative trampling, and unplanned trail construction **Economic:** Increased local tourism revenue
Recreation Setting Character Description SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage for float boating and camping opportunities. Emphasis would be placed on providing Semi-Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to state and local float boaters seeking a Semi-Primitive river recreation experience. Establish a relationship with stakeholders to reduce negative impacts to the environment by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be permissible through ANILCA 1110(a). Beaver Creek is classified as wild. Motorized boats launched at Nome Creek would be restricted to 15 horsepower or less. Hovercraft, airboats, and personal watercraft would be prohibited. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.63. Alternatives B, C, and D, Cache Mountain, Recreation Management Zone 4

White Mountains SRMA - RMZ 4 - Cache Mountain		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality snowmobiling, dog mushing and skiing opportunities for users who desire a recreation experience characterized by solitude, self-reliance, challenge, and risk with a unique opportunity to experience the rugged Alaskan Interior, with the added convenience of a maintained trail system and public use cabins.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Snowmobiling; Dog mushing; Skiing; Staying at cabins **Secondary:** Camping; Hiking; Hunting	**Primary:** Escaping personal social pressures; Escaping crowds; Enjoying scenery and natural landscape **Secondary:** Experiencing adventure	**Personal:** Greater connection with nature; Improved mental health **Community/Social:** Greater community ownership and stewardship of park, recreation, and natural resources. **Environmental:** Heightened awareness of natural world **Economic:** Increased desirability as a place to live/retire
Recreation Setting Character Description BACKCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Backcountry classification. The primary focus would be to manage for snowmobiling, dog mushing and skiing opportunities in conjunction with a well maintained trails and cabins system. Emphasis would be placed on providing Backcountry recreation experiences by maintaining the naturally-appearing landscape, and by providing some additional facility development and visitor services, periodic social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to local snowmobilers, dog mushers and skiers seeking a Backcountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Backcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.64. Alternative B, White Mountains Foothills, Recreation Management Zone 5

White Mountains SRMA - RMZ 5 - White Mountains Foothills		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality snowmobiling, dog mushing and skiing opportunities for users who desire a recreation experience characterized by solitude, self-reliance and a moderate degree of challenge and risk with a unique opportunity to experience the rugged Alaskan Interior, with the added convenience of a well maintained trail system and public use cabins located closer to major access points.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Snowmobiling; Dog mushing; Skiing; Staying at cabins **Secondary:** Camping; Hiking; Hunting; OHV use	**Primary:** Escaping personal social pressures; Escaping crowds; Enjoying scenery and natural landscape **Secondary:** Experiencing adventure	**Personal:** Greater connection with nature; Improved mental health **Community/Social:** Greater community ownership and stewardship of park, recreation, and natural resources. **Environmental:** Heightened awareness of natural world **Economic:** Increased desirability as a place to live/retire
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for snowmobiling, dog mushing and skiing opportunities in conjunction with a well maintained trails and cabins system in closer proximity to major access points. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified yet generally naturally-appearing landscape, and by providing moderate levels of facility development, visitor services and social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to local snowmobilers, dog mushers and skiers seeking a Middlecountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middlecountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 curb weight and less would be allowed October 15 to April 30. Summer use of ATVs would be allowed May 1 to October 14 to vehicles 50" and less, weighing 1,000 pounds curb weight and less, on designated roads and trails only (except for the Wickersham Creek Trail, from the Elliott Highway to the intersection with the 23.5 mile trail, which is open from June 1 to October 14) (Appendix B, *Travel Management Plan: White Mountains* and Map 53). A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.65. Alternative B, Nome Creek, Recreation Management Zone 6

White Mountains SRMA - RMZ 6 - Nome Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide opportunities for Frontcountry recreation experiences that are characterized by the opportunity to affiliate with other users in an area that is generally natural in appearance, yet contains developed recreation sites and is easily accessible for local families and groups via an improved road system.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Camping; Sightseeing; Berry picking; Hiking; Hunting; OHV use; Fishing **Secondary:** Gold panning; Snowmobiling; Dog mushing	**Primary:** Enjoying having easy access to natural landscapes; Enjoying the closeness of friends and family; Relishing group affiliation and togetherness **Secondary:** Escaping crowds; Experiencing adventure	**Personal:** Greater connection with nature; improved mental health **Community/Social:** Heightened awareness of natural world **Environmental:** Greater community ownership and stewardship of park, recreation, and natural resources **Economic:** Increased desirability as a place to live and retire
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for developed camping, sightseeing, berry picking, hiking, hunting, OHV use, and fishing. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, and by providing improved yet modest levels of facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to local campers, sightseers, berry pickers, hikers, hunters, OHV users and fishermen/women seeking a Frontcountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of ATVs would be allowed May 1 to October 14 to vehicles 50" and less, weighing 1,000 pounds curb weight and less, on designated roads and trails only (Appendix B, *Travel Management Plan: White Mountains* and Map 53). A permit or Plan of Operations would be required for all other OHV use. Aircraft use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.66. Alternative B, Wickersham Dome-Blixt Cabin, Recreation Management Zone 7

White Mountains SRMA - RMZ 7 - Wickersham Dome/Blixt Cabin		
SRMA DESCRIPTION		
The focus this zone would be to provide opportunities for Frontcountry recreation experiences that are characterized by uncomplicated recreation opportunities in an area that contains both developed and undeveloped recreation sites, but is easily accessible for users via an improved road system.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hiking; Skiing; Berry picking **Secondary:** Camping; OHV use; Dog mushing	**Primary:** Enjoying having easy access to natural landscapes; Enjoying the closeness of friends and family; Exercising - achieving personal fitness	**Personal:** Greater connection with nature; improved mental health **Community/Social:** Heightened awareness of natural world **Environmental:** Greater community ownership and stewardship of park, recreation, and natural resources **Economic:** Increased desirability as a place to live and retire
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for hiking, skiing and berry picking. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, and by providing improved yet modest levels of facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to local hikers, skiers and berry pickers seeking a Frontcountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of ATVs would be allowed May 1 to October 14 to vehicles 50" and less, weighing 1,000 pounds curb weight and less, on designated roads and trails only (except for the Wickersham Creek Trail, from Mile 28 Elliott Highway to the intersection with the 23.5 mile trail, which is open from June 1 to October 14) (Appendix B, *Travel Management Plan: White Mountains* and Map 53). A permit or Plan of Operations would be required for all other OHV use. Aircraft use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

H.3.2. White Mountains Alternative C

The following tables outline management decisions and objectives for each RMZ in the White Mountains SRMA under Alternative C. The SRMA is divided into seven RMZs under this alternative, which are listed below and displayed on Map 54. Tables for RMZs where management is the same as an earlier alternative are not displayed in this section (e.g., RMZs two to four).

- RMZ 1, Research Natural Areas and White Mountains Spine
- RMZ 2, White Mountains Highlands (Same as Alternative B, Table H.61, "Alternatives B and C, White Mountains Highlands, Recreation Management Zone 2")
- RMZ 3, Beaver Creek Corridor (Same as Alternative B, Table H.62, "Alternatives B, C, and D, Beaver Creek, Recreation Management Zone 3")
- RMZ 4, Cache Mountain (Same as Alternative B, Table H.63, "Alternatives B, C, and D, Cache Mountain, Recreation Management Zone 4")
- RMZ 5, White Mountains Foothills
- RMZ 6, Nome Creek
- RMZ 7, Wickersham/Blixt Cabin

Table H.67. Alternatives C and D, Research Natural Areas and White Mountains Spine, Recreation Management Zone 1

White Mountains SRMA - RMZ 1 - Research Natural Areas and White Mountains Spine		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, hiking, backpacking and hunting opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk, in a rugged, remote and Primitive Interior Alaska setting with amazing geologic and topographic features, which are not common in the region.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hiking; Backpacking; Hunting **Secondary:** Dispersed camping	**Primary:** Escaping crowds; Enjoying scenery and natural landscape; Experiencing adventure **Secondary:** Competence testing	**Personal:** Enhanced sense of personal freedom; Enhanced sense of competence **Community/Social:** Heightened awareness of natural world **Environmental:** Increased awareness and protection of natural landscapes
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized hiking, backpacking and hunting opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, rare social encounters, restricted mechanized/motorized use, and rare administrative presence.	
Information and Education	Provide outreach to state and local hikers, backpackers and hunters seeking a Primitive recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts to the environment by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less outside of the Serpentine Slide, Limestone Jag, and Mount Prindle RNA's would be allowed October 15 to April 30. A permit or Plan of Operations would be required for all other OHV use. Aircraft landings would be allowed within the Primitive Zone, with the following provisions: No clearing of vegetation would be allowed without a permit. Primitive camping and hiking trails would be allowed in the RNAs. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.68. Alternative C, White Mountains Foothills, Recreation Management Zone 5

White Mountains SRMA - RMZ 5 - White Mountains Foothills		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality snowmobiling, dog mushing and skiing opportunities for users who desire a recreation experience characterized by solitude, self-reliance and a moderate degree of challenge and risk with a unique opportunity to experience the rugged Alaskan Interior, with the added convenience of a well maintained trail system and public use cabins located closer to major access points.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Snowmobiling; Dog mushing; Skiing; Staying at cabins **Secondary:** Camping; Hiking; Hunting; OHV use	**Primary:** Escaping personal social pressures; Escaping crowds; Enjoying scenery and natural landscape **Secondary:** Experiencing adventure	**Personal:** Greater connection with nature; Improved mental health **Community/Social:** Greater community ownership and stewardship of park, recreation, and natural resources. **Environmental:** Heightened awareness of natural world **Economic:** Increased desirability as a place to live/retire
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for snowmobiling, dog mushing and skiing opportunities in conjunction with a well maintained trails and cabins system in closer proximity to major access points. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified yet generally naturally-appearing landscape, and by providing moderate levels of facility development, visitor services and social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to local snowmobilers, dog mushers and skiers seeking a Middlecountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middlecountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of ATVs would be allowed May 1 to October 14 to vehicles 50" and less, weighing 1,000 pounds curb weight and less, on designated roads and trails only, except for game retrieval . The Wickersham Creek Trail, from Mile 28 Elliott Highway to the intersection with the 23.5 mile trail, is open for summer use of OHVs 1,500 pounds curb weight and less from June 1 to October 14. UTVs would be allowed on Quartz Creek, Wickersham Creek, and 23.5 mile trails only (Appendix B and Map 54). A permit or Plan of Operations would be required for all other OHV use. Aircraft and motorboat use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.69. Alternative C, Nome Creek, Recreation Management Zone 6

White Mountains SRMA - RMZ 6 - Nome Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide opportunities for Frontcountry recreation experiences that are characterized by the opportunity to affiliate with other users in an area that is generally natural in appearance, yet contains developed recreation sites and is easily accessible for local families and groups via an improved road system.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Camping; Sightseeing; Berry picking; Hiking; Hunting; OHV use; Fishing **Secondary:** Gold panning; Snowmobiling; Dog mushing	**Primary:** Enjoying having easy access to natural landscapes; Enjoying the closeness of friends and family; Relishing group affiliation and togetherness **Secondary:** Escaping crowds; Experiencing adventure	**Personal:** Greater connection with nature; improved mental health **Community/Social:** Heightened awareness of natural world **Environmental:** Greater community ownership and stewardship of park, recreation, and natural resources **Economic:** Increased desirability as a place to live and retire
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for developed camping, sightseeing, berry picking, hiking, hunting, OHV use, and fishing. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, and by providing improved yet modest levels of facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to local campers, sightseers, berry pickers, hikers, hunters, OHV users and fishermen/women seeking a Frontcountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 curb weight and less would be allowed October 15 to April 30. Summer use of ATVs would be allowed May 1 to October 14 to vehicles 50" and less, weighing 1,000 pounds curb weight and less, on designated roads and trails only, except for game retrieval and in tailings area (Appendix B, *Travel Management Plan: White Mountains* and Map 54). UTVs would be allowed on the Quartz Creek Trail. A permit or Plan of Operations would be required for all other OHV use. Aircraft use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.70. Alternative C, Wickersham-Blixt Cabin, Recreation Management Zone 7

White Mountains SRMA - RMZ 7 - Wickersham and Blixt Cabin		
SRMA DESCRIPTION		
The focus this zone would be to provide opportunities for Frontcountry recreation experiences that are characterized by uncomplicated recreation opportunities in an area that contains both developed and undeveloped recreation sites, but is easily accessible for users via an improved road system.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hiking; Skiing; Berry picking **Secondary:** Camping; OHV use; Dog mushing	**Primary:** Enjoying having easy access to natural landscapes; Enjoying the closeness of friends and family; Exercising - achieving personal fitness	**Personal:** Greater connection with nature; improved mental health **Community/Social:** Heightened awareness of natural world **Environmental:** Greater community ownership and stewardship of park, recreation, and natural resources **Economic:** Increased desirability as a place to live and retire
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for hiking, skiing and berry picking. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, and by providing improved yet modest levels of facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to local hikers, skiers and berry pickers seeking a Frontcountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions to create and maintain Frontcountry recreation opportunities and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of ATVs would be allowed May 1 to October 14 to vehicles 50" and less, weighing 1,000 pounds curb weight and less, on designated roads and trails only, except for retrieval of legally harvested game. The Wickersham Creek Trail, from Mile 28 Elliott Highway to the intersection with the 23.5 mile trail, is open for summer use of OHVs 1,500 pounds curb weight and less from June 1 to October 14. UTVs would be allowed on Wickersham Creek, and 23.5 mile trails only (Appendix B, *Travel Management Plan: White Mountains* and Map 54). A permit or Plan of Operations would be required for all other OHV use. Aircraft use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

H.3.3. White Mountains Alternative D

The following tables outline management decisions and objectives for each RMZ in the White Mountains SRMA under Alternative D. The SRMA is divided into six RMZs, which are listed below and displayed on Map 55. Tables for RMZs where management is the same as an earlier alternative are not displayed in this section (e.g., RMZs one, three, and four).

- RMZ 1, Research Natural Areas (Same as Alternative C, Table H.67, "Alternatives C and D, Research Natural Areas and White Mountains Spine, Recreation Management Zone 1")
- RMZ 3, Beaver Creek Corridor (Same as Alternative B, Table H.62, "Alternatives B, C, and D, Beaver Creek, Recreation Management Zone 3")
- RMZ 4, Cache Mountain (Same as Alternative B, Table H.63, "Alternatives B, C, and D, Cache Mountain, Recreation Management Zone 4"
- RMZ 5, White Mountains Foothills
- RMZ 6, Nome Creek
- RMZ 7, Wickersham/Blixt Cabin

Table H.71. Alternative D, White Mountains Foothills, Recreation Management Zone 5

White Mountains SRMA - RMZ 5 - White Mountains Foothills		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality snowmobiling, dog mushing and skiing opportunities for users who desire a recreation experience characterized by solitude, self-reliance and a moderate degree of challenge and risk with a unique opportunity to experience the rugged Alaskan Interior, with the added convenience of a well maintained trail system and public use cabins located closer to major access points.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Snowmobiling; Dog mushing; Skiing; Staying at cabins **Secondary:** Camping; Hiking; Hunting; OHV use	**Primary:** Escaping personal social pressures; Escaping crowds; Enjoying scenery and natural landscape **Secondary:** Experiencing adventure	**Personal:** Greater connection with nature; Improved mental health **Community/Social:** Greater community ownership and stewardship of park, recreation, and natural resources. **Environmental:** Heightened awareness of natural world **Economic:** Increased desirability as a place to live/retire
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for snowmobiling, dog mushing and skiing opportunities in conjunction with a well maintained trails and cabins system in closer proximity to major access points. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified yet generally naturally-appearing landscape, and by providing moderate levels of facility development, visitor services and social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to local snowmobilers, dog mushers and skiers seeking a Middlecountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middlecountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of ATVs would be allowed May 1 to October 14 to vehicles 50" and less, weighing 1,000 pounds curb weight and less except on the Summit and Ski Loop trails and within the Wickersham Creek Closed Area. UTVs would be allowed on designated trails only (Appendix B and Map 55). The Wickersham Creek Trail, from Mile 28 Elliott Highway to the intersection with the 23.5 mile trail, is open for summer use of OHVs 1,500 pounds curb weight and less from June 1 to October 14. A permit or Plan of Operations would be required for all other OHV use. Aircraft use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.72. Alternative D, Nome Creek, Recreation Management Zone 6

White Mountains SRMA - RMZ 6 - Nome Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide opportunities for Frontcountry recreation experiences that are characterized by the opportunity to affiliate with other users in an area that is generally natural in appearance, yet contains developed recreation sites and is easily accessible for local families and groups via an improved road system.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Camping; Sightseeing; Berry picking; Hiking; Hunting; OHV use; Fishing **Secondary:** Gold panning; Snowmobiling; Dog mushing	**Primary:** Enjoying having easy access to natural landscapes; Enjoying the closeness of friends and family; Relishing group affiliation and togetherness **Secondary:** Escaping crowds; Experiencing adventure	**Personal:** Greater connection with nature; improved mental health **Community/Social:** Heightened awareness of natural world **Environmental:** Greater community ownership and stewardship of park, recreation, and natural resources **Economic:** Increased desirability as a place to live and retire
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for developed camping, sightseeing, berry picking, hiking, hunting, OHV use, and fishing. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, and by providing improved yet modest levels of facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to local campers, sightseers, berry pickers, hikers, hunters, OHV users and fishermen/women seeking a Frontcountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of ATVs would be allowed May 1 to October 14 to vehicles 50" and less, weighing 1,000 pounds curb weight and less, on designated roads and trails only, except for game retrieval and in tailings area. UTVs would be allowed on roads, tailings area, and designated trails only (Appendix B and Map 55). A permit or Plan of Operations would be required for all other OHV use. Aircraft use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.73. Alternative D, Wickersham Dome-Blixt Cabin, Recreation Management Zone 7

White Mountains SRMA - RMZ 7 - Wickersham Dome/Blixt Cabin		
SRMA DESCRIPTION		
The focus this zone would be to provide opportunities for Frontcountry recreation experiences that are characterized by uncomplicated recreation opportunities in an area that contains both developed and undeveloped recreation sites, but is easily accessible for users via an improved road system.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hiking; Skiing; Berry picking **Secondary:** Camping; OHV use; Dog mushing	**Primary:** Enjoying having easy access to natural landscapes; Enjoying the closeness of friends and family; Exercising - achieving personal fitness	**Personal:** Greater connection with nature; improved mental health **Community/Social:** Heightened awareness of natural world **Environmental:** Greater community ownership and stewardship of park, recreation, and natural resources **Economic:** Increased desirability as a place to live and retire
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for hiking, skiing and berry picking. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, and by providing improved yet modest levels of facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to local hikers, skiers and berry pickers seeking a Frontcountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities and targeted outcomes. OHV area designation = LIMITED All forms of non-motorized use would be allowed. Cross-country winter use of snowmobiles 1,000 pounds curb weight and less would be allowed October 15 to April 30. Summer use of ATVs would be allowed May 1 to October 14 to vehicles 50" and less, weighing 1,000 pounds curb weight and less (except for the Wickersham Creek Trail, from Mile 28 Elliott Highway to the intersection with the 23.5 mile Trail, which is open June 1 to October 14). UTVs would be allowed on designated trails only and would abide by the same dates (Appendix B and Map 55). A permit or Plan of Operations would be required for all other OHV use. Aircraft use would be unrestricted. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

H.3.4. White Mountains Alternative E

The following tables outline management decisions and objectives for each RMZ in the White Mountains SRMA under Alternative E. The SRMA is divided into seven RMZs, which are listed below and displayed on Map 56.

- RMZ 1, Research Natural Areas and White Mountains Spine
- RMZ 2, White Mountains Highlands
- RMZ 3, Beaver Creek Corridor
- RMZ 4, Cache Mountain
- RMZ 5, White Mountains Foothills
- RMZ 6, Nome Creek
- RMZ 7, Wickersham/Blixt Cabin

Table H.74. Alternative E, Research Natural Areas and White Mountains Spine, Recreation Management Zone 1

White Mountains SRMA - RMZ 1 - Research Natural Areas and White Mountains Spine		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, hiking, backpacking and hunting opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk, in a rugged, remote and Primitive Interior Alaska setting with amazing geologic and topographic features, which are not common in the region.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hiking; Backpacking; Hunting **Secondary:** Dispersed camping	**Primary:** Escaping crowds; Enjoying scenery and natural landscape; Experiencing adventure **Secondary:** Competence testing	**Personal:** Enhanced sense of personal freedom; Enhanced sense of competence **Community/Social:** Heightened awareness of natural world **Environmental:** Increased awareness and protection of natural landscapes
Recreation Setting Character Description PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Primitive classification. The primary focus would be to manage for non-motorized hiking, backpacking and hunting opportunities. Emphasis would be placed on providing Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, rare social encounters, restricted mechanized/motorized use, and rare administrative presence.	
Information and Education	Provide outreach to state and local hikers, backpackers and hunters seeking a Primitive recreation experience. Establish a relationship with stakeholders to reduce negative environmental impacts to the environment by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED. Travel management plan will be completed within 5 years of the ROD. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.75. Alternative E, White Mountains Highlands, Recreation Management Zone 2

White Mountains SRMA - RMZ 2 - White Mountains Highlands		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality backpacking and hunting opportunities for users who desire a recreation experience characterized by solitude, self-reliance, challenge and risk in a rugged, remote and Semi-Primitive Interior Alaska setting.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Backpacking; Hunting **Secondary:** Dispersed camping; Trapping; Snowmobiling	**Primary:** Escaping crowds; Enjoying scenery and natural landscape; Experiencing adventure **Secondary:** Competence testing	**Personal:** Enhanced sense of personal freedom; Enhanced sense of competence **Community/Social:** Heightened awareness of natural world **Environmental:** Increased awareness and protection of natural landscapes
Recreation Setting Character Description SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage for backpacking and hunting opportunities. Emphasis would be placed on providing Semi-Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to state and local backpackers and hunters seeking a Semi-Primitive recreation experience. Establish a relationship with stakeholders to reduce negative impacts to the environment by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED. Travel management plan will be completed within 5 years of the ROD. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.76. Alternative E, Beaver Creek, Recreation Management Zone 3

White Mountains SRMA - RMZ 3 - Beaver Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality, multi-day road accessible recreational float boat opportunities for users who desire a recreation experience characterized by solitude, tranquility, self-reliance, challenge and risk in a Semi-Primitive Interior Alaska setting, on one of America's nationally designated "Wild" Rivers.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Float boating; Camping **Secondary:** Fishing; Hunting; Snowmobiling; Dog sledding; Skiing	**Primary:** Escaping crowds; Enjoying scenery and natural landscape; Experiencing adventure **Secondary:** Escaping personal social pressures	**Personal:** Enhanced sense of personal freedom; Enhanced sense of competence **Community/Social:** Heightened awareness of natural world **Environmental:** Reduced negative human impacts such as litter, vegetative trampling, and unplanned trail construction **Economic:** Increased local tourism revenue
Recreation Setting Character Description SEMI PRIMITIVE (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	The rivers and creeks within this zone would be managed to protect and enhance the qualities and characteristics that are found within a Semi-Primitive classification. The primary focus would be to manage for float boating and camping opportunities. Emphasis would be placed on providing Semi-Primitive recreation experiences by maintaining the naturally-appearing landscape, and by providing minimal facility development and visitor services, infrequent social encounters, restricted mechanized/motorized use, and minimal administrative presence.	
Information and Education	Provide outreach to state and local float boaters seeking a Semi-Primitive river recreation experience. Establish a relationship with stakeholders to reduce negative impacts to the environment by promoting the principles of the Leave No Trace program.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions, based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Semi-Primitive recreation opportunities and targeted outcomes. OHV area designation = LIMITED. Travel management plan will be completed within 5 years of the ROD. Beaver Creek is classified as wild. Motorized boats launched at Nome Creek would be restricted to 15 horsepower or less. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.77. Alternative E, Cache Mountain, Recreation Management Zone 4

White Mountains SRMA - RMZ 4 - Cache Mountain		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality snowmobiling, dog mushing and skiing opportunities for users who desire a recreation experience characterized by solitude, self-reliance, challenge, and risk with a unique opportunity to experience the rugged Alaskan Interior, with the added convenience of a maintained trail system and public use cabins.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Snowmobiling; Dog mushing; Skiing; Staying at cabins **Secondary:** Camping; Hiking; Hunting	**Primary:** Escaping personal social pressures; Escaping crowds; Enjoying scenery and natural landscape **Secondary:** Experiencing adventure	**Personal:** Greater connection with nature; Improved mental health **Community/Social:** Greater community ownership and stewardship of park, recreation, and natural resources. **Environmental:** Heightened awareness of natural world **Economic:** Increased desirability as a place to live/retire
Recreation Setting Character Description BACKCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Backcountry classification. The primary focus would be to manage for snowmobiling, dog mushing and skiing opportunities in conjunction with a well maintained trails and cabins system. Emphasis would be placed on providing Backcountry recreation experiences by maintaining the naturally-appearing landscape, and by providing some additional facility development and visitor services, periodic social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to local snowmobilers, dog mushers and skiers seeking a Backcountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Backcountry recreation opportunities, and targeted outcomes. OHV area designation = LIMITED. Travel management plan will be completed within 5 years of the ROD. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.78. Alternative E, White Mountains Foothills, Recreation Management Zone 5

White Mountains SRMA - RMZ 5 - White Mountains Foothills		
SRMA DESCRIPTION		
The focus this zone would be to provide high quality snowmobiling, dog mushing and skiing opportunities for users who desire a recreation experience characterized by solitude, self-reliance and a moderate degree of challenge and risk with a unique opportunity to experience the rugged Alaskan Interior, with the added convenience of a well maintained trail system and public use cabins located closer to major access points.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Snowmobiling; Dog mushing; Skiing; Staying at cabins **Secondary:** Camping; Hiking; Hunting; OHV use	**Primary:** Escaping personal social pressures; Escaping crowds; Enjoying scenery and natural landscape **Secondary:** Experiencing adventure	**Personal:** Greater connection with nature; Improved mental health **Community/Social:** Greater community ownership and stewardship of park, recreation, and natural resources. **Environmental:** Heightened awareness of natural world **Economic:** Increased desirability as a place to live/retire
Recreation Setting Character Description MIDDLECOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Middlecountry classification. The primary focus would be to manage for snowmobiling, dog mushing and skiing opportunities in conjunction with a well maintained trails and cabins system in closer proximity to major access points. Emphasis would be placed on providing Middlecountry recreation experiences by maintaining the partially modified yet generally naturally-appearing landscape, and by providing moderate levels of facility development, visitor services and social encounters, restricted mechanized/motorized use, and periodic administrative presence.	
Information and Education	Provide outreach to local snowmobilers, dog mushers and skiers seeking a Middlecountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Middlecountry recreation opportunities, targeted outcome, and setting character. OHV area designation = LIMITED. Travel management plan will be completed within 5 years of the ROD. General: Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.79. Alternative E, Nome Creek, Recreation Management Zone 6

White Mountains SRMA - RMZ 6 - Nome Creek		
SRMA DESCRIPTION		
The focus this zone would be to provide opportunities for Frontcountry recreation experiences that are characterized by the opportunity to affiliate with other users in an area that is generally natural in appearance, yet contains developed recreation sites and is easily accessible for local families and groups via an improved road system.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Camping; Sightseeing; Berry picking; Hiking; Hunting; OHV use; Fishing **Secondary:** Gold panning; Snowmobiling; Dog mushing	**Primary:** Enjoying having easy access to natural landscapes; Enjoying the closeness of friends and family; Relishing group affiliation and togetherness **Secondary:** Escaping crowds; Experiencing adventure	**Personal:** Greater connection with nature; improved mental health **Community/Social:** Heightened awareness of natural world **Environmental:** Greater community ownership and stewardship of park, recreation, and natural resources **Economic:** Increased desirability as a place to live and retire
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for developed camping, sightseeing, berry picking, hiking, hunting, OHV use, and fishing. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, and by providing improved yet modest levels of facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to local campers, sightseers, berry pickers, hikers, hunters, OHV users and fishermen/women seeking a Frontcountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED. Travel management plan will be completed within 5 years of the ROD. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Table H.80. Alternative E, Wickersham-Blixt Cabin, Recreation Management Zone 7

White Mountains SRMA - RMZ 7 - Wickersham and Blixt Cabin		
SRMA DESCRIPTION		
The focus this zone would be to provide opportunities for Frontcountry recreation experiences that are characterized by uncomplicated recreation opportunities in an area that contains both developed and undeveloped recreation sites, but is easily accessible for users via an improved road system.		
SRMA OBJECTIVE		
Participants in visitor assessments report an average 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1= not at all realized and 5= totally realized)		
PRIMARY TARGETED OUTCOMES		
Activities	**Experiences**	**Benefits**
Primary: Hiking; Skiing; Berry picking **Secondary:** Camping; OHV use; Dog mushing	**Primary:** Enjoying having easy access to natural landscapes; Enjoying the closeness of friends and family; Exercising - achieving personal fitness	**Personal:** Greater connection with nature; improved mental health **Community/Social:** Heightened awareness of natural world **Environmental:** Greater community ownership and stewardship of park, recreation, and natural resources **Economic:** Increased desirability as a place to live and retire
Recreation Setting Character Description FRONTCOUNTRY (Table 2.5)		
IMPLEMENTATION FRAMEWORK DECISION		
Management	This zone would be managed to protect and enhance the qualities and characteristics that are found within a Frontcountry classification. The primary focus would be to manage for hiking, skiing and berry picking. Emphasis would be placed on providing Frontcountry recreation experiences by maintaining the partially modified landscape, and by providing improved yet modest levels of facility development and visitor services, a routine level of social encounters, restricted mechanized/motorized use, and routine administrative presence.	
Information and Education	Provide outreach to local hikers, skiers and berry pickers seeking a Frontcountry recreation experience. Establish a relationship with stakeholders to increase community ownership and stewardship of park, recreation and natural resources.	
Monitoring	Monitor and evaluate visitor satisfaction including niche decisions, targeted outcomes and setting character decisions based on Recreation Management Zone objectives and prescriptions.	
Administrative	Apply administrative actions as needed to create and maintain Frontcountry recreation opportunities, targeted outcomes and setting character. OHV area designation = LIMITED. Travel management plan will be completed within 5 years of the ROD. General Special Recreation Permits could be issued in conformance with BLM guidance. New restrictions and/or facilities could be developed for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.	

Appendix I. Fisheries and Aquatic Resources

I.1. Watershed Classification

Watersheds within the Eastern Interior Planning Area were categorized as either conservation or restoration watersheds. Within these two categories, BLM Alaska evaluated and prioritized watersheds based on ten factors developed by the fisheries program staff and based on fisheries science, BLM policy, and law. One of the key policy considerations is outlined in BLM Instruction Memorandum (IM) 2009-141, which outlines BLM's commitment to the National Fish Habitat Action Plan that established four goals:

1. Protect and maintain intact and healthy aquatic systems.
2. Prevent further degradation of fish habitats that have been adversely affected.
3. Reverse declines in the quality and quantity of aquatic habitats to improve the overall health of fish and other aquatic organisms.
4. Increase the quality and quantity of fish habitats that support a broad natural diversity of fish and other aquatic species.

This programmatic approach is consistent with the National Fish Habitat Action Plan goals and provides managers and the public with a clear understanding of fisheries resource values and their spatial arrangement within the planning area. Management emphasis remains long-term, recognizing that short-term impacts may be acceptable as long as they will have discountable or negligible effects on the condition indicators, and will not preclude the long-term improvement of fisheries habitat conditions. If watershed processes are to be restored over time, it is critical that management actions do not individually or cumulatively impact progress toward indicator attainment.

I.1.1. Watershed Categories

Within the planning area, approximately 1,178 sixth level Hydrologic Unit Code (HUC) Watersheds exist. Of these, approximately 520 contain BLM land. The watersheds were categorized into two primary categories; Conservation and Restoration. Approximately 158 watersheds contained only minor amounts of BLM land or no fisheries habitat, therefore these watersheds were excluded from consideration as conservation or restoration watersheds. The remaining 366 watersheds were categorized based on the following:

Conservation Watersheds

These watersheds have processes and functions that occur in a relatively undisturbed and natural landscape setting. Hydrologic function, such as sediment amounts and stream flow regimes resulting from disturbance, are within a natural range of frequency, duration, and intensity. Waters are meeting designated or existing beneficial uses. Land uses and human activities do not strongly influence aquatic and hydrologic functions, as indicated by low road density and few stream crossings. Based on these criteria, 347 watersheds were placed in this category.

Management strategies will emphasize natural disturbance regimes, recognizing that active management may be required to conserve physical and biological processes and patterns. For

example, road and trail maintenance to minimize erosion and the resulting sediment additions to nearby streams and waterbodies is essential within conservation watersheds.

Restoration Watersheds

These watersheds are those where biological and physical processes and functions do not reflect natural conditions because of past and long-term human caused land disturbances. The common effects of these disturbances are a long-term (decades) increase of sediment deposition in streams, loss of large woody debris recruitment to stream channels, and abnormal hydrologic patterns (water flows). Additive impacts from human disturbances and periodic natural events, such as large wildland fires, landslides, and floods, exacerbate abnormal watershed and biological conditions. Based on these criteria, 19 watersheds were placed in this category.

Active management will generally be required to restore the physical and biological function to their natural range of frequency, duration, and intensity. Identifying and assessing the impacts on habitat will allow managers to focus restoration efforts in the most effective manner to achieve hydrologic and biological recovery.

I.1.2. Priority Ranking Factors For Conservation And Restoration Watersheds

To identify the highest resource value aquatic habitats for conservation and restoration a priority ranking system was developed. Priority ranking for each conservation or restoration watershed was based on a variety of factors. Primary issues considered in ranking status were priority fish species presence (diversity), resource uses (subsistence and recreation), habitat conditions, and productivity. These ranking criteria and associated point system are outlined below.

Value	Definition	Score
Endangered Species Act Aquatic Resources	Federally listed aquatic species are present.	3 Points
Subsistence Fisheries Use Areas	Using the best available information, determine if areas within the watershed include fish subsistence harvest areas.	2 Points
BLM Aquatic Special Status Species (BLM SSS)	Using the best available information, determine if Aquatic (riparian obligate) BLM species of management concern, BLM Alaska sensitive species, or BLM Alaska watch species occur in the watershed.	2 Points
Essential Fish Habitat (EFH) Present or Directly Affected	Using the ADF&G Anadromous Catalog, GIS data, and/or professional knowledge, determine if anadromous species occur in the watershed.	2 Points* *1 point if stream mouth in close proximity to EFH
Fish Species Diversity	Based on reports and/or professional knowledge, determine the number of fish species occurring in the watershed.	1 Species = 1 Point 2-4 Species = 2 Points >5 Species = 3 Points
Watershed Productivity	Fish population or the level of spawning activity is comparatively low or high based on stream size.	1(low)-3(high) Points
Anadromous Species Present	Using the ADF&G Anadromous Catalog GIS data and/or professional knowledge, determine if anadromous species occur in the watershed.	1 Point
Important Recreational Fisheries	Using the best available information, determine if areas within the watershed include important recreational fisheries.	1 Point

Value	Definition	Score
Intact/Reference Watershed	Is the watershed unaffected by historic or current land use practices?	1 Point
High Value Habitat Type (spawning/overwintering)	Based on reports and/or professional knowledge, determine if high-value habitats occur in the watershed.	1 Point

Following the evaluation of the 363 sixth level HUC watersheds, the numeric scores were totaled. The highest scoring watersheds were reviewed by fisheries staff and recommended for consideration as either Riparian Conservation Areas or High Priority Restoration Watersheds.

Riparian Conservation Areas

Riparian Conservation Areas or RCAs are specific conservation watersheds that contain the highest fisheries and riparian resource values within the planning area. In these watersheds, riparian-dependent resources receive primary emphasis and management activities are subject to specific required operating procedures (Appendix A). These areas are designed to be managed using a variety of techniques which may be essential to achieving or maintaining desired riparian and aquatic conditions.

Based on the themes of the alternatives and analysis of the dataset, watershed scores were identified that would dictate the number of proposed RCAs in each alternative. Alternative B and E would have the highest number of RCAs, including all conservation watersheds scoring five or more total points. Alternative C would have a moderate number of RCAs, including all watersheds scoring eight or more total points. Alternative D would have the least number of RCAs, including only those watersheds that scored 11 or more total points. Conservation Watersheds scoring five or more points are listed in the table below and displayed on Maps 6, 8, and 11.

HUC No.	Name of 12th level HUC	Ranking Factors										Sum
		Anadro-mous	BLM SSS	Subsis-tence	Recre-ation	In-tact	Wtrshd Product	EFH	ESA	High Value	Diver-sity	
FORTYMILE SUBUNIT												
190401040306	Buck Creek-North Fork Fortymile River	0	0	0	1	1	1	0	0	0	3	6
190401040308	North Fork Fortymile River	0	0	0	1	1	1	0	0	0	3	6
190401040701	Middle Fork North Fork Fortymile River	0	0	0	1	1	1	0	0	0	3	6
190401040803	The Kink-North Fork Fortymile River	0	0	0	1	1	1	0	0	0	3	6
190401040806	Hilda Creek-North Fork Fortymile River	0	0	0	1	1	1	0	0	0	3	6
190401041305	Moose Creek-Mosquito Fork	0	0	0	1	1	2	0	0	0	2	6
190401041308	Outlet Mosquito Fork	0	0	0	1	1	1	0	0	0	3	6
190401042006	South Fork Fortymile River	0	0	0	1	1	1	0	0	0	2	5
190401042201	Fortymile River	0	0	0	1	1	2	0	0	0	3	7
190404010105	Seward Creek-Mission Creek	1	0	0	0	1	0	2	0	1	2	7
190405030602	Tower Bluffs Rapids	1	0	0	0	1	3	2	0	1	3	11
STEESE SUBUNIT												
190404020207	Birch Creek	1	0	0	1	1	3	2	0	1	3	12
190404020212	Birch Creek	1	0	0	1	1	3	2	0	1	3	12
190404020401	McLean Creek-Birch Creek	1	0	0	1	1	3	2	0	1	3	12
190404020403	Thomas Creek-Birch Creek	1	0	0	1	1	3	2	0	1	3	12
190404020407	Sheep Creek	1	0	0	0	1	0	2	0	1	2	7
190404020408	Pitkas Bar	1	0	0	1	1	3	2	0	1	3	12
190404020506	Puzzle Gulch	1	0	0	0	1	0	1	0	0	2	5
190404020601	Birch Creek	1	0	0	1	1	3	2	0	1	3	12
190404020606	Birch Creek	1	0	0	1	1	3	2	0	1	3	12
190404020903	George Creek-Birch Creek	1	0	0	1	1	3	2	0	1	3	12
190404021005	Preacher Creek	1	0	0	0	1	2	2	0	1	3	10
190404021009	Ninetyeight Pup-Preacher Creek	1	0	0	0	1	2	2	0	1	3	10
190404021102	Headwaters North Fork Preacher Creek	1	0	0	0	1	1	2	0	1	2	8
190404021103	Upper North Fork Preacher Creek	1	0	0	0	1	1	2	0	1	2	8
190404021104	Middle North Fork Preacher Creek	1	0	0	0	1	2	2	0	1	3	10

HUC No.	Name of 12th level HUC	Ranking Factors										Sum
		Anadro-mous	BLM SSS	Subsis-tence	Recre-ation	In-tact	Wtrshd Product	EFH	ESA	High Value	Diver-sity	
190404021105	Lower North Fork Preacher Creek	1	0	0	0	1	2	2	0	1	3	10
190404021201	Loper Creek	0	0	0	0	1	2	1	0	0	2	6
190404021202	Middle Preacher Creek	1	0	0	0	1	2	2	0	1	3	10
STEESE AND UPPER BLACK RIVER SUBUNITS												
190404011903	Yukon River	1	0	2	0	1	0	2	0	1	3	10
190404011904	Yukon River	1	0	1	0	1	0	2	0	1	3	9
190404011906	Fourteenmile Creek-Yukon River	1	0	2	0	1	0	2	0	1	3	10
UPPER BLACK RIVER SUBUNIT												
190402040404	Bear Mountain Creek	0	0	0	0	1	1	0	0	0	3	5
190402040502	Grayling Fork Black River	0	0	0	0	1	1	0	0	0	3	5
190402040504	Grayling Fork Black River	0	0	0	0	1	1	0	0	0	3	5
190402040701	Grayling Fork Black River	0	0	0	0	1	1	0	0	0	3	5
190402040702	unnamed Tributary-Upper Black River	0	0	0	0	1	1	0	0	0	3	5
190402040703	unnamed Tributary-Upper Black River	0	0	0	0	1	1	0	0	0	3	5
190402040704	unnamed Tributary-Upper Black River	0	0	0	0	1	1	0	0	0	3	5
190402040705	Grayling Fork Black River	0	0	0	0	1	1	0	0	0	3	5
190402040802	Black River	0	0	0	0	1	2	0	0	0	3	6
190402040804	Big Duck Lake-Black River	0	0	0	0	1	1	0	0	0	3	5
190402041005	Outlet Runt Creek	1	0	2	0	1	0	1	0	0	2	7
190402041105	Salmon Fork Black	1	0	0	0	1	3	2	0	1	3	11
190402041107	Salmon Fork Black	1	0	2	0	1	3	2	0	1	3	13
190402041207	Tetthajik Creek	1	0	0	0	1	2	2	0	0	2	8
190402041309	Lower Kevinjik Creek	1	0	0	0	1	1	2	0	1	2	8
190402041403	Salmon Fork Black River	1	0	2	0	1	3	2	0	1	3	13
190402060105	Headwaters Little Black River	0	0	0	0	1	1	0	0	0	3	5
190402060106	Little Black River	0	0	0	0	1	1	0	0	0	3	5
190402060109	Little Black River	0	0	0	0	1	1	0	0	0	3	5
190402060404	Little Black River	0	0	0	0	1	1	0	0	0	3	5
190404010901	unnamed Tributary-Kandik	1	0	0	0	1	1	2	0	1	2	8
190404010902	Headwaters Kandik River	1	0	0	0	1	3	2	0	1	3	11
190404010903	Big Sitdown Creek	1	0	0	0	1	1	2	0	1	2	8

HUC No.	Name of 12th level HUC	Ranking Factors										Sum
		Anadro-mous	BLM SSS	Subsis-tence	Recre-ation	In-tact	Wtrshd Product	EFH	ESA	High Value	Diver-sity	
190404010906	Indian Grave Creek	1	0	0	0	1	1	2	0	1	2	8
190404010908	Kandik River	1	0	0	0	1	3	2	0	1	3	11
WHITE MOUNTAINS SUBUNIT												
190404021803	Bear Creek	0	0	0	0	1	1	1	0	0	2	5
190404022003	Ophir Creek	1	0	0	0	1	1	2	0	1	2	8
190404022104	Beaver Creek	1	2	0	1	1	3	2	0	1	3	14
190404022109	Beaver Creek	1	2	0	1	1	3	2	0	1	3	14
190404022202	South Beaver Creek	1	2	0	1	1	3	2	0	1	3	14
190404022206	Montana Creek-South Beaver Creek	1	2	0	1	1	3	2	0	1	3	14
190404022207	South Beaver Creek	1	2	0	1	1	3	2	0	1	3	14
190404022208	Beaver Creek	1	2	0	1	1	3	2	0	1	3	14
190404022301	Headwaters Victoria Creek	1	0	0	0	1	2	2	0	1	3	10
190404022303	Victoria Creek	1	0	0	0	1	2	2	0	1	3	10
190404022304	Deadwood Creek-Victoria Creek	1	0	0	0	1	2	2	0	1	3	10
190404022305	Outlet Victoria Creek	1	0	0	0	1	2	2	0	1	3	10
190404022406	Victoria Mountain-Beaver Creek	1	2	0	1	1	3	2	0	1	3	14
190404022408	Yellow Creek-Beaver Creek	1	2	0	1	1	3	2	0	1	3	14

High Priority Restoration Watersheds

To determine the High Priority Restoration Watersheds, the same process utilized for identification of RCAs was employed. Based on the limited number of restoration watersheds and the resource values, it was determined that watersheds scoring greater than five points would be considered High Priority Restoration Watersheds across all alternatives. These watersheds are priority areas for active restoration practices. In these areas, management activities will be designed to accelerate the development of self-sustaining, ecologically healthy riparian and aquatic ecosystems. Restoration watersheds scoring five or more points are listed in the table below and displayed on Maps 6–10.

Huc No.	12th Level HUC Name	Ranking Factors										Score
		Anadro-mous	BLM SSS	Sub-sis-tence	Recre-ation	Intact	Wtr-shd Prod-uct	EFH	ESA	High Value	Diver-sity	
FORTYMILE SUBUNIT												
190401042207	Sam Patch Creek-Fortymile River	0	0	0	1	0	1	0	0	0	3	5
190401042203	Steele Creek-Fortymile River	0	0	0	1	0	1	0	0	0	3	5
STEESE SUBUNIT												
190404020206	North Fork Birch Creek	1	0	0	1	0	0	2	0	0	3	6
190404020406	Harrison Creek	1	0	0	0	0	0	2	0	0	3	5
190404020205	Twelve-mile Creek	1	0	0		0	0	2	0	0	3	6
190404020306	Volcano Creek-Clums Fork	0	0	0	0	0	1	1	0	0	3	5
WHITE MOUNTAINS SUBUNIT												
190404022004	Sumner Creek-Nome Creek	1	0	0	1	0	2	2	0	1	2	9

Remaining Restoration Watersheds

Using the same ranking process, the remaining restoration watersheds scored less than five points. Restoration watersheds scoring less than five points are listed in the table below.

Huc No.	12th Level HUC Name	Ranking Factors										Score
		Anadro-mous	BLM SSS	Sub-sis-tence	Recre-ation	Intact	Wtr-shd Prod-uct	EFH	ESA	High Value	Diver-sity	
FORTYMILE SUBUNIT												
190401042206	Smith Creek	0	0	0	0	0	1	0	0	0	2	3
190401042202	Polly Creek	0	0	0	0	0	1	0	0	0	2	3
190401042107	O'Brien Creek	0	0	0	0	0	1	0	0	0	2	3
190401042003	Fortyfive Pup	0	0	0	0	0	0	0	0	0	2	2
190401042005	Uhler Creek	0	0	0	0	0	1	0	0	0	2	3
190401041908	Wade Creek	0	0	0	0	0	1	0	0	0	2	3
190401041308	Outlet Mosquito Fork	0	0	0	1	0	1	0	0	0	2	4
STEESE SUBUNIT												
190404020208	Fryingpan Creek	0	0	0	0	0	1	1	0	0	2	4
190404020404	South Fork Harrison Creek	0	0	0	0	0	1	0	0	0	2	3
190404020405	North Fork Harrison Creek	0	0	0	0	0	1	0	0	0	2	3
190404021003	Bachelor Creek	0	0	0	0	0	1	0	0	0	2	3
190404020302	Lawson Creek	0	0	0	0	0	0	0	0	0	2	2

I.2. Monitoring and Adaptive Management

I.2.1. Monitoring and Evaluation of the RMP

BLM planning regulations require the monitoring and evaluation of Resource Management Plans (RMPs) at appropriate intervals. After approval of the RMP and signing of the Record of Decision, an implementation schedule will be completed and will incorporate monitoring plans. Monitoring data will be used to assess resource conditions, identify resource issues and conflicts, determine if resource objectives are met, determine trends for achievement of desired conditions, and periodically refine and update desired conditions and management strategy.

Monitoring is an essential component of natural resource management because it provides information on the relative success of management strategies. The implementation of the RMP will be monitored to ensure that management actions follow prescribed management direction (implementation monitoring), meet desired objectives (effectiveness monitoring) and are based on accurate assumptions (validation monitoring).

Monitoring will be coordinated with other appropriate agencies and organizations to enhance the efficiency and usefulness of the results across a variety of administrative units. The approach will build on past and present monitoring work. In addition, specific monitoring protocols, criteria, goals, and reporting formats will be developed.

I.2.2. Adaptive Management

Adaptive management requires knowledge of the current conditions; potential or capability of riparian sites and streams; current management and effects of the management on the resources; and management changes that may be made to move the current condition toward the desired condition. Single indicators of conditions or trend are usually not adequate to make informed decisions. Information on the condition and trend of the vegetation, stream banks, aquatic resources, and knowledge of current management practices can help establish "cause-and-effect" relationships that are important to make appropriate decisions. Such information allows refinement and development of more realistic, locally-derived project or activity design, standards, or criteria.

Monitoring is an integral component of many management approaches, such as adaptive management and ecosystem management. Adaptive management is based on monitoring that is sufficiently sensitive to detect relevant ecological changes. In addition, the success of adaptive management depends on the accuracy and credibility of information obtained through inventories and monitoring. Close coordination and interaction between monitoring and research are important for the adaptive management process to succeed. Data obtained through systematic and statistically valid monitoring can be used by scientists to develop research hypotheses related to priority issues. Conversely, the results obtained through research can be used to further refine the protocols and strategies used to monitor and evaluate the effectiveness of RMP implementation.

Monitoring results will provide managers with the information to determine whether an objective has been met, and whether to continue or modify the management direction. Findings obtained through monitoring, together with research and other new information will provide a basis for adaptive management changes to the plan. The monitoring process and adaptive management share the goal of improving effectiveness and permitting response to increased knowledge and a

changing landscape. The monitoring program will not remain static. The monitoring plan will be periodically evaluated to ascertain that the monitoring questions and standards are still relevant, and will be adjusted as appropriate. Some monitoring items may be discontinued and others may be added as knowledge and issues change.

I.2.3. Implementation and Effectiveness Monitoring

The basics of RMP level monitoring will (1) determine if the plan, project, or activities are implemented correctly and are achieving desired results, (2) provide a mechanism for accountability and oversight, (3) evaluate the effectiveness of recovery and restoration efforts, and (4) provide a feedback loop (adaptive management) so that management direction may be evaluated and modified. Management considerations for monitoring include the following:

- Focus monitoring on key questions that inform decision-making and allow adjustments to management.
- Monitoring emphasis and intensity should be commensurate with the importance of the question asked. For example, if adaptive decision-making is used, it will be important to monitor the key parameters to the degree necessary to support the current course of action or to trigger an alternate approach.
- Plan level monitoring should make use of, and not duplicate, broad-scale monitoring programs. To the extent practicable, monitoring done at the plan scale should be compatible with, and complementary to, broader and finer scale monitoring.
- Monitoring should be coordinated with, and where possible consolidated with, similar efforts of other agencies.
- Outcome-based management approaches rely on monitoring for their success. These approaches typically require a different level and type of monitoring than prescriptive approaches.
- Monitoring commitments in plans should be feasible and achievable.

Monitoring is a process of gathering information through observation and measurement to ensure that project design criteria and mitigation are implemented and to determine if goals and objectives are achieved. The two types of monitoring identified are implementation and effectiveness. Specifics of these types of monitoring are:

- Implementation monitoring is used to determine if management practices are implemented as identified in an activity plan, environmental assessment, environmental impact statement, Biological Assessment, or Biological Opinion.
- Effectiveness monitoring is used to determine if management practices, as designed and executed, are effective in meeting project goals and objectives as defined in an activity plan, environmental assessment, EIS, Biological Assessment, or Biological Opinion.

The results of monitoring will be summarized and shared, as requested, with state and federal agencies, Native groups, and other members of the public.

The design criteria and mitigation would be monitored on a specific action or sub-sample of activity or project. Agency representatives overseeing the actions would do the monitoring, as well as an interdisciplinary or multiparty team, through a combination of any of the following methods:

- Review environmental assessment, Biological Assessment, and Biological Opinion identified project specifications and terms and conditions to ensure that monitoring is provided for in contract or plans of operation (project design and mitigation criteria).

- Review project designs and plans of operation; review contract administration reports (daily diaries).
- Review activities on the ground before, during, and after implementation.

Where appropriate, photograph conditions before the project begins, during implementation, and after completion.

The Eastern Interior Field Office implementation and effectiveness monitoring strategy will include the use of databases and reporting mechanisms. Monitoring protocols will be in accord with appropriate BLM Technical Bulletins or other acceptable monitoring methods which would address the Desired Conditions and Habitat Metrics included in the Matrix of Pathways. Acceptable monitoring methods would be adaptive and include protocols that have been generally approved and accepted by state, federal, and other groups to document existing desired conditions.

I.3. Watershed Conditions Matrix and Effects Checklist

I.3.1. Watershed Condition Matrix

This watershed assessment matrix is adapted from the National Marine Fisheries Service (NMFS 1996) and is linked to the desired future condition for aquatic habitats. This matrix should be used during watershed assessments to determine existing watershed Condition Ratings. The three Condition Rating classes are 1) High, 2) Moderate, and 3) Low. The order of the pathways begins with the overall watershed scale indicators at the top and then focuses down through the channel conditions, and finally specific habitat elements.

The purpose of the watershed assessment matrix is to provide a rating for baseline conditions, these may be modified with new information or science which is applicable to conditions occurring in the planning area. This matrix may be updated, modified, or replaced with another watershed assessment tool if new science or new area/watershed resource data indicates changes are needed. For example, the BLM Assessment, Inventory, and Monitoring (AIM) program is currently developing predictive models based on data collected across BLM lands in Alaska using a probabilistic sample design. These models will allow the comparison of data from impacted stream segments or watersheds to what would be expected based on natural variability within a pristine watershed. This information will significantly improve the watershed assessment matrix, which depicts he range of desired conditions in a watershed and is shown in Table I.1, "Watershed Assessment Matrix".

Table I.1. Watershed Assessment Matrix

Pathway	Metric		High Condition	Moderate Condition	Low Condition
Watershed	Watershed Road/Track Density		<1 mile per square mile	1-3 mile per square mile	>3 miles per square mile
	Streamside Road/Track Density		<1 mile per square mile	1-2 mile per square mile	>2 mile per square mile
	Riparian Vegetation Condition		Percent of riparian vegetation in the greenline dominated by late seral community types or anchored rocks/logs is >80% . The riparian vegetation provides adequate shade, large wood debris recruitment, and connectivity.	Percent of riparian vegetation in the greenline dominated by late seral community types or anchored rocks/logs is 50-79%. The riparian vegetation provides adequate shade, large wood debris recruitment, and connectivity.	Percent of riparian vegetation in the greenline dominated by late seral community types or anchored rocks/logs is <50%. The riparian vegetation provides adequate shade, large wood debris recruitment, and connectivity.
Habitat Elements	Spawning Gravel		Surficial fine sediment (< 0.06 mm) is <5%.	Surficial fine sediment (< 0.06 mm) is 5–10%.	Surficial fine sediment (< 0.06 mm) is >10%.
	Large Woody Debris (LWD)		Near-natural levels of acting and potential large wood debris	Acting levels of large wood debris are near-natural, potential levels are below near-natural, or vice versa.	Both acting and potential levels of large wood debris are below near-natural levels.
	Pool Frequency		Meets pool frequency occurrence	Meets pool frequency standards but large woody debris recruitment or other pool-creating factors are inadequate to maintain pools over time.	Does not meet pool frequency standards.
	Channel Width (ft)	# pools/mile			
	<=5	184			
	>5<=10	96			
	>10<=15	70			
	<15>=20	56			
	<20>=25	47			
	<25>=50	26			
	<50>=75	23			
	>75	18			
	Pool Quality (based on 2008 BLM MIM [a] methodology or equivalent)		Pool quality rating >80	Pool quality rating 60-80	Pool quality rating <60
	Refugium		Adequate habitat refugia exist within watershed (number, size, condition, species requirements, and connectivity).	Limited habitat refugia exist within watershed (number, size, condition, species requirements, and connectivity).	Inadequate habitat refugia exist within watershed (number, size, condition, species requirements, and connectivity).
	Percent Surface Fines (< 6 mm)		A and B Rosgen Channel Types (RCTs) <=10% C and E RCTs <= 20%	A and B RCTs = 11-20% C and E CT's = 21-30%	A and B RCTs > = 21% C and E RCTs > = 31%

Pathway	Metric	High Condition	Moderate Condition	Low Condition
Channel Condition and Dynamics	Width to Depth (W/D) Ratio	A RCTs <10 B RCTs <20 C RCTs <40 E RCTs <7 F RCTs <35 G RCTs <9	A RCTs <10-12 B RCTs <20-35 C RCTs <40-60 E RCTs <7-9 F RCTs <35-70 G RCTs <9-11	A RCTs >12 B RCTs >35 C RCTs >60 E RCTs >9 F RCTs >70 G RCTs >11
	Streambank Stability	A and B RCTs >95% C RCTs >90% E RCTs = 100%	A and B RCTs 90-95% C RCTs 80-90% E RCTs 95-100%	A and B RCTs <90% C RCTs <80% E RCTs <95%
	Floodplain Connectivity	Off-channel areas are seasonally hydrologically linked to main channel; overbank flows occur in the frequency and magnitude expected for the valley bottom or channel type setting.	Reduced linkage of wetland, floodplains and riparian areas to main channel; overbank flows are reduced or increased relative to historic frequency, as evidenced by moderated aggradation or degradation.	Severe reduction of increase in overbank flows occur relative to the frequency and magnitude expected for the valley bottom or channel type setting; wetland area drastically reduced and riparian vegetation/succession altered significantly.
Water Quality	State Standards (Turbidity, Temperature, etc.,)			
Habitat Access	Physical barriers – adults	Any human-made barriers present in watershed allow full upstream and downstream fish passage at all flow (no barrier).	Any human-made barriers present in watershed are a partial barrier to upstream or downstream fish passage.	Any human-made barriers present in watershed are a full barrier to upstream or downstream fish passage at all flows.
	Physical barriers- juveniles	Any human-made barriers present in watershed allow full upstream and downstream fish passage at all flow (no barrier).	Any human-made barriers present in watershed are a partial barrier to upstream or downstream fish passage.	Any human-made barriers present in watershed are a full barrier to upstream or downstream fish passage at all flows.

[a]Multiple Indicator Monitoring

I.3.2. Environmental Baseline and Effects Checklist

In concert with the results of the baseline habitat assessment for a given watershed, the following checklist (Table I.2, "Checklist for Documenting Environmental Baseline and Effects of Action(s) on Relevant Indicators") should be used to determine the effects of site-specific actions on aquatic habitats. These indicators are a suite of metrics that collectively influence aquatic habitat quality and the health of cold-water fish populations. These indicators should not be used individually to determine if a given action should or should not be authorized. This checklist is a decision support tool to aid biologists with impact analysis and the associated identification of appropriate mitigation measures. For some metrics data may not be available, for other metrics extensive information may exist. A summary rationale associated with each indicator baseline rating and the effect determination should be attached to the completed checklist.

The Environmental baseline consists of ratings of High, Moderate, or Low condition.

For the purposes of this checklist, the following definitions apply:

- "Restore" means to change the function of the indicator for the better, or that the restoration rate is increased.
- "Maintain" means that the function of an indicator will not be degraded and the natural rate of restoration for this indicator will not be impaired.
- "Degrade" means to change the function of the indicator for the worse, or that the natural rate of restoration will be impaired.

Table I.2. Checklist for Documenting Environmental Baseline and Effects of Action(s) on Relevant Indicators

Pathways	Environmental Baseline			Effects of the Action(s)		
Indicator	High Condition	Moderate Condition	Low Condition	Restore	Maintain	Degrade
Watershed Conditions						
Watershed Road/Track Density						
Streamside Road/Track Density						
Riparian Vegetation Condition						
Channel Conditions						
Width to Depth (W/D) Ratio						
Stream bank Stability						
Floodplain Connectivity						
Water Quality						
Temperature						
Turbidity						
Habitat Access						
Physical barriers – adults						
Physical barriers- juveniles						
Habitat Elements						
Cobble Embeddedness						
Large Woody Debris (LWD)						
Pool Frequency						
Pool Quality						
Refugium						
Percent Surface Fines						

I.4. Future Watershed Adjustments

Future identification of aquatic species as Special Status (e.g., federally listed under the Endangered Species Act, BLM Sensitive) in the planning area would result in an evaluation of specific watersheds utilized by the species or considered necessary for recovery to determine if additional RCAs are appropriate. Currently, no watersheds within the planning area are considered to be necessary for the recovery of special status aquatic species. Therefore no RCAs were identified based on the presence of Special Status Aquatic Species.

The intent of this approach to adding future RCAs is to provide high quality habitat for rare species and support expansion and recolonization of these species to adjacent watersheds. These areas should conserve key processes likely to influence the persistence of populations or metapopulations. Additions to, deletions from, or modifications of, Special Status Aquatic Species RCA watersheds would be based on new information, revisions to the BLM Alaska Sensitive Species List, or as species are listed under the Endangered Species Act. In general, these additions would be accomplished through the development of activity plans, such as Fisheries Habitat Management Plans, which would outline management goals and objectives. As with other RCAs, management activities would emphasize achieving or maintaining the riparian and aquatic values, including key processes, for which they are managed.

I.5. Watershed Assessment Process

The purpose of a watershed assessment is to develop and document an understanding of the ecological structures, functions, processes, and interactions occurring at the watershed scale (5th-6th HUC unit). This process is designed to describe past and current conditions, and develop restoration or management recommendations. The ultimate goal is to provide guidance for management actions that would sustain or improve the health and productivity of natural resources.

Objectives of Watershed Analysis

1. Evaluate cumulative watershed effects – watershed analysis enhances the ability to estimate direct, indirect, and cumulative effects of management activities.
2. Define watershed restoration needs, goals and objectives (if needed) – provide guidance on the general type, location, and sequence of appropriate activities within a watershed.
3. Monitor the effectiveness of watershed protection measures – process for adaptive management feedback loop.
4. Provide sufficient watershed context for understanding and carrying out land use activities with a geomorphic context – important tool used in meeting ecosystem management objectives.

Appropriate Methodology

The Federal Guide for Watershed Analysis—Ecosystem Analysis at the Watershed Scale Version 2.3 (Forest Service 1996) was used as a general guide to develop a framework for conducting watershed assessments; however, other processes can be utilized or developed to satisfy the objectives outlined above. For example, a more rapid watershed assessment process emphasizing remote sensing data analysis coupled with stream survey data (e.g., riparian condition, stream habitat, water quality, fish species diversity) may optimize assessment efficiency and identify areas requiring more field intensive inventories.

The following six-step process is not issue-driven but focuses on analysis topics, along with specific watershed problems and concerns. This analysis is not a decision making process but will help identify opportunities for future management actions, including planning, project development, and regulatory compliance. Below is a summary the six steps taken to develop an ecosystem analysis at the watershed scale.

Step 1 Characterization of the Watershed: Identify the dominant physical, biological, and human processes or features of the watershed that affect ecosystem functions or conditions, including the relationship between these ecosystem elements and those occurring in the river basin and/or watersheds. When characterizing the watershed, team members identify the most important land allocations, plan objectives, and regulatory constraints that influence resource management in the watershed.

Step 2 Identification of Issues and Key Questions: Focus the analysis on the key elements of the ecosystem that are most relevant to the management questions and objectives, human values, or resource conditions within the area.

Step 3 Description of Current Conditions: Develop more detailed information relevant to the issues and key questions identified in Step 2. Step 3 is where the current range, distribution, and condition of the relevant ecosystem elements are documented.

Step 4 Description of Reference Conditions: Explain how ecological conditions have changed over time as a result of human influence and natural disturbances. A reference is developed for later comparison with current conditions over the period that the system evolved and with key management plan objectives.

Step 5 Synthesis and Interpretation of Information: Compare existing and reference conditions of specific ecosystem elements and to explain significant differences, similarities, or trends and their causes. The capability of the system to achieve key management plan objectives is also evaluated.

Step 6 Recommendations: Identify management recommendations that address resource problems noted in this analysis and then to change the current watershed conditions toward the desired future condition for this area. Recommendations, monitoring needs, and data gaps are identified and described. These are recommendations based on the data currently available. This is an ongoing process and alternative or additional recommendations may be made in the future.

I.6. Recommended Conservation Measures for Essential Fish Habitat

The following are recommended conservation measures for Essential Fish Habitat (EFH). These are based on *The Final Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska, Appendix G - Non-fishing Impacts to Essential Fish Habitat and Recommended Conservation Measures* (NMFS 2005).

Roads and Road Maintenance

The following conservation measures for road building and maintenance should be viewed as options to avoid and minimize adverse impacts and promote the conservation, enhancement, and proper functioning of EFH.

1. To the extent practicable, avoid locating roads near fish-bearing streams. Roads should be sited to avoid sensitive areas such as streams, wetlands, and steep slopes.
2. Incorporate appropriate erosion control and stabilization measures into road construction plans to reduce erosion potential.
3. Build bridges when possible. If culverts are used, they should be sized, constructed, and maintained to match the gradient and width of the stream, to accommodate design flood flows, and they should be large enough to provide for migratory passage of adult and juvenile fishes. If appropriate, consider using the culvert guidelines contained in the Alaska Department of Fish and Game and the Alaska Department of Transportation and Public Facilities Fish Pass Memorandum of Agreement, August 2001 online at http://www.sf.adg.state.ak.us/SARR/fishpassage/pdfs/dot_adfg_fishpass080301.pdf.
4. Locate stream crossings in stable stream reaches.
5. Design bridge abutments to minimize disturbances to stream banks and place abutments outside of the floodplain whenever possible.
6. To the extent practicable, avoid road construction across alluvial floodplains, mass wastage areas, or braided stream bottom lands unless site-specific protection can be implemented to ensure protection of soils, water, and associated resources.
7. Avoid side-casting of road construction and maintenance materials on native surfaces and into streams.
8. To the extent practicable, use native vegetation in stabilization

Mineral Mining

The following measures are adapted from recommendations in Spence et al. (1996), NMFS (2004), and Washington Department of Fish and Wildlife (1998). They should be viewed as options to avoid and minimize impacts and promote the conservation, enhancement, and proper functioning of EFH.

1. To the extent practicable, avoid mineral mining in waters, riparian areas, and floodplains containing EFH.
2. Schedule necessary in-water activities when the fewest species and least vulnerable life stages of federally managed species will be present.
3. Use an integrated environmental assessment, management, and monitoring package in accordance with state and federal law and regulations. Allow for adaptive operations to minimize adverse effects on EFH.
4. Minimize spillage of dirt, fuel, oil, toxic materials, and other contaminants into EFH. Prepare a spill prevention plan if appropriate.
5. Treat wastewater (acid neutralization, sulfide precipitation, reverse osmosis, electrochemical, or biological treatments) and recycle on site to minimize discharge to streams. Test wastewater before discharge for compliance with federal and state clean water standards.
6. Minimize opportunities for sediments to enter or affect EFH. Use methods such as contouring, mulching, and construction of settling ponds to control sediment transport. Monitor turbidity during operations, and cease operations if turbidity exceeds predetermined threshold levels. Use methods such as turbidity/sediment curtains to limit the spread of suspended sediments and minimize the area affected.
7. If possible, reclaim rather than bury, mine wastes that contains heavy metals, acid materials, or other toxic compounds, if leachate can enter EFH through groundwater.
8. Restore natural contours and plant native vegetation on-site after use to restore habitat function to the extent practicable. Monitor the site for an appropriate time to evaluate performance and implement corrective measures if necessary.

9. Minimize the aerial extent of ground disturbance (e.g., through phasing of operations), and stabilize disturbed lands to reduce erosion.

Sand and Gravel Mining

Individual gravel extraction operations should be judged in the context of their spatial, temporal, and cumulative impacts. Potential impacts to habitat should be viewed from a watershed management perspective. The following recommended conservation measures for sand and gravel mining are adapted from NMFS (2004) and Oregon Water Resource Research Institute (1995). They should be viewed as options to avoid and minimize impacts and promote the conservation, enhancement, and proper functioning of EFH.

1. To the extent practicable, avoid sand and gravel mining in waters containing EFH. Many factors influence site selection for a gravel or sand mining site. Because of the need to incorporate technical, economic, and environmental factors, siting decisions should be considered on a case-by-case basis (U.S. Fish and Wildlife Service 1980).
2. Identify upland or off-channel (where the channel will not be captured) gravel extraction sites as alternatives to gravel mining in or adjacent to EFH, if possible.
3. Design, manage, and monitor sand and gravel mining operations to minimize potential direct and indirect impacts to EFH, if operations in EFH cannot be avoided. This includes, but is not limited to, migratory corridors, foraging and spawning areas, stream/river banks, and intertidal areas.
4. Minimize the areal extent and depth of extraction.
5. Include restoration, mitigation, and monitoring plans, as appropriate in sand/gravel extraction plans.

Oil/Gas Exploration/Development/Production

As part of pre-project planning, identify all species of concern regulated under federal or state fishery management plans that inhabit, spawn, or migrate through areas slated for exploration, development, or production. Pay particular attention to critical life stages, and develop options that avoid and minimize adverse effects from any associated activities. Modify the project design, timing, or location and use adaptive management.

1. Avoid the discharge of produced waters into marine waters and estuaries. Reinject produced waters into the oil formation whenever possible.
2. Avoid discharge of muds and cuttings into the marine and estuarine environment. Use methods to grind and reinject such wastes down an approved injection well or use onshore disposal wherever possible. When not possible, provide for a monitoring plan to ensure that the discharge meets EPA effluent limitations and related requirements.
3. To the extent practicable, avoid the placement of fill to support construction of causeways or structures in the nearshore marine environment.
4. As required by federal and state regulatory agencies, encourage the use of geographic response strategies that identify EFH and environmentally sensitive areas. Identify appropriate cleanup methods and response equipment.
5. To the extent practicable, use methods to transport oil and gas that limit the need for handling in environmentally sensitive areas, including EFH.
6. Ensure that appropriate safeguards have been considered before drilling the first development well into the targeted hydrocarbon formations whenever critical life history stages of federally managed species are present.

7. Ensure that appropriate safeguards have been considered before drilling exploration wells into untested formations whenever critical life stages of federally managed species are present. If possible, avoid such work entirely during those time frames.
8. Oil and gas transportation and production facilities should be designed, constructed, and operated in accordance with applicable regulatory and engineering standards.
9. Evaluate impacts to EFH during the decommissioning phase of oil and gas facilities, including possible impacts during the demolition phase. Minimize such impacts to the extent practicable

Habitat Restoration/Enhancement

The following recommended conservation measures should be viewed as options to avoid and minimize adverse impacts and promote the conservation, enhancement, and proper functioning of EFH.

1. Use best management practices (BMPs) to minimize and avoid potential impacts to EFH during restoration activities. BMPs should include, but are not limited to, the following:
2. a. Use turbidity curtains, hay bales, and erosion mats to protect the water column.
   b. Plan staging areas in advance, and keep them to a minimum size.
   c. Establish buffer areas around sensitive resources; flag and avoid rare plants, archaeological sites, etc.
   d. Remove invasive plant and animal species from the proposed action area before starting work. Plant only native plant species. Identify and implement measures to ensure native vegetation or revegetation success.
   e. Establish temporary access pathways before restoration activities to minimize adverse impacts from project implementation.
3. Avoid restoration work during critical life stages for fish such as spawning, nursery, and migration. Determine these periods before project implementation to reduce or avoid any potential impacts.
4. Provide adequate training and education for volunteers and project contractors to ensure minimal impact to the restoration site. Train volunteers in the use of low-impact techniques for planting, equipment handling, and any other activities associated with the restoration.
5. Conduct monitoring before, during, and after project implementation to ensure compliance with project design and restoration criteria. If immediate post-construction monitoring reveals that unavoidable impacts to EFH have occurred, ensure that appropriate coordination with NMFS occurs to determine appropriate response measures, possibly including mitigation.
6. To the extent practicable, mitigate any unavoidable damage to EFH within a reasonable time after the impacts occur.
7. Remove and, if necessary, restore any temporary access pathways and staging areas used in the restoration effort.

Appendix J. ANILCA Section 810 Analysis

On February 29, 2008, the BLM issued a Notice of Intent to prepare a Resource Management Plan (RMP) and an associated Environmental Impact Statement (EIS) for public lands within the planning area (Map 1). As defined by the Federal Land Policy and Management Act (FLPMA), "public lands" are those federally managed lands and interests in lands (such as federal mineral estate) that are administered by the Secretary of the Interior through the BLM. In this case, public lands also include lands selected, but not yet conveyed, to the State of Alaska and Native corporations and villages.

Current management of these lands is guided by the Steese RMP (1986a), Birch Creek River Management Plan (1983b), White Mountains RMP (1986b), Beaver Creek River Management Plan (1983c), Fortymile Management Framework Plan (BLM 1980) and Fortymile River Management Plan (BLM 1983a). Since approval of these plans, new regulations and policies have created additional considerations that affect the management of public lands and new issues and concerns have arisen. Some of the decisions in the RMPs and MFP are no longer valid or have been superseded by requirements that did not exist when those plans were prepared.

BLM lands in the Upper Black River Subunit are not covered by an existing plan. Through the completion of the Eastern Interior RMP/EIS the BLM proposes to develop a comprehensive land use plan that will guide the management of the public lands and interests administered by the Fairbanks District Office through the next 20 years.

J.1. Subsistence Evaluation Factors

Section 810(a) of the Alaska National Interest Lands Conservation Act (ANILCA) requires that an evaluation of the effects on subsistence uses and needs be completed for any federal determination to "withdraw, reserve, lease, or otherwise permit the use, occupancy or disposition of public lands." As such, an evaluation of potential impacts to subsistence under ANILCA Section 810(a) must be completed for the Eastern Interior RMP/EIS. ANILCA requires that this evaluation include findings on three specific issues: 1) The effect of use, occupancy, or disposition on subsistence uses and needs; 2) The availability of other lands for the purpose sought to be achieved; and 3) Other alternatives that would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes (16 USC Section 3120).

The evaluation and findings required by the ANILCA Sec. 810 are developed by planning subunit for each of the four alternatives considered in the Eastern Interior RMP/EIS.

A finding that the proposed action may significantly restrict subsistence uses imposes additional requirements. These include provisions for notices to the State of Alaska and appropriate regional councils and local committees, notice of and a hearing in the vicinity of the area involved, and the making of the following determinations, as Section 810(a)(3) requires that: 1) Such a significant restriction of subsistence uses is necessary and consistent with sound management principles for utilization of the public lands; 2) The proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of use, occupancy, or other disposition; and, 3) Reasonable steps will be taken to minimize adverse effects upon subsistence uses and resources resulting from such actions.

To determine if a significant restriction of subsistence uses and needs may result from any one of the alternatives discussed in the Resource Management Plans, including their cumulative effects,

the following three factors are considered: 1) The reduction in the availability of subsistence resources caused by a decline in the population or amount of harvestable resources; 2) reductions in the availability of resources used for subsistence purposes caused by alteration of their normal location and distribution patterns; and, 3) limitations on access to subsistence resources. For the purpose of an ANILCA Section 810 evaluation and finding, evaluation of limitations on access to resources by subsistence users focuses on physical and legal barriers and does not include competition from other resource users.

A significant restriction to subsistence may occur in at least two instances: 1) When an action substantially reduces populations or their availability to subsistence users; and, 2) when an action substantially limits access by subsistence users to resources. Chapter 3: Affected Environment of this Resource Management Plan provides information on areas and resources important for subsistence use, and the degree of dependence of affected villages or communities on different subsistence populations. Chapter 4 (Environmental Consequences) provides much of the data on potential impacts and limitations by subunit under each alternative, which was used to determine whether the action would cause a significant restriction to subsistence uses. The information contained in this Resource Management Plan is the primary data used in this analysis.

A subsistence evaluation and findings under ANILCA Section 810 must also include a Cumulative Impacts analysis. The following section begins with evaluations and findings by subunit for each of the four alternatives discussed in this Resource Management Plan. The cumulative case, as discussed in Chapter 4 (Environmental Consequences) of this RMP, is evaluated. This approach helps the reader separate the subsistence restrictions that potentially would result from activities proposed under the four alternatives, from those that would potentially be caused by past, present, and future activities that could occur, or have already occurred, in the surrounding area.

When analyzing the effects of the four alternatives, particular attention is paid to those communities, primarily local communities, which potentially may be most directly impacted by the proposed actions. These communities are within or adjacent to the planning area. The geographic scope of the cumulative case is generally the planning area. For this evaluation and finding, the geographic scope is expanded to include nearby lands outside the planning area to assess any impacts to subsistence that may result from negative effects to migratory subsistence species (for example Fortymile and Porcupine caribou and adjacent Canada).

In addition to ANILCA, Environmental Justice, as defined in Executive Order 12898, also calls for an analysis of the effects of federal actions on minority populations with regard to subsistence. Specifically, Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and Tribal programs and policies. Section 4-4 of Executive Order 12898, regarding the Subsistence Consumption of Fish and Wildlife, requires federal agencies to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. The Order also requires these agencies to communicate to the public any risks associated with the consumption patterns from activities that they are proposing. To this end, the description of subsistence use as presented in Chapter 3 (Existing Environment), as well as the subsistence analyses of the alternatives located in Chapter 4 (Environmental Consequences) of

this Resource Management Plan, were reviewed and found to comply with the Environmental Justice requirements of EO 12898.

J.2. ANILCA 810(a) Evaluations and Findings by Subunit

The following evaluations are based on information relating to the environmental and subsistence consequences by planning subunit (Map 1) of Alternatives A through E, and the cumulative impacts analysis as presented in Chapter 4 (Environmental Consequences) of the RMP/EIS. The Standard Operating Procedures (SOPs) and Fluid Mineral Leasing Stipulations (leasing stipulations) discussed in Appendix A of the RMP/EIS are also considered for the alternatives to which they apply. The evaluations and findings focus on potential impacts to the subsistence resources and uses and access to resources.

The action alternatives, and the leasing stipulations and SOPs accompanying them, take into consideration all comments and concerns generated during the scoping process for the plan.

J.2.1. Evaluation and Finding for Fortymile Subunit

J.2.1.1. Fortymile Alternative A

Selection of Alternative A would result in continued management of the Fortymile Subunit as specified in the 1980 Fortymile Management Framework Plan (MFP) and Fortymile River Management Plan (BLM 1983a). Valid decisions contained in the Fortymile MFP and River Management Plan would be implemented if not already completed. Direction contained in existing laws, regulation and policy would also continue to be implemented, sometimes superseding provisions in the plans. The current levels, methods and mix of multiple use management of public land in the planning area would continue, and resource values would receive attention at present levels. In general, most activities would be analyzed at the project level and few uses would be limited or excluded as long as they were consistent with state and federal laws. Alaska Native Claims Settlement Act (ANCSA) 17(d)(1) withdrawals would remain in place, prohibiting new mineral entry or mineral leasing on all BLM-managed lands. Wildland fire would be managed consistent with the Alaska Land Use Plan Amendment for Wildland Fire and Fuels Management (BLM 2004b, 2005c).

Evaluation of the Effects of Use, Occupancy, or Disposition

Under Alternative A, the primary impacts to subsistence would be associated with proposed land use. This includes existing placer mining on existing valid claims and long-term camping associated with state suction dredge operations, and continuation of the current management of Recreation and Off Highway Vehicle (OHV) use as described in the MFP. The term OHV refers to "any motorized vehicle capable of, or designated for, travel on or immediately over land, water, or other natural terrain," as defined in the National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands (BLM 2001a).

Management of resources (including water, cultural and paleontological; fish, wildlife, and vegetation; and of resource uses, including mining and lands activities) requires inventory and monitoring of conditions and populations and field site visits for compliance examinations. Activities that support data collection could displace subsistence resources from traditional harvest areas. Disturbance from the use of aircraft and OHV during management surveys would

be temporary and localized and would not affect any fish, wildlife or vegetative resources at the population level. Inventory and monitoring efforts would benefit subsistence resources by providing valuable data on distribution and population parameters.

Of the four alternatives, Alternative A supports the least amount of mineral entry and leasing, as the entire area is withdrawn under ANCSA 17(d)(1). As mining is limited to existing claims, impacts of mining on subsistence resources would be minimal. Effects would be mostly localized as placer mining is concentrated along the road and river-accessible portions of the Fortymile WSR. Suction dredging would be conducted through state claims in navigable sections of the Fortymile WSR and is outside the jurisdiction of BLM management. BLM-authorized long-term camping in support of state suction dredge claims would not impact subsistence resources or uses.

Under Alternative A, the greatest impact to subsistence uses would result from continuing current management standards for OHV and recreational use in the Fortymile Subunit. Currently commercial recreational use is minimal and amounts to one or two permits for non-motorized boating. OHV use in the WSR corridor would be limited to use of vehicles 1,500 gross vehicle weight rating (GVWR) and under without a permit or approved Plan of Operations. Travel would not be restricted outside the WSR corridor on BLM lands.

Recreation and OHV use are predicted to continue to increase with population growth in the state and as OHV technology continues to advance. With few restrictions on OHV use and no established limits on visitor use, impacts to subsistence resources could increase. Cross-country access would likely increase competition for harvest of wildlife resources by all users. Relief for subsistence users from increased harvest pressure would be through the Federal Subsistence Board and Alaska Board of Game regulatory processes.

Social trail proliferation often occurs when use is not limited to designated or existing trails. Trail creation by users increases the opportunity for introduction and spread of non-native invasive plant (invasive plant) species. Invasive plant species alter vegetative communities and habitats of fish and wildlife resources important for subsistence. River and stream crossings by OHV would increase over the life of the plan and lead to multiple impacts to fish and aquatic resources as the result of stream bank erosion, sedimentation and pollutants (solvents and fuels), causing direct mortality of fish and diminished water quality. Fish habitat would be affected by these impacts as well as OHV trampling of stream side vegetation. Non-native invasive species, such as aquatic plants and invertebrates harmful to fish, could be introduced in waterways when OHV harboring them cross rivers and streams.

While fish and aquatic habitat resources are not high value within the Fortymile WSR, they would benefit from any use restriction, such as withdrawal from mineral entry, applied within the designations (Chapter 4 Impacts Specific to the Fortymile Subunit Fish and Aquatic Species).

During scoping for the plan, residents of the subunit expressed concern over the large number of hunters from outside the local area competing with local subsistence hunters for moose and caribou. Concerns centered mostly on access and careful designation of trails. Although BLM-managed lands important to harvest of subsistence resources would be open to cross-country access by OHV under this alternative, most of the harvest of moose and caribou occurs on nearby state and private lands where mitigation of the competition for these resources would be outside the scope of the RMP.

Moose harvest by local residents from regulatory year (RY) 1998-99 to 2006 -07 averaged 30.4 moose and ranged from 20 – 47 moose (Gross 2008). Local residents, for the purpose of this

data set, are residents of Unit 12, Unit 20(E) and eastern Unit 20(D) (Eagle, Chicken, Boundary, Northway, Tetlin, Tok, Tanacross, Slana, and Dot Lake). This differs from the customary and traditional use determinations (C&T) for federally qualified subsistence users in that residents of Delta, Healy Lake, Circle, Central, and Mentasta Lake also qualify, but residents of Slana do not.

Harvest from the Fortymile caribou herd (FCH) by federally qualified subsistence users occurs in Unit 20(E) but also the portion of Unit 25(C) in the Steese Subunit. Harvest of FCH by local residents from both subunits from RY 2002-03 through RY 2006-07 averaged 134 animals and ranged from 114 – 184 animals (Gross 2007). Local residents for this data set are residents of Units 12, 20(E) and eastern 20(D), and Circle and Central. The C&T determination for FCH in Unit 20(E) includes local residents of Delta and Healy Lake. The C&T determination for FCH in Unit 25(C) is all rural residents, as defined by the Federal Subsistence Management Regulations for the Harvest of Wildlife on Federal Public Lands in Alaska. Table 3.49, "Harvest by Village for Fortymile Caribou" in Chapter 3 (Affected Environment) displays harvest of FCH by local communities from 2004 to 2008.

Impacts to subsistence resources and uses from other potential industries, such as mineral materials (gravel pits), and forest products (timber sales) would be expected to be minor given the anticipated levels of these activities. Effects from these uses would be similar for all alternatives and are not discussed further.

Evaluation of the Availability of Other Lands

The purpose sought to be achieved under Alternative A would be to continue the current management of BLM-managed lands in the subunit under the 1980 Fortymile Management Framework Plan. Other federal public lands in the subunit are managed under National Park Service (Yukon-Charley Rivers National Preserve) or U.S. Fish and Wildlife Service (Tetlin NWR) planning documents. Other BLM lands in the state either already have land use planning documents in place, or are being addressed by separate planning processes. State and Native corporation lands cannot be considered in a BLM plan and BLM-managed lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate the use of public lands otherwise needed for subsistence include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative A would not significantly restrict subsistence use by communities in and adjacent to the planning area, as impacts to subsistence resources would be minimal. Under this alternative the ANCSA 17(d)(1) withdrawals would be retained, prohibiting new leasable and locatable mineral activities on BLM-managed lands. The current levels, methods, and mix of multiple uses would continue. Impacts to subsistence species would be expected to be localized and temporary and would not be expected to impact resources at the population level. No impacts to access by subsistence users would be anticipated.

J.2.1.2. Fortymile Alternative B

Alternative B emphasizes active measures to protect and enhance resource values. Production of minerals and services would be more constrained than in Alternatives C or D and in some areas, uses would be excluded to protect sensitive resources. The Fortymile Area of Critical Environmental Concern (ACEC) and Special Recreation Management Areas (SRMA) would be identified, and specific measures would be proposed to protect or enhance values within these areas. Two eligible rivers, Dome Creek (recreational) and Gold Run (wild) would be recommended as suitable for designation under the Wild and Scenic River Act. Limited areas would be proposed for off-highway vehicles (OHV) to protect habitat, soil and vegetation resources. In Alternatives B–D in this subunit, where access would be closed to OHV or other motorized transport, subject to reasonable regulations and with a free permit, federally qualified subsistence users could be permitted to use some forms of motorized vehicles for subsistence purposes, such as OHV of a certain size or personal watercraft, for subsistence. Approximately 1,012,000 acres would be closed to locatable mineral entry in order to protect or maintain resource values.

Evaluation of the Effects of Use, Occupancy, or Disposition

The analysis of effects from Alternative B concludes that impact as a result of management actions or designations within the planning area will not result in significant reductions in subsistence resources or uses. Many of the proposed actions serve to positively impact subsistence in that management would emphasize habitat and resource protection. While some development activity could occur under this alternative, areas of important habitat would be protected by special designation, and by the stipulations and SOPs as presented in Appendix A. The creation of new SRMAs, ACECs, and/or the designation of rivers as WSRs, do not limit or impose any restriction on subsistence use as defined in ANILCA Title VIII.

The Fortymile ACEC (732,000 acres, Map 60) would be created to protect Fortymile caribou calving and postcalving habitat and Dall sheep habitat. The area would remain closed to entry, location, and leasing of minerals, subject to valid existing rights, and would be generally free of summer motorized use. The rest of the Fortymile WSR Corridor, the SRMA, suitable rivers, and other withdrawn areas would also remain closed to leasable and locatable minerals. Some exploration on other lands for leasable minerals may occur over the life of the plan but is expected to be minimal because limited potential and interest exist.

OHV designations would be put into place for the entire subunit. Summer OHV use outside the Semi-Primitive Recreation Management Zones (RMZs) would be on existing trails only. Recreation in the area will largely be managed for Semi-Primitive or Backcountry values (Table 2.5, "Recreation Setting Character Matrix for the Eastern Interior Planning Area"). These prescriptions will limit impacts to subsistence resources and uses. In areas designated as Closed to motorized vehicle travel (Primitive RMZs), subject to reasonable regulations, a free permit may be issued for access via snowmobiles, motorboats and airplanes for traditional activities and for travel to and from villages and homesites (ANILCA Sec. 1110). Similarly, federally qualified subsistence users, subject to reasonable regulation and with a free permit, may be permitted to use snowmobiles, motorized boats, aircraft or other means of surface transportation traditionally employed for subsistence purposes (ANILCA Sec. 811).

Eleven watersheds in the Fortymile Subunit have been identified to be managed as Riparian Conservation Areas (RCA). RCAs are watersheds that contain the highest fisheries and riparian

resource values. Emphasis is on protection of riparian-dependent resources and management of activities subject to specific SOPs, such as collection of stream-specific baseline data and expediting reclamation (Chapter 2 Fish and Aquatic Species).

Areas important to fish and wildlife subsistence resources would be largely protected because they would be within the Fortymile WSR Corridor, ACEC, RCAs and SRMA.

Evaluation of the Availability of Other Lands

Alternative B would manage BLM public lands in the Fortymile Subunit in order to optimize conservation. Lands managed by other federal agencies in the planning area are managed under National Park Service or U.S. Fish and Wildlife Service planning documents, and are considered conservation system units. Other BLM lands in the state either already have land use planning documents in place that specify the amounts and types of activities that can or cannot occur, or are currently being evaluated by separate planning processes. State of Alaska and Native corporation lands cannot be considered in a BLM plan and BLM lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate the use of public lands otherwise needed for subsistence include the no action and four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative B would not significantly restrict subsistence use of or access to fish, wildlife and vegetative resources by residents in the subunit. Most impacts to subsistence resources would be beneficial, and any impacts from the limited amount of development allowed to occur under this alternative would be minimized by leasing stipulations and SOPs (Chapter 2 and Appendix A).

J.2.1.3. Fortymile Alternative C

Alternative C emphasizes a moderate level of protection, use, and enhancement of resources and services. Constraints to protect resources would be implemented, but would be less restrictive than under Alternative B. This alternative would designate a smaller ACEC and SRMA with nine Recreation Management Zones (RMZs). No rivers would be recommended as suitable for designation under the WSRA. This alternative would open approximately 70 percent of the area to leasable and locatable minerals (Maps 27 and 28). Only a portion of the ACEC and the Fortymile WSR Corridor would be closed to mineral entry.

Evaluation of the Effects of Use, Occupancy, or Disposition

Impacts to subsistence resources and uses from the increased level of development allowed by this alternative would be similar to those for Alternative B except more acres would be available

for authorized mineral exploration and development and use of OHV 1,500 pounds curb weight and under would be allowed without a permit or approved Plan of Operation.

Under Alternative C, a smaller Fortymile ACEC (547,000 acres) would be created to protect Fortymile caribou calving and postcalving habitat and Dall sheep habitat. Only portions of the area would remain closed to entry, location and leasing of minerals, subject to valid existing rights (Maps 27, 28, and 61). Most areas of concentrated calving and postcalving remain closed to mineral location and entry (Chapter 4, Impacts Specific to the Fortymile Subunit, Wildlife). The Fortymile WSR Corridor and SRMA would remain closed to fluid leasable and locatable minerals. There would be one RCA. Some exploration for leasable minerals on other BLM-managed lands may occur over the life of the plan, but is expected to be minimal. Development of locatable minerals is predicted to be small but may require new access, which could facilitate travel for hunting by all users and increase competition for subsistence resources. Relief for subsistence users from increased harvest pressure would be through the Federal Subsistence Board and Alaska Board of Game regulatory processes.

Fish and aquatic habitat resources are not high value within the WSR and ACEC, but would benefit from any use restriction applied within these designations (Chapter 4 Impacts Specific to the Fortymile Subunit Fish and Aquatic Species).

The area where summer motorized use would be allowed would be larger and include most of the ACEC and much of the Fortymile WSR Corridor. OHV would be restricted to existing trails, although off-route travel for game retrieval would be allowed. Off-route game retrieval could increase participation by hunters over Alternative B but participation would be similar to that for the No Action Alternative. The Semi-Primitive RMZs would be the Middle Fork (including the North Fork and Champion Creek) and most of the Mosquito Fork and would remain closed to summer OHV use.

The increase in impacts to subsistence resources from this alternative would be small, because existing trail routes in the area are limited. Only a small portion of this area is accessible by existing trails. New trails or access that would be created for recreation or resource development would be analyzed and mitigation attached to minimize impacts to subsistence resources and uses.

Evaluation of the Availability of Other Lands

Alternative C would manage BLM lands in the subunit following the BLM mission of multiple use, while at the same time protecting priority habitat and enhancing natural resource values. Other lands in the planning area are managed under National Park Service or U.S. Fish and Wildlife Service planning documents, and are conservation system units. Other BLM-managed lands in Alaska either already have land use planning documents in place that specify the amounts and types of activities that can or cannot occur, or are currently being evaluated by separate planning processes. State and Native corporation lands cannot be considered in a BLM plan and BLM lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate the other uses of public lands otherwise needed for subsistence include the no action and four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM lands, along with management

actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative C would not significantly restrict subsistence use by communities in the planning area. Most impacts to subsistence resources and uses would be negligible, and any impacts from the limited amount of development expected to occur would be minimized by the locatable and leasing permit stipulations and SOPs discussed in Chapter 2 and Appendix A. The impacts to subsistence species would be expected to be localized and temporary, and would not be expected to impact resources at the population level. No impacts to access by subsistence users would be expected to occur.

As opportunities to harvest wildlife become more restrictive in other parts of the state, participation in the FCH seasons has increased. Most harvest occurs on lands not managed by the BLM. Conflicts due to competition are issues outside the scope of the Eastern Interior RMP/EIS. Efforts to reduce these conflicts would be accomplished through limits in regulations on hunting seasons, harvest limits, and methods and means, which are the responsibility of the Federal Subsistence Board and the Alaska Board of Game.

J.2.1.4. Fortymile Alternative D

Alternative D emphasizes active management to facilitate resource development on BLM lands in the subunit. Approximately 9 percent of BLM-managed lands would remain closed to mineral leasing and location (Maps 29 and 30). Travel and trail restrictions would be minimized. A smaller ACEC, focused on habitat protection management, and SRMA, focused on management of recreational use, would be identified. In other areas recreation management would focus on dispersed recreation and management of permits.

Evaluation of the Effects of Use, Occupancy, or Disposition

Impacts to subsistence resources and uses from the increased level of development and use allowed by this alternative would be similar in nature to the other action alternatives, but greater in scope. Higher percentages of land would be available for leasable and locatable minerals and limits on OHV and recreation would be less than other alternatives.

Under Alternative D, the Fortymile ACEC would be 546,000 acres and continue to allow some protection to Fortymile caribou calving and postcalving habitat and Dall sheep habitat (Map 62). Most of the area would be open to location, entry and leasing of minerals. The potential impacts to caribou calving and postcalving would be the greatest in this alternative (section 4.4.1.7 Wildlife Fortymile Subunit). Mineral licks used by Dall sheep and “wild” and “recreational” segments of the Fortymile WSR would be closed to leasable and locatable mineral exploration and development.

Although exploration for oil and gas may occur on BLM-managed lands in the subunit, no development would occur under this plan. Proposals for development would be analyzed with a new NEPA process.

Exploration and development of locatable minerals under Alternative D is predicted to increase by 13 operations over the life of the plan. New access to more remote areas could be permitted

in support of locatable mineral operations. Increased access would facilitate travel for hunting and trapping and benefit all users. Efforts to reduce competition would be accomplished through limits in regulations on hunting seasons, harvest limits, and methods and means, which are the responsibility of the Federal Subsistence Board and the Alaska Board of Game.

Fish and aquatic habitat resources, while not high value within the Fortymile WSR, would benefit from any use restriction, such as withdrawal to mineral entry, applied within the designations (Chapter 4.4.1.2 Fish and Aquatic Species Fortymile Subunit).

Cross-country summer use of OHV (limited to 1,500 pounds curb weight and less) would be allowed on all but about 54,000 acres of the 2,077,000 acres of BLM-managed lands in the subunit. The Middle Fork (including the North Fork and Champion Creek) and most of the Mosquito Fork, which would be the Semi-Primitive Zones, would remain closed to summer OHV use. Impacts would be similar to those for the No Action Alternative, which allows cross-country summer use on all BLM-managed lands in the Fortymile Subunit. This travel prescription is not likely to lead to increased participation by hunters for caribou, because most effort occurs along the highway and Chicken Ridge trail system. Participation by s for harvest of moose would not be expected to change based on current trends and because OHV prescriptions would remain much the same as current management. Participation is more likely to increase as a result of increasing population in the state and an increased demand for resources.

Evaluation of the Availability of Other Lands

Alternative D would manage BLM lands in the subunit to optimize resource use and development, with fewer restraints on commercial or recreation activity. Lands managed by other federal agencies in the planning area are managed under National Park Service or U.S. Fish and Wildlife Service planning documents, and are considered conservation system units. BLM lands are managed by current planning documents that allow a mixture of development and conservation following BLM's multiple use mission, or are currently being evaluated through the planning process. State of Alaska and Native corporation lands cannot be considered in a BLM plan and BLM lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence use and resources include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative D would not significantly restrict subsistence use by communities in or near the planning area given the management parameters outlined in Chapter 2 of the main document and including the leasing stipulations and SOPs found in Appendix A *Required Operating Procedures and Fluid Mineral Leasing Stipulations*. Should the anticipated amount of potential locatable mineral development or other land uses expand this finding may need to be revised to take into account impacts to the FCH, moose and other subsistence resources and uses that cannot be mitigated.

J.2.1.5. Fortymile Alternative E (Proposed RMP)

The Proposed RMP, and the leasing stipulations and SOPs accompanying them, take into consideration all comments and concerns generated during the scoping and public comment process for the plan.

Alternative E (Proposed RMP) differs from Alternative C for the following decisions: 10 watersheds would be managed as Riparian Conservation Areas; domestic sheep, goats, and camelids would not be allowed in Dall sheep habitat; personal use of timber would be allowed on all lands; commercial timber sales would be considered on all but the Fortymile WSR, Eagle Recreational withdrawal, Fort Egbert Historic Site and the Fortymile and Mosquito Flats ACECs; commercial use of forest products would be considered on all lands; 745,000 acres would be closed to locatable and leasable minerals, 932,000 acres would be open with Standard Lease Terms and SOPs (Appendix A), and 201,000 acres open with minor constraints; SRMAs would be divided into five Recreation Management Zones; the Fortymile ACEC would be 362,000 acres and the Mosquito Flats ACEC would be added (37,000 acres); and interim travel management would be the same as Alternative A except GVWR would be changed to curb weight and 1,500 pound curb weight would be implemented on lands in and outside the Fortymile WSR, and motorboats would be allowed within the non-navigable segments of the Fortymile WSR. No summer OHV use would be allowed in the Mosquito Flats ACEC and no cross-country summer OHV use would be allowed in the Fortymile ACEC and Crucial Caribou and Dall Sheep Habitat.

Evaluation of the Effects of Use, Occupancy, or Disposition

Impacts to subsistence resources and uses from this alternative would be similar to those for Alternative C with the exceptions listed above.

Under Alternative E, the Fortymile ACEC (362,000 acres) would be created to protect Fortymile caribou calving and post-calving habitat and Dall sheep habitat. The Mosquito Flats ACEC (37,000 acres) would be created to protect unique wetland features. The ACECs would remain closed to entry, location and leasing of minerals, subject to valid existing rights (Maps 31 and 63). Travel by OHV in the Mosquito Flats ACEC would be limited and no summer OHV use would be allowed.

An area of 685,000 acres would be delineates as Crucial Caribou and Dall Sheep Habitat to protect important habitat outside the Fortymile ACEC. Management prescriptions for the Crucial Caribou and Dall Sheep Habitat would be the same as the Fortymile ACEC except that the area would be open to entry, locatable and leasable minerals. Decisions for management of crucial caribou and Dall sheep habitat are outlined in Section 2.7.2.4.1.6. Wildlife in the Proposed RMP/Final EIS.

The Fortymile WSR Corridor would remain closed to fluid leasing and location of minerals. The ten RCAs, which overlap the WSR and Fortymile ACEC, would be closed to locatable and leasable minerals. Some exploration for leasable minerals on open BLM-managed lands would likely occur over the life of the plan. Development would be expected but could be limited due to predominantly low mineral potential on these lands. New access would be expected for exploration and development, which would lead to fragmentation of habitat and facilitate travel for hunting by all users.

Efforts to reduce competition for resources important for subsistence due to improved access would be accomplished through limits in regulations on hunting seasons, harvest limits, and

methods and means, which are the responsibility of the Federal Subsistence Board and the Alaska Board of Game

New exploration and development activities for locatable minerals would be expected to be few under this alternative (Tables 4.3, 4.4, and 4.5. Analytical Assumptions). A NEPA analysis would be developed for each operation and impacts to subsistence uses mitigated through reclamation standards, stipulations, and SOPs (Appendix A).

Fish and aquatic habitat resources are not of high value within the WSR and ACECs, but would benefit from any use restriction applied within these designations (Chapter 4 Impacts Specific to the Fortymile Subunit Fish and Aquatic Species).

All of the current and historic calving and post-calving habitat in the Fortymile Subunit would be open to summer cross-county OHV use. Summer cross-country OHV use has been allowed on BLM-managed lands in the Fortymile through the current management (No Action Alternative). Interim travel management would continue to allow this use until the travel Management Plan is completed within five years of the Record of Decision.

Demands on fish, wildlife, and other natural resources for recreation would be expected to increase (Chapter 4, Section 4.2.4.3. Future Activities). OHV use to access resources would be expected to increase commensurately. With improvements in OHV technology users would be able to access more remote and difficult areas where summer cross-country use would be allowed. In the short-term (five years after ROD) no significant restrictions on subsistence uses would occur from interim travel management. Decisions on OHV access in the travel management plan would be analyzed through NEPA and an ANILCA Section 810(a) Evaluation and Finding completed. Longer-term impacts of travel management on subsistence uses would be analyzed at that time. RMP wildlife and ACEC prescriptions would create sideboards for travel management planning. Proposed RMP/Final EIS decisions on OHV weight (1500 curb weight) and width (50”) limitations would apply to all lands once supplemental rules are completed after the signing of the ROD.

Evaluation of the Availability of Other Lands

Alternative E would manage BLM lands in the subunit following the BLM mission of multiple-use, while at the same time protecting priority habitat and enhancing natural resource values. Other lands in the planning area are managed under National Park Service or U.S. Fish and Wildlife Service planning documents, and are conservation system units. Other BLM-managed lands in Alaska either already have land use planning documents in place that specify the amounts and types of activities that can or cannot occur, or are currently being evaluated by separate planning processes. State and Native corporation lands cannot be considered in a BLM plan and BLM lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the no action and four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative E would not significantly restrict subsistence use by communities in the planning area. Most impacts to subsistence resources and uses would be negligible, and any impacts from the limited amount of development expected to occur would be minimized by the locatable and leasable mineral permit stipulations and SOPs discussed in Chapter 2 and Appendix A. Surface Mining Regulations (43 CFR 3809) and BLM Alaska policy would further protect subsistence resources through required reclamation and fish and wildlife habitat rehabilitation performance standards. The impacts to subsistence species would be expected to be localized and temporary, and would not be expected to impact resources at the population level. No impacts to access by subsistence users would be expected to occur.

J.2.1.6. Fortymile Cumulative Case

The goal of the cumulative analysis is to evaluate the incremental impact of the current action in conjunction with all past, present, and reasonably foreseeable future actions in or near the planning area. The cumulative analysis considers in greatest detail activities that are more certain to happen, and activities that were identified as being of great concern during scoping. Actions considered in the cumulative analysis include, but are not limited to, the following activities (section 4.2.4 Cumulative Effects).

Development of minerals will continue to occur on state and private lands in the subunit. Effects will be similar to those described for activities on BLM lands. The level of activity is expected to be higher on state and private lands due to their higher mineral potential.

Pogo mine is an active gold mine located on state land in the Fortymile Subunit. Production began in 2006 and life of the mine was estimated at 10 years. Access is from the Richardson Highway via a 49 mile all season road. The mine site proper (425 acres) is adjacent to postcalving range and within summer, fall migratory and winter range of the FCH.

The Little White Man Prospect, located 35 miles northwest of Chicken (on high priority Native-selected lands), could be developed into a large-scale lode mine over the next 20 years. The site is within the calving area of the FCH. Access to the mine would likely be from the Taylor Highway and depending on stipulations attached to the right-of-way permit, could create access to resources important to subsistence and other users.

Commercial development of forest products will occur on state and private lands in the subunit. Roads created for other purposes may be utilized for access to forest products. The State of Alaska Upper Yukon Area Plan recognized the potential for forest product sales in the remote North Fork region, which is an area of core calving for the FCH. The Pogo mine road extended the forest road farther to the east, furthering potential access to timber.

The Upper Yukon Area Plan (ADNR 2003) identified several areas along the Taylor Highway as appropriate for settlements and commercial enterprises. Areas designated for possible disposal in the Jack Wade Junction area and between Taylor Mountain and Chicken could impact FCH migration patterns and create conflicts over hunter access. The FCH migrate along the ridge system and funnel through Jack Wade Junction.

Military aircraft use is allowed in Military Operation Areas (MOAs) over much of the Fortymile Subunit and is likely to increase. Impacts to wildlife resources important to subsistence could

potentially occur. Current practices by the military of avoiding exercises during caribou calving and implementing minimum ceilings have reduced, but not eliminated impacts to caribou.

Research, monitoring and other land management activities will continue on all lands in the subunit and include access to remote areas by fixed-wing and rotary aircraft, snowmobiles and other OHVs. Disturbance from these activities is localized and temporary.

Climate change would benefit some subsistence resources and negatively affect others. Changes in species distribution, biodiversity, and vegetation communities in subarctic areas are predicted to occur by 2040. Frequency and severity of natural wildland fire in Interior Alaska are predicted to increase and result in shifts to deciduous and shrub-dominated landscapes, which could benefit moose and some furbearers, but not caribou. Predicted increases in water temperatures would alter chemical and biotic conditions to the detriment of diversity and abundance of fish species important for subsistence use. Drying of lakes, thermokarsting, and other changes related to thawing or permafrost would be expected to impact subsistence resources (Section 4.3.1.1.2. Climate Change). Through adaptive management BLM would mitigate impacts to subsistence resources as practicable.

BLM has received a proposal for a gas line which would traverse some BLM-managed lands as well as adjacent lands. Options for a gas lines include routing along the Trans-Alaska Pipeline to Delta Junction and then south toward Glennallen or along the Alaska Highway to Alberta, Canada. Although these routes would take the gas line through the subunit, co-locating with the Trans-Alaska Pipeline and along existing transportation corridors would create negligible impacts on subsistence resources.

The population of Fairbanks and the surrounding area is predicted to increase by about 10 percent from the 2000 census to the 2020 census. Development of a gas line or other projects may boost the population beyond the estimate. Demands for recreation and subsistence resources are predicted to increase between 10 and 15 percent over the next 20 years.

Conveyance of remaining selected lands to the state and Native corporations is ongoing. Planning area wide, about 1.1 million acres are in selection by Native corporations (ANCSA 1971) and 1.4 million acres are in selection by the State of Alaska. Once conveyed, management of fish and wildlife harvest would be predicated on state regulations. Based on joint state/federal harvest management of moose and caribou in the subunit, no impacts to subsistence users would be expected to occur.

Features of Alternative A that would affect subsistence uses the most are summer cross country use of OHV; however, subsistence uses would also benefit because BLM-managed lands would be withdrawn from mineral entry, except for valid existing claims. Alternative B would best protect subsistence resources and uses in concert with actions occurring adjacent to BLM-managed lands in the Fortymile Subunit because the Fortymile ACEC would be created to protect caribou and sheep, 10 RCAs would be created, approximately 57 percent of lands would be closed to mineral entry, and sensitive areas would be closed to summer OHV use (626,000 acres) and the remaining area would be limited to use on existing trails. Alternative C would somewhat increase impacts to subsistence resources and uses collectively with the cumulative case. More area would be open to summer OHV use (existing trails), more area would be open to mineral entry (approximately 67 percent), and only one RCA would be recognized. Alternative D would have the greatest potential impacts on subsistence resources and uses when added to decisions by adjacent land managers. About 81 percent of BLM-managed land would be open to mineral entry with one RCA and 97% would be open to cross-country summer OHV use. Alternative E would result in

about 64 percent of BLM-managed land open to minerals, 10 RCAs would be created, and the Mosquito Flats ACEC would be created and closed to summer OHV use. The ACECs would be closed to mineral entry. Interim travel management would allow cross-country summer use of OHV until the travel management plan is completed within five years of the ROD. Alternative B when combined with the cumulative case would have the least impacts on subsistence uses.

Evaluation of the Effects of Use, Occupancy, or Disposition

According to the fish and wildlife analysis in Chapter 4 of the Eastern Interior RMP/EIS, the combination of ongoing locatable mineral development occurring on state, federal and private lands in the subunit and future development projected for the subunit, would have cumulative impacts on Fortymile caribou. The privatization of State of Alaska or Native corporation lands could lead to additional development. Depending on the location of development, these impacts could include: short or long-term disturbance to caribou calving habitat, insect relief habitat, and migratory routes; disruption of caribou movements; stress and disturbance impacts to caribou during all seasons of the year; and possible reductions in herd productivity. If significant activity occurred within the calving grounds or crucial insect relief habitat, these impacts could be significant.

Development of access roads and trails within the planning area would have the potential to negatively affect wildlife, and thus affect subsistence. These impacts would include habitat fragmentation, increased human access into wildlife habitats, increased disturbance impacts, increased potential for mortality and possible alteration of behavior or movement patterns of wildlife. This could also result in an increase in recreational use of the area, resulting in additional competition with subsistence users for resources. Subsistence users have reported that competition from other hunters displaces them from traditional use areas to less familiar and productive hunting areas (Chapter 4 Section 4.4.4.4).

Evaluation of the Availability of Other Lands

The Cumulative Case, as presented in the planning document, contains information on reasonably foreseeable activities that could have an effect on the management decisions analyzed as part of the RMP/EIS. The purpose of the Cumulative Case is to present known ongoing activity by all entities on all lands near or within the planning area, as well as those activities that have been proposed for the future and are likely to occur. The Cumulative Case is not an alternative, but instead is a discussion of impacts that could be additive to and affect the management decisions contained within Alternatives A through E. As such, no other lands are evaluated under the Cumulative Case.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this Resource Management Plan, as well as Alternative A. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative D when combined with the cumulative case, as presented in this analysis, may result in a reasonably foreseeable and significant restriction of subsistence use for rural communities within the planning area if significant activity occurs within the calving grounds or other crucial habitat of the FCH. Currently, the FCH is a primary subsistence resource for numerous communities in rural Alaska (Gross 2007). Alternatives A-C when combined with the cumulative case would not result in significant restrictions. No reasonably foreseeable significant restrictions have been identified for Alternative E (Proposed RMP) when combined with the cumulative case because most habitat important to subsistence resources is within the ACEC or afforded protection by other management prescriptions.

J.2.2. Evaluation and Finding for Steese Subunit

J.2.2.1. Steese Alternative A

Selection of Alternative A would result in continued management of the Steese Subunit as specified in the 1986 Steese National Conservation Area Resource Management Plan (Plan). Valid decisions contained in the Plan would be implemented if not already completed. Direction contained in existing laws, regulation and policy would also continue to be implemented, sometimes superseding provisions in the Plan. The current levels, methods and mix of multiple use management of public land in the planning area would continue, and resource values would receive attention at present levels. In general, most activities would be analyzed at the project level and few uses would be limited or excluded as long as they were consistent with state and federal laws. ANCSA 17(d)(1) withdrawals would remain in place, prohibiting new mineral entry or mineral leasing on all BLM-managed lands. Wildland fire would be managed consistent with the Alaska Land Use Plan Amendment for Wildland Fire and Fuels Management (BLM 2004b, 2005c).

Evaluation of the Effects of Use, Occupancy, or Disposition

Under Alternative A, the primary impacts to subsistence would be associated with proposed land use, including placer mining on existing valid claims, and continuation of the current management of Recreation and Off Highway Vehicle (OHV) use as described in the Plan.

Management of resources, including water, cultural and paleontological, fish, wildlife, and vegetation, and of resource uses, including mining and lands activities, requires inventory and monitoring of conditions and populations and field site visits for compliance examinations. Activities that support data collection may displace subsistence resources from traditional harvest areas. Disturbance from the use of aircraft and OHV during management surveys will be temporary and localized and will not affect any fish, wildlife or vegetative resources at the population level. Inventory and monitoring efforts will benefit subsistence resources by providing valuable data on distribution and population parameters.

Under Alternative A, BLM-managed lands in the subunit would be withdrawn from mineral leasing and entry under ANCSA 17(d)(1). Mining is limited to valid existing claims. Alternative A would result in the greatest protection to fisheries, aquatic and riparian habitats.

Fish, wildlife and vegetative resources in the Steese Subunit have been and continue to be impacted by placer mining. Although the subunit is closed to mineral location and entry under Alternative A, valid existing claims continue to be worked within BLM and adjacent state-managed lands. Currently, 106 miles of stream and 7,200 acres of riparian area have been mined or could be mined. Under Alternative A it is estimated that 6 miles of stream and 370 acres of riparian land presently undisturbed would be impacted by mining. Indirect impacts above and below operations are estimated to double that projection. Impacts include degraded pool and spawning habitat quality due to catchment erosion and downstream sedimentation.

Properly functioning streams, and therefore watersheds, require well vegetated stream channels. Placer mining has been conducted within the state using methods that denude and relocate streams, resulting in turbidity, sedimentation, loss of habitat for fish, aquatic species and riparian dependent wildlife, increased aufeis and scouring, susceptibility to erosion and many indirect impacts. Primary production is reduced and low levels of nutrients are available in mining disturbed systems. High levels of minerals released from substrates during mining can be high enough to kill fish and other aquatic organisms. Arsenic and mercury, commonly associated with placer mining, are hazardous to fish, particularly salmonids (such as coho salmon and Arctic grayling). Rates of vegetation return are very slow in the subarctic setting of the Eastern Interior, requiring 50 or more years for adequate vegetation, land forms and large woody debris to recover to beginning levels of function. Where stream substrates are embedded with sediments and siltation from mining, recovery can take even longer, particularly below mined sites and at lower gradients (Weber and Post 1985). Reclamation projects in Eastern Interior designed to help systems recover to proper functioning conditions have largely failed (Impacts Common to All Subunits, section 4.3.1.4 Fish and Aquatic Species).

Stream buffers greatly reduce the effect of surface-disturbing activities in riparian systems on fish and aquatic habitats. Stream buffers within one-half mile of the banks of the Birch Creek WSR are withdrawn from locatable minerals under ANILCA (for all alternatives). Preserving riparian and stream bank vegetation through buffers largely mitigates impacts to aquatic systems from placer mining and is recommended as a means for maintaining proper functioning condition on all streams (USDA and DOI 2000).

Under Alternative A, the greatest impact to subsistence resources and uses would result from continuing current management standards of OHV and recreational use in the Steese Subunit. Cross-country summer travel by OHV 1,500 GVWR and under would generally be allowed in the Steese National Conservation Area and on other BLM-managed lands in the subunit. The Birch Creek WSR Corridor and RNAs would be closed to OHV use. Cross-country summer use has resulted in a network of user-created trails. Unmanaged trial proliferation would continue under Alternative A.

With fewer restrictions on OHV use and no established limits on visitor use, impacts to subsistence resources could occur at increasing levels. Recreation and OHV use is predicted to continue increasing with population growth in the state and as OHV technology continues to advance. Cross-country access could increases competition for harvest of wildlife resources by all users and can lead to direct and indirect impacts to fish, wildlife and habitat. Relief for subsistence users from increased harvest pressure would be through the Federal Subsistence Board and Alaska Board of Game regulatory processes.

Social trail proliferation often occurs when use is not limited to designated or existing trails, which increases the opportunity for introduction and spread of non-native invasive plant (invasive

plant) species. Invasive plant species alter vegetative communities and fish and wildlife habitats, usually to the detriment of native species. Stream crossings by OHV could result in multiple impacts to fishery resources through stream bank erosion, sedimentation and pollutants (solvents and fuels), which could result in direct mortality of fish and diminished water quality. Fish habitat would be impacted by these as well as OHV trampling of stream side vegetation. Non-native invasive species, such as aquatic plants and invertebrates harmful to fish, can be introduced in waterways when OHV harboring them cross rivers and streams. (If it is appropriate to address mitigation in the 810, here is where we would say mitigation of impacts would largely be through outreach and education.)

During scoping for the plan no concerns specific to subsistence resources or uses in the Steese Subunit were raised, although general comments are common to all subunits.

The Fortymile caribou herd is an important subsistence resource for local residents. Based on registration permit data, residents of the Central area compose a majority of the local participants who hunt in the subunit (Chapter 3 Affected Environment).

Evaluation of the Availability of Other Lands

The purpose sought to be achieved under Alternative A would be to continue the current management of BLM-managed lands in the subunit under the 1986 Steese RMP. Other federal public lands in the subunit are managed under National Park Service (Yukon-Charley Rivers National Preserve) or U.S. Fish and Wildlife Service (Yukon Flats NWR) planning documents. Other BLM lands in the state either already have land use planning documents in place, or are being addressed by separate planning processes. State and Native corporation lands cannot be considered in a BLM plan, and BLM lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative A would not significantly restrict subsistence use by communities in and adjacent to the planning area, as impacts to subsistence resources would be minimal. Under this alternative the ANCSA 17(d)(1) withdrawals would be retained, prohibiting new leasable and locatable mineral activities on BLM lands. The current levels, methods and mix of multiple uses would continue. Impacts to subsistence species would be expected to be localized and would not be expected to impact resources at the population level. No impacts to access by subsistence users would be anticipated.

J.2.2.2. Steese Alternative B

Alternative B emphasizes active measures to protect and enhance resource values. Production of minerals and services would be more constrained than in Alternatives C or D and in some areas,

uses would be excluded to protect sensitive resources. The Steese Area of Critical Environmental Concern (ACEC) and Special Recreation Management Areas (SRMA) would be identified, and specific measures would be proposed to protect or enhance values within these areas. One eligible river, Big Windy Creek (wild) has been recommended as suitable for designation under the Wild and Scenic River Act. Limited areas would be proposed for Off Highway Vehicles (OHV) to protect habitat, soil and vegetation resources. Approximately 96 percent of BLM lands in the subunit, including the Steese National Conservation Area, would be closed to mineral entry and leasing to protect or maintain resource values (Map 32 and 33).

Evaluation of the Effects of Use, Occupancy, or Disposition

The analysis of effects from Alternative B concludes that impacts as a result of management actions or designations within the planning area will not result in significant reductions in subsistence resources or uses. Many of the proposed actions serve to positively impact subsistence in that management would emphasize habitat and resource protection. While some development activity could occur under this alternative, areas of priority habitat would be protected by special designation and by the stipulations and SOPs as presented in Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations*. Actions such as the creation of new SRMAs, ACECs, and/or the designation of river segments as WSRs, do not limit or impose any restriction on subsistence use as per ANILCA Title VIII.

The Steese National Conservation Area and Birch Creek WSR Corridor would be designated as a special recreation management area (SRMA). The Steese ACEC (927,000 acres), which is within the SRMA, would be created to protect current and historic calving and postcalving habitat for Fortymile caribou and habitat for Dall sheep. The entire SRMA would remain closed to entry, location and leasing of minerals, subject to valid existing rights. The SRMA would be generally free of summer motorized use. Winter use of snowmobiles would be allowed, except within the Research Natural Areas (3,000 acres). Established trails may be designated or future trail development allowed if compatible with the purpose of ACEC. The ACEC would be a right-of-way avoidance area. The two Research Natural Areas would be within Primitive Management Zones and would be managed as with the Primitive filter: right-of-way avoidance areas, closed to all mineral development, closed to aircraft and to OHV. Some exploration on other lands for leasable minerals, particularly those around Circle, may occur over the life of the plan but is expected to be minimal because limited potential and interest exist.

Travel outside the Primitive RMZ would allow cross-country winter use of snowmobiles 1,500 pounds curb weight and less. Permits would be required for all other motorized vehicle use. Recreation in the area will largely be managed for Semi-Primitive or Backcountry values (Appendix H, Section H.2, "Steese Special Recreation Management Area"). These prescriptions will limit impacts to subsistence resources and uses.

Twenty-one watersheds in the Steese subunit have been identified to be managed as Riparian Conservation Areas (RCA). RCAs are watersheds that contain the highest fisheries and riparian resources. Emphasis is on protection of riparian-dependent resources and management of activities subject to specific standard operating procedures (Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations*).

Under Alternative B, it is estimated that 7 miles of stream and 500 acres of riparian land presently undisturbed would be impacted by mining of locatable minerals. Indirect impacts above and below

operations are estimated to double that projection. Impacts to fish and aquatic resources would be low because only 9 percent of total stream miles managed by BLM are open to locatable minerals.

Areas important to fish and wildlife subsistence resources would be largely protected because they would be within the National Conservation Area, Birch Creek WSR Corridor, ACEC, RCAs, and SRMA.

Evaluation of the Availability of Other Lands

Alternative B would manage BLM public lands in the Steese Subunit in order to optimize conservation. Lands managed by other federal agencies in the planning area are managed under National Park Service or U.S. Fish and Wildlife Service planning documents, and are considered conservation system units. Other BLM lands in the state either already have land use planning documents in place that specify the amounts and types of activities that can or cannot occur, or are currently being evaluated by separate planning processes. State and Native corporation lands cannot be considered in a BLM plan and BLM lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the No Action and the action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Analysis of effects from Alternative B concludes that impact as a result of management actions or designations within the planning area will not result in significant reductions in subsistence resources or uses by residents in the subunit. Most impacts to subsistence resources would be beneficial, and any impacts by way of the limited amount of development allowed to occur under this alternative would be minimized by leasing stipulations and SOPs (Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations* and Chapter 2).

J.2.2.3. Steese Alternative C

Alternative C emphasizes a moderate level of protection, use, and enhancement of resources and services. Constraints to protect resources would be implemented, but would be less restrictive than under Alternative B. This alternative would designate a smaller ACEC; however the Special Recreation Management Area would remain the same (the entire Steese National Conservation Area and Birch Creek WSR Corridor). The ten Recreation Management Zones (RMZs) would change in area with a shift away from Primitive RMZs and the introduction of Middlecountry and Frontcountry RMZs. No rivers would be recommended as suitable for designation under the WSRA. Approximately 78 percent of the area managed by BLM would remaining closed to mineral entry and leasing (Maps 34 and 35). Most of the ACEC and a portion of the caribou migration corridor would be closed to mineral entry.

Evaluation of the Effects of Use, Occupancy, or Disposition

Impacts to subsistence resources and uses from the increased level of development allowed by this alternative would be similar in nature to those of Alternative B except under Alternative C more acres would be available for authorized mineral exploration and development and expanded use of OHV 1,500 pounds GVWR without a permit would be allowed. Reduced protection for caribou migration corridors may result in habitat fragmentation.

Under Alternative C, a smaller Steese ACEC (460,000 acres) would be created to protect caribou calving and postcalving habitat and Dall sheep habitat. The proposed ACEC would remain closed to entry, location and leasing of minerals (except salable mineral disposal could be authorized), subject to valid existing rights. All Dall sheep and most of the current and historic calving and postcalving habitat would remain closed to mineral location and entry (section 4.5.1.7 Wildlife Steese Subunit). Seasonal restrictions within one mile of ungulate mineral licks would apply to all permitted uses.

The Birch Creek WSR Corridor would remain closed to fluid leasable and locatable minerals. In areas where allowed, oil and gas leasing would be subject to constraints to protect caribou and Dall sheep habitat and subsistence uses.

Some exploration on other lands for leasable minerals may occur over the life of the plan, but is expected to be minimal. Development of locatable minerals is predicted to be small but may require new access, which could facilitate travel for hunting and increase competition for subsistence resources.

Placer mining activity under Alternative C is estimated to double the number of operations expected under Alternative A and B. Twenty-three miles (5 percent) of the approximately 492 miles of stream open to locatable minerals would be in RCAs and would be subject to more rigorous reclamation standards than those outside the RCAs. Standard SOPs and stipulations would apply to the remaining areas. Much of this area is moderate to high mineral potential. High value fishery resources supported by the Birch Creek drainage include three species of salmon and several species of resident fish. Adverse impacts to fish and aquatic resources would potentially result in downward trends in fish populations at the watershed scale, which could have far reaching impacts on subsistence resources and uses. Impacts from mining are further discussed in section J.2.1 and are common to all alternatives for qualitative impacts from mining, but differ quantitatively by alternative.

The Pinnell Mountain Trail is closed to summer motorized travel. Primitive areas (RNAs) would be closed to all motorized use except by permit or approved Plan of Operations. The Semi-Primitive and Backcountry Zones would remain closed except for cross-country winter use of snowmobiles 1,500 GVWR and under or by permit. The southern ACEC in the Semi-Primitive RMZ would be generally closed to summer motorized use. Undesignated recreation lands, Middlecountry and Frontcountry RMZs would be open to winter cross-country use and to summer use on existing trails, except that off-trail retrieval of down game would be allowed (the northern ACEC is within a Middlecountry RMZ). Vehicles of 10,000 pounds curb weight and under would be allowed on existing roads only. Permits or an approved Plan of Operations would be required for any other OHV use.

Numerous existing trails occur throughout the Middlecountry and Frontcountry RMZs, mostly developed for mining. Established trails could be designated or future trail development allowed if compatible with the purpose of ACEC. Off-route game retrieval could increase participation

by all hunters. The potential increase in impacts to subsistence resources and uses from travel management prescriptions in this alternative would be minor, particularly compared with the No Action Alternative (current situation), Alternative D, and interim management in Alternative E.

Evaluation of the Availability of Other Lands

The purpose sought to be achieved under Alternative C is to manage BLM lands in the subunit following the BLM mission of multiple use, while at the same time protecting priority habitat and enhancing natural resource values. Lands managed by other federal agencies in the planning area are managed under National Park Service or U.S. Fish and Wildlife Service planning documents, and are considered conservation system units. Other BLM lands in the state either already have land use planning documents in place that specify the amounts and types of activities that can or cannot occur, or are currently being evaluated by separate planning processes. State and Native corporation lands cannot be considered in a BLM plan and BLM lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative C would not significantly restrict subsistence use by communities in the planning area. Most impacts to subsistence resources and uses would be minor, and any impacts from the development allowed to occur would be minimized by the leasing stipulations and SOPs discussed in Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations*. With the exception of locatable minerals, impacts to subsistence resources would be expected to be localized and temporary, and would not be expected to impact resources at the population level. SOPs and leasing stipulations to protect riparian and aquatic habitats would be necessary to mitigate impacts from placer mining. No impacts to access by subsistence users would be expected to occur.

Competition for subsistence resources, particularly for caribou and moose, occurs due to easy access from the Steese Highway and the large number of hunters. As opportunities to harvest wildlife become more restrictive in other parts of the state, participation in the FCH seasons has increased. Conflicts due to competition are largely issues outside the scope of the Eastern Interior RMP/EIS. Efforts to reduce these conflicts would be accomplished through limits within regulations on hunting seasons, bag limits and methods and means, which are the responsibility of the Federal Subsistence Board and Alaska Board of Game.

J.2.2.4. Steese Alternative D

Alternative D emphasizes active management to facilitate resource development on BLM lands in the subunit. Approximately 54 percent of BLM-managed lands in the subunit would be open to

mineral leasing and location (Maps 36 and 37). Travel and trail restrictions would be minimized. A smaller ACEC, focused on managing for habitat protection, would be identified.

Evaluation of the Effects of Use, Occupancy, or Disposition

Impacts to subsistence resources and uses from the increased level of development and use allowed by this alternative would be similar in nature but greater in extent, relative to the other action alternatives. Higher percentages of land would be available for leasable and locatable minerals and limits on OHV and recreation would be less.

Under Alternative D the Steese ACEC would be 193,000 acres and remain closed to locatable and leasable mineral entry, subject to valid existing rights. Areas important to wildlife that would be open to mineral location and entry include portions of the current White Mountains caribou calving and postcalving habitat, historic Fortymile calving, postcalving, and migration habitat, and a movement corridor to the Preacher Creek Dall sheep mineral lick. Impacts from development of locatable minerals include direct disturbance to wildlife on priority habitats, fragmentation of habitat through important movement corridors, and long-term impacts to streams and riparian habitats from placer mining (section 4.5.1.2 and 4.5.1.7 Fish and Aquatic Species, Wildlife Steese Subunit respectively). Wildlife habitat areas open to locatable minerals would be also open to summer cross-country OHV use. Most impacts would continue beyond the life of the plan.

Approximately 6 percent of the 975 miles of stream open to locatable minerals under Alternative D would be within RCAs, which require higher standards for reclamation. Forty-five stream miles in the Preacher Creek drainage classified as anadromous would be open to locatable mineral entry under Alternative D. (Under Alternative B and C the area is closed to locatable minerals). The Preacher Creek drainage is also important as production area for grayling. Over the life of the plan, projections are that approximately 15 miles of stream would be mined, affecting at least 30 miles of stream. Further discussion of impacts from mining is developed in Section J.2.1 of this evaluation and finding.

Although open to oil and gas leasing, no activity, except for geophysical exploration, would occur on BLM-managed lands in the subunit under this plan. Proposals for development would be analyzed with a new NEPA process. Any exploration that might occur is expected to be on BLM-managed lands around Circle. Seismic exploration would occur during the winter with specified frost and snow depth. Exploration activity is expected to be minimal and standard stipulations and SOPs, including seasonal closures in priority habitat areas, would apply (Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations*). Testimony by community members on the North Slope has indicated that seismic exploration can interfere with cross-country snowmobile use in that the deep ruts left in the snow by seismic vehicles are difficult to traverse, adding to "wear-and-tear" on snowmobiles and sleds (SAP Minutes, June 6, 2002 meeting; Harry Brower, personal communication). However, seismic exploration, which would be expected to be minimal, does not create a substantial barrier and presents only temporary displacement of subsistence resources.

Any permitted use around designated ungulate mineral licks would be restricted within one-half mile during May 10 through September 1 and closed to development of facilities that would be used during that time.

The southern portion of the proposed Steese ACEC would remain generally free of summer motorized vehicle use. Where summer use would be allowed, it would be restricted to designated

trails. RNAs carry the only Primitive designations and would be closed to OHV use without a permit or Plan of Operations. Limited areas around the Pinnell Mountain Trail and the Birch Creek WSR Corridor would be designated as Semi-Primitive. Wolf Creek and Rocky Mountain Uplands would be designated as Backcountry. Semi-Primitive and Backcountry would be open to cross-country winter use by snowmobiles (weight limits apply) and all other OHV use with a permit or Plan of Operations. The Pinnell Mountain Trail would be closed to all motorized use.

The undesignated recreation lands, which include those around Circle, the Middlecountry and the Frontcountry RMZs would be open to locatable and leasable minerals. Middlecountry and Frontcountry would be designated within the Steese National Conservation Area and include the Preacher Creek drainage, Clums Fork and Harrison Creek. Cross-country winter and summer use of OHV 1,500 GVWR and under would be allowed in these three designations. Vehicles 10,000 pounds curb weight and under would be allowed only on existing roads and all other would be by permit or approved Plan of Operations.

Use of OHV under this alternative would have similar intensity and scope of impact on subsistence resources and uses as Alternative A, where cross-country summer and winter use would be generally allowed throughout the entire subunit. (The RMZs closed to summer cross-country use are largely inaccessible by OHV.) Competition for resources, particularly during Fortymile caribou seasons, would continue at the same level or rate of increase as for Alternative A. Impacts to subsistence fisheries would be similar to Alternative A from unmanaged proliferation of trails crossing streams and causing erosion and sedimentation.

Evaluation of the Availability of Other Lands

Alternative D would manage BLM lands in the subunit to optimize resource use and development, with the fewest restraints of all alternatives on commercial activity (minerals and forest products) and the fewest limitations on travel management and recreation activity of the action alternatives. Lands managed by other federal agencies in the planning area are managed under National Park Service or U.S. Fish and Wildlife Service planning documents, and wide-scale development of these lands is limited or disallowed by the mission and goals of these federal lands as conservation system units. BLM lands are managed by current planning documents that allow a mixture of development and conservation following the BLM multiple-use mission, or are currently being evaluated through the planning process. State of Alaska and Native corporation lands cannot be considered in a BLM plan and BLM-managed lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence use and resources include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative D would not significantly restrict subsistence use by communities in or near the planning area given the management parameters outlined in Chapter 2 of the main document and including the leasing stipulations and SOPs found in Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations*. Should the amount of oil and gas exploration, anticipated area of potential locatable mineral development, or other land uses expand beyond the reasonable development scenarios in this plan, the finding may need to be revised to take into account impacts to the White Mountains caribou herd (WMCH), FCH and other subsistence resources and uses that cannot be mitigated.

J.2.2.5. Steese Alternative E

Alternative E (Proposed RMP) differs from Alternative C for the following decisions: 21 RCAs would be identified; domestic sheep, goats and camelids would not allowed in Dall sheep habitat; personal use of timber would be allowed on all BLM-managed lands; commercial timber sales would not be allowed within the WSR, RNAs and Steese Crucial Caribou and Dall Sheep Habitat (526,000 acres); no transportation corridors would be retained and no new transportation corridors would be designated; 1,237,000 acres would be closed to leasable and locatable minerals, subject to valid existing rights; SRMA would include nine RMZs; and interim travel management would be the same as Alternative A with some exceptions. The exceptions for interim travel management would be: airboats and hovercraft would be allowed and OHV would be limited to 1,000 curb weight and 50 inch width for snowmobiles and summer OHV in the Steese National Conservation Area and Birch Creek WSR (replaces 1,500 pound GVWR); . Use of OHV in the RNAs would be limited and allow for winter use by snowmobiles. Cross-country OHV use by all users within Crucial Caribou and Dall Sheep Habitat would not be allowed without a permit. Impacts to subsistence uses from decisions in Alternative E are analyzed in Chapter 4 Section 4.5.4.4.6. Of most concern for subsistence uses would be continued summer cross-country use of OHV and allowing use of airboats and hovercraft.

Evaluation of the Effects of Use, Occupancy, or Disposition

Impacts to subsistence resources and uses from the decreased level of development allowed by this alternative would be similar in nature to those of Alternative B. The threat of habitat fragmentation within the Steese National Conservation Area, especially of caribou migration corridors, would be essentially eliminated by this alternative because the Steese National Conservation Area would be closed to locatable and leasable minerals and the WSR, RNA and Crucial Caribou and Dall Sheep Habitat would be closed to commercial timber sales. Interim travel management would have the same OHV designations as Alternative A: Primitive would be closed to summer use of OHVs and Semi-Primitive units would be open to summer OHV (GVWR would be replaces as described above.)

All Dall sheep and most of the current and historic calving and post-calving habitat would be closed to mineral location and entry (section 4.5.1.7 Wildlife Steese Subunit). Seasonal restrictions within one mile of ungulate mineral licks would apply to all permitted uses.

Approximately 30,000 acres of BLM-managed lands near Circle would be open to locatable and leasable minerals. Some exploration for leasable minerals may occur on these lands over the life of the plan, but would be expected to be minimal. Development of locatable minerals is predicted to be small due to low mineral potential but would require new access, which could facilitate

travel for hunting. While increased access would improve travel for harvest of subsistence resources it could limit resource availability through increased hunting pressure by all users.

Development of minerals and associated access would require permits, which would be analyzed for impacts on a site-specific basis. Through analysis, mitigation measures would be developed and an ANILCA Section 810(a) evaluation and finding completed. The BLM-managed lands are bordered by native corporation and village lands and state and refuge managed-land. Further, access to the BLM-managed lands for leasable or locatable mineral exploration or extraction would require permits from one or more of the adjacent land owners/managers.

All Dall sheep and most of the current and historic calving and post-calving habitat would be open to cross-county summer OHV use. Cross-country OHV use has been allowed in the Steese National Conservation Area except in RNAs, the WSR, and Pinnell Mountain Trail, through the current Steese National Conservation Area RMP (1986). Interim travel management would continue to allow this use until the Travel Management Plan is completed within five years of signing the Eastern Interior RMP Record of Decision. Demands on fish, wildlife, and other natural resources for recreation would increase (Chapter 4, Section 4.2.4.3.). OHV use to access resources would increase and with improvements in OHV technology allow users to access more remote and difficult areas cross-country. In the short-term (five years after ROD signed) no significant restrictions on subsistence uses would occur. Decisions on OHV access in the Travel Management Plan would be analyzed and an ANILCA Section 810 Evaluation and Finding completed. Longer-term impacts from travel management decisions on subsistence uses would be analyzed at that time.

Evaluation of the Availability of Other Lands

The purpose sought to be achieved under Alternative E is to manage BLM lands in the subunit following the BLM mission of multiple use, while at the same time protecting crucial and priority habitat and enhancing natural resource values. Lands managed by other federal agencies in the planning area are managed under National Park Service or U.S. Fish and Wildlife Service planning documents, and are considered conservation system units. Other BLM lands in the state either already have land use planning documents in place that specify the amounts and types of activities that can or cannot occur, or are currently being evaluated by separate planning processes. State and native corporation lands cannot be considered in a BLM plan and BLM-managed lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2. Evaluation of impacts to subsistence uses and resources and findings for Alternatives A-E are contained within this appendix to the Proposed RMP/Final EIS.

Findings

Alternative E would not significantly restrict subsistence use by communities in the planning area. Most impacts to subsistence resources and uses would be minor, and any impacts from the development allowed to occur would be minimized by the leasing stipulations and SOPs discussed in Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*. Impacts to subsistence resources would be expected to be localized and temporary, and would not be expected to impact resources at the population level. SOPs and leasing stipulations to protect riparian and aquatic habitats would be necessary to mitigate impacts from placer mining. No impacts to access by subsistence users would be expected to occur. Availability and distribution of subsistence resources, particularly for caribou and moose, could change if hunting pressure increases due to continued cross-country access in the Steese National Conservation Area or from new access around Circle. Conflicts due to competition are largely issues outside the scope of the Eastern Interior RMP/EIS. Efforts to reduce these conflicts would be accomplished through limits within regulations on hunting seasons, bag limits, and methods and means, which are the responsibility of the Federal Subsistence Board and Alaska Board of Game.

J.2.2.6. Steese Cumulative Case

The goal of the cumulative analysis is to evaluate the incremental impact of the current action in conjunction with all past, present, and reasonably foreseeable future actions in or near the planning area. The cumulative analysis considers in greatest detail activities that are more certain to happen, and activities that were identified as of great concern during scoping. Actions considered in the cumulative analysis include, but are not limited to, the following (refer to Chapter 4 Cumulative Impacts).

The Fortymile caribou herd will be impacted by activities across its range. The herd presently ranges from north of the Yukon River in Yukon, Canada and into the Preacher Creek Drainage of the north Steese National Conservation Area and western fringe of the White Mountains NRA. Section J.2.1.5 of this appendix discusses the cumulative impacts of the following activities on subsistence resources in the Fortymile Subunit and would also apply in the Steese Subunit due to the migratory nature of the Fortymile caribou herd, proximity of Pogo Mine and Little White Man Prospect, commercial development of the Tanana Valley State Forest, and overflights in Military Operation Areas (MOA) airspace.

State land sales adjacent to the south Steese National Recreation Area have recently been opened as recreation parcels. Sales could result in increasing habitation and recreation use within the migration corridor of the Fortymile caribou herd.

Development of minerals will occur on state and private lands in the subunit. Effects will be similar to those described for activities on BLM lands, except that the level of activity is expected to be higher due to higher mineral potential, particularly on state lands between the north and south portions of the Steese National Conservation Area. This area is important to Fortymile caribou herd as a migration corridor and winter range.

Military aircraft use is allowed in MOAs over much of the Steese Subunit and is likely to increase. Impacts to wildlife resources important to subsistence could potentially occur. Current practices by the military to avoid exercises during caribou calving and implementing minimum ceilings have reduced impacts to caribou.

Research, monitoring and other land management activities will continue on all lands in the subunit and include access to remote areas by fixed and rotary wing aircraft, snowmobiles and other OHVs. Disturbance from these activities is localized and temporary.

Climate change will benefit some subsistence resources and negatively affect others. Changes in species distribution and vegetation communities in subarctic areas are predicted to occur by 2040. Frequency and severity of natural wildland fire in Interior Alaska are predicted to increase and result in shifts to deciduous and shrub-dominated landscapes; which may benefit moose and some furbearers but not caribou. Predicted increases in water temperatures would alter chemical and biotic conditions to the detriment of subsistence fish diversity and abundance. Increases in soil temperatures would result in drying of lakes and ponds.

The population of Fairbanks and the surrounding area is predicted to increase by about 10 percent from the 2000 census to the 2020 census. Development of a gas line or other projects may boost the population beyond the estimate. Demands for recreation and subsistence resources are predicted to increase between 10 and 15 percent over the next 20 years.

Conveyance of remaining selected lands to the State and Native corporations is ongoing. Planning area wide, about 1.1 million acres are in selection by Native corporations (ANCSA 1971) and 1.4 million acres are in selection by the State of Alaska. Fish and wildlife management of harvest would be predicated on state regulations on conveyed lands. Based on joint state/federal harvest management of caribou in the subunit, no impacts to subsistence uses would be expected to occur. Impacts to use of fish and other wildlife off BLM-managed lands may occur where state regulations are more restrictive than federal regulations on those lands.

Alternative B would better protect subsistence resources than Alternative E in concert with actions occurring adjacent to BLM-managed lands in the Steese Subunit because no summer use of OHV would be allowed. Alternative E would somewhat increase effects on subsistence resources and uses when considered with actions by other land managers adjacent to BLM-managed lands. Alternative D would potentially have the greatest impacts on subsistence resources and uses when added to decisions by adjacent land managers.

Evaluation of the Effects of Use, Occupancy, or Disposition

The combination of ongoing locatable mineral development and future projected development on state, federal, and private lands in the Steese Subunit in concert with activities in the Fortymile Subunit would have cumulative impacts on Fortymile caribou and potentially on White Mountains caribou under Alternative D (Sections 4.4.1.7.6, 4.4.4.4.7., 4.5.1.7.6., and 4.5.4.4.7.). The privatization of State of Alaska or Native corporation lands could lead to additional development. Depending on the location of development, these impacts could include: short or long-term disturbance to caribou calving habitat, insect relief habitat, and migratory routes; disruption of caribou movements; stress and disturbance impacts to caribou during all seasons of the year; and possible reductions in herd productivity. If significant developments occurred within the calving grounds or crucial insect relief habitat, these impacts could result in significant restrictions on subsistence uses. Development of access roads and trails within the planning area would have the potential to negatively affect fish and wildlife, and thus affect subsistence use. These impacts would include: habitat fragmentation; increased access into wildlife habitats; introduction of invasive species, increased disturbance impacts; increased potential for mortality and possible alteration of behavior or movement patterns of wildlife; stream bank erosion; sedimentation and pollutants (vehicle and OHV solvents and fuels), which can result in direct mortality of fish and

diminished water quality; and OHV trampling of stream side vegetation. This may also result in an increase in recreational use of the area, which could alter availability and distribution of subsistence resources (Chapter 4 Section 4.5.4.4).

Evaluation of the Availability of Other Lands

The Cumulative Case, as presented in the planning document, contains information on existing impacts from past actions, impacts from current actions, and impacts from reasonably foreseeable activities that could have an effect on the management decisions being analyzed as part of the RMP/EIS. The purpose of the Cumulative Case is to present known ongoing activity by all entities on all lands near or within the planning area, as well as those activities that have been proposed for the future and are likely to occur. The Cumulative Case is not an implementable alternative that specifies land uses and management, and instead is a discussion of impacts that could affect the management decisions contained within Alternatives A through E. As such, no other lands are evaluated under the Cumulative Case.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this Resource Management Plan, as well as Alternative A. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative D when combined with the cumulative case, as presented in this analysis, could result in a reasonably foreseeable and significant restriction of subsistence use for rural communities within the planning area, if significant activity occurs within migration corridors or other crucial habitat of fish and wildlife. The level of impacts on subsistence use depend on the response to increased opportunity for development of locatable minerals and cross-country use of OHV under Alternative D. Currently, the FCH is a primary subsistence resource for numerous communities in rural Alaska (Gross 2007) and the herd could be impacted by activities on and adjacent to BLM-managed lands in the Steese and Fortymile subunits.

Management parameters outlined in Chapter 2 of the main document and the leasing stipulations and SOPs found in Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations* would help mitigate the impacts. High locatable mineral potential occurs on BLM-managed lands in the Clums Fork and Harrison Creek portion of the south Steese National Conservation Area, most of which would be open to locatable minerals under Alternative D and would be likely to be developed. Locatable mineral potential in the north Steese National Conservation Area is mostly low in the open areas, however gold prices and relative accessibility of the area could lead to increased mining activity.

Alternatives A–C and E, when combined with the cumulative case, would not result in significant restrictions. No reasonably foreseeable significant restrictions on subsistence uses have been identified for the Alternative E (Proposed RMP) when combined with the cumulative case. Under Alternative E most habitats important to subsistence resources would be managed as Crucial

Caribou and Dall Sheep Habitat or afforded protection by other management prescriptions, including RCAs. Interim travel management in the Steese Subunit would have short-term effects on subsistence uses and would not significantly restrict uses. The Travel Management Plan would be developed in the five years after signing of the Steese National Conservation Area Record of Decision. Impacts would be analyzed through the NEPA process and an ANILCA Section 810 Evaluation and Finding would be conducted.

J.2.3. Evaluation and Finding for Upper Black River Subunit

The Black and Porcupine River areas are critically important to residents of the subunit for subsistence uses. During scoping for the plan, residents of the subunit stated that the Upper Black River area is vital for subsistence uses and resources, particularly for moose. Participants spoke of the importance of the area as a moose calving ground and corridor for moose moving between Canada and the Yukon Flats. Moose populations are at low numbers in the Yukon Flats area to the west and local subsistence users in the subunit depend on the Upper Black River area for harvest of moose. Most hunting for moose in the Upper Black River is typically in the fall. However, people travel into the area for moose in the winter when needed. Other participants stressed the importance of fish in the Black River to the communities, specifically whitefish, and the importance of salmon spawning areas, which benefits the whole Yukon drainage. In interviews with residents of the subunit, Caulfield (1983) documented use of the Upper Black for trapping, harvest of fish, vegetation, small mammals, moose, firewood and structural materials, bear and caribou (Map 98). Whitefish were identified as a stable food source for the area residents.

Residents of Circle extensively use areas in the subunit, primarily up and down the Yukon River into Yukon Flats NWR and Yukon-Charley Rivers National Preserve, but also have a long history of use into the Little Black River east of the community. Trapping in particular has been documented on BLM-managed lands in the subunit accessible from the community (Caulfield 1979). Most access is by snowmobile.

J.2.3.1. Upper Black River Alternative A

Alternative A would result in continuing to manage the Upper Black River Unit as is currently being done. No land use plan has been developed for the area and current management complies with direction contained in existing laws, regulation and policy. The current levels, methods and mix of multiple use management of public land in the planning area would continue, and resource values would receive attention at present levels. In general, most activities would be analyzed at the project level and few uses would be limited or excluded as long as they were consistent with state and federal laws. Wildland Fire would be managed consistent with the Alaska Land Use Plan Amendment for Wildland Fire and Fuels Management (BLM 2004b, 2005c).

The subunit is extremely remote and ongoing uses of BLM-managed lands consist primarily of subsistence or casual recreational use. Use of fish, wildlife and other subsistence resources are the most prevalent uses in the subunit, relied upon by nearly all residents, and protection of these resources was the highest concern during scoping meetings. Scattered BLM lands around the community of Circle are more accessible, but generally receive little use other than from local residents.

Due to lack of access and limited mineral potential few surface-disturbing activities would be expected in this subunit under any alternative.

Evaluation of the Effects of Use, Occupancy, or Disposition

Under Alternative A, the primary impacts to subsistence would be associated with recreational use.

Management of resources, including water, cultural and paleontological, fish, wildlife, and vegetation, and of resource uses requires inventory and monitoring of conditions and populations and field site visits for compliance examinations. Activities that support data collection could displace subsistence resources from traditional harvest areas. Most data collection in the area would be accomplished using fixed- or rotary-winged aircraft. Disturbance from aircraft during management surveys would be temporary and localized and would not affect subsistence uses or any fish, wildlife or vegetative resources at the population level. Inventory and monitoring efforts would benefit subsistence resources by providing valuable data on distribution and population parameters. These activities would occur in Alternatives A through E.

BLM-managed lands in the subunit would remain withdrawn from mineral location and leasing through ANCSA 17(d)(1). No existing mining claims occur in the subunit, therefore no impacts from mineral exploration or development to subsistence resources or uses would occur. Use of OHV, non-motorized vehicles, motorized watercraft, and aircraft would be unrestricted. Due to the remoteness of the area most use of motorized vehicles (snowmobile and boat) would be by local residents for subsistence purposes. Some use of aircraft occurs by other users. Recreation would be managed to reduce user conflicts and prevent resource damage. No impacts from management of recreation or travel would be anticipated.

Under Alternative A, no special designations would exist. Special designations, such as areas of critical environmental concern, generally convey a higher level of protection to resource values.

Evaluation of the Availability of Other Lands

The purpose sought to be achieved under Alternative A would be to continue the current management of BLM-managed lands in the subunit. Other federal public lands in the subunit are managed under National Park Service (Yukon-Charley Rivers National Preserve) or U.S. Fish and Wildlife Service (Arctic NWR and Yukon Flats NWR) planning documents. Other BLM lands in the state either already have land use planning documents in place, or are being addressed by separate planning processes. State and Native corporation lands cannot be considered in a BLM plan and BLM-managed lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the four action alternatives that are presented in Chapters 2 and analyzed in Chapter 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are discussed in Chapter 2.

Findings

Alternative A would not significantly restrict subsistence use by communities in and adjacent to the planning area, as impacts to subsistence resources would be negligible. Under this alternative

the ANCSA 17(d)(1) withdrawals would be retained, prohibiting new leasable and locatable mineral activities on BLM-managed lands. The current levels, methods and mix of multiple uses would continue. Impacts to subsistence species would be expected to be localized and temporary and would not be expected to impact resources at the population level. No impacts to access by subsistence users would be anticipated.

J.2.3.2. Upper Black River Alternative B

Alternative B would emphasize active measures to protect and enhance resource values. Production of minerals and services would be more constrained than in Alternatives C or D and in some areas, uses would be excluded to protect sensitive resources. The Salmon Fork ACEC would be created to protect or enhance values within these areas. Values included would be maintaining water quality, salmon habitat, and protection of Porcupine caribou herd wintering grounds. The Salmon Fork of the Black River would been recommended as suitable for designation as wild under the Wild and Scenic River Act. Limited areas would be proposed for Off Highway Vehicles (OHV) to protect habitat, soil and vegetation resources. The area would remain closed to mineral entry and leasing in order to protect or maintain resource values. This alternative and Alternatives C-E would consider lands selected by the state and by Native or village corporations as if they were to be retained in long-term federal ownership.

Evaluation of the Effects of Use, Occupancy, or Disposition

The analysis of effects from Alternative B concludes that impact as a result of management actions or designations within the planning area will not result in significant reductions in subsistence resources or uses. Many of the proposed actions would serve to positively impact subsistence in that management would emphasize habitat and resource protection. While some development activity could occur under this alternative, habitat important to subsistence resources would be protected by special designation, and by the stipulations and SOPs as presented in Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations*. Actions such as the creation of ACECs and/or the designation of rivers as WSRs would not limit or impose any restriction on subsistence use as per ANILCA Title VIII.

The Salmon Fork ACEC (621,000 acres, Map 69) would be created to protect many values. Those of most important value to subsistence protected by the designation would be aquatic habitat for all fish species in the portion of the watershed, including three species of salmon and whitefish, and caribou winter habitat. The area would remain closed to entry, location and leasing of minerals and would be closed to summer OHV use.

Evaluation of the Availability of Other Lands

Alternative B would manage BLM public lands in the Upper Black River Subunit in order to optimize conservation. Lands managed by other federal agencies in the planning area are managed under National Park Service or U.S. Fish and Wildlife Service planning documents, and are conservation system units. Other BLM lands in the state either already have land use planning documents in place that specify the amounts and types of activities that could occur, or are currently being evaluated by separate planning processes. State and Native corporation lands cannot be considered in a BLM plan and BLM lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the no action and the four action alternatives that are presented in Chapters 2 and analyzed in Chapters 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are discussed in Chapter 2.

Findings

Alternative B would not significantly restrict subsistence use of or access to fish, wildlife and vegetative resources by residents in the subunit. Most impacts to subsistence resources would be beneficial, and any impacts by way of the limited amount of development allowed and expected to occur under this alternative would be minimized by stipulations and SOPs (see Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations* and Chapter 2).

J.2.3.3. Upper Black River Alternative C

Alternative C would emphasize a moderate level of protection, use, and enhancement of resources and services. Constraints to protect resources would be implemented, but would be less restrictive than under Alternative B. This alternative would designate an ACEC of the same area as Alternative B however it would be open to locatable minerals and no season limits on OHV use. No rivers would be recommended as suitable for designation under the WSRA.

Evaluation of the Effects of Use, Occupancy, or Disposition

Impacts to subsistence resources and uses would potentially increase from decisions in this alternative. The remoteness of the area and low mineral potential render it likely that little or no development or increase in use would occur and impacts would be expected to be the same as for Alternative B.

Under Alternative C, the Salmon Fork ACEC would be the same acreage as Alternative B. The ACEC would be closed to leasable minerals, but the rest of the subunit would be open. The entire subunit, including the ACEC, would be open to locatable and salable minerals and to the year-round use of OHVs. Emphasis on improving riparian and aquatic habitat through reclamation would be afforded through RCAs within the Kandik and Salmon Forks. Some geophysical exploration on lands around Circle for fluid leasable minerals may occur over the life of the plan, but is expected to be minimal. Little or no exploration is expected in other areas of the subunit. Due to low potential and expected low level of interest, development of locatable minerals would be predicted to be small. Any applications for locatable minerals could include new access, which could facilitate travel for hunting and increase competition for subsistence resources. Applications for any land use would require a project level analysis to which stipulations to mitigate impacts to subsistence uses would be attached (Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations*).

Summer cross-country use of OHV 1,500 pounds curb weight and under would be allowed throughout the area, including the ACEC. Use would not be expected to increase, because the remoteness of the location and difficulty of summer cross-country travel would limit OHV use.

Boat and winter cross-county snowmobile travel would be expected to be local and mostly in support of subsistence activities. Some use by recreational aircraft would be expected, mostly during state hunting seasons.

Although reduced protection to areas most important to fish, wildlife and vegetative subsistence resources would be afforded through this alternative, limited use and development would be anticipated and impacts to subsistence resources and uses would be negligible.

Evaluation of the Availability of Other Lands

The purpose sought to be achieved under Alternative C would be to manage BLM lands in the subunit following the BLM mission of multiple use, while at the same time protecting priority habitat and enhancing natural resource values. Lands managed by other federal agencies in the planning area are managed under National Park Service or U.S. Fish and Wildlife Service planning documents, and are considered conservation system units. Other BLM lands in the state either already have land use planning documents in place that specify the amounts and types of activities that could occur, or are currently being evaluated by separate planning processes. State and Native corporation lands cannot be considered in a BLM plan and BLM lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the no action and the four action alternatives that are presented in Chapters 2 and analyzed in Chapters 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are discussed in Chapter 2.

Findings

Alternative C would not significantly restrict subsistence use by communities in the planning area. Most impacts to subsistence resources and uses would be negligible, and any impacts from the limited amount of development allowed to occur would be minimized by the leasing stipulations and SOPs discussed in Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations*. The impacts to subsistence species would be expected to be localized and temporary, and would not be expected to impact resources at the population level. No impacts to access by subsistence users would be expected to occur.

J.2.3.4. Upper Black River Alternative D

Alternative D emphasizes active management to facilitate resource development on BLM lands in the subunit. Unlike the other action alternatives, large and small commercial timber sales would be allowed in the ACEC. All ANCSA 17(d)(1) withdrawals would be revoked on lands retained in long-term federal ownership. The ACEC would be open to mineral leasing and location. No rivers would be recommended as suitable for designation under the WSRA.

Evaluation of the Effects of Use, Occupancy, or Disposition

Impacts to subsistence resources and uses from the increased development and use allowed by this alternative would be similar to the other action alternatives.

Under Alternative D the Salmon Fork ACEC would be the same acreage as the other action alternatives, but the ACEC and all BLM-managed lands in the subunit would be open to mineral location and leasing. No RCAs would be identified to confer additional protections. Small and large commercial timber harvest would be allowed in the ACEC, but would be predicted to be minimal over the life of the plan. The area would be difficult to access and remote from markets, making timber from the area unmarketable.

Any geophysical exploration for oil and gas in the subunit would be expected to be minimal, same level as predicted in Alternative B and C, and would most likely occur around Circle. Development of locatable minerals would also be predicted to be small. Any applications for locatable minerals could include new access, which could facilitate travel for hunting and increase competition for subsistence resources. Applications for any land use would require a project level analysis to which stipulations to mitigate impacts to subsistence uses would be attached (Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations*).

Summer cross-country use of OHV would be the same as in Alternative C. Use of OHV 1,500 pounds curb weight and under would be allowed throughout the area, including the ACEC. Use would not be expected to increase, due to the remoteness of the location and difficulty of summer cross-country travel. Boat and winter cross-county snowmobile travel would be expected to be local and mostly in support of subsistence activities. Some use by recreational aircraft would be expected during state hunting seasons.

Although the least protection to areas most important to fish, wildlife, and vegetative subsistence resources would be afforded through this alternative, limited use and development would be anticipated and impacts would not significantly restrict subsistence uses.

Evaluation of the Availability of Other Lands

Alternative D would manage BLM lands in the subunit to optimize resource use and development, with the fewest restraints on commercial or recreational activity. Lands managed by other federal agencies in the planning area are managed under National Park Service or U.S. Fish and Wildlife Service planning documents and as conservation system units. Other BLM-managed lands in the state are managed under specific planning documents. Additional BLM lands are managed by current planning documents that allow a mixture of development and conservation following BLM's multiple-use mission, or are currently being evaluated through the planning process. State of Alaska and Native corporation lands cannot be considered in a BLM plan, and under BLM policy other BLM-managed lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence use and resources include the no action and four action alternatives that are presented in Chapters 2 and analyzed in Chapters 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values

following current national guidelines. Additional alternatives considered, but not analyzed in detail, are discussed in Chapter 2.

Findings

Alternative D would not significantly restrict subsistence use by communities in or near the planning area given the management parameters outlined in Chapter 2 of the main document and including the Stipulations and SOPs found in Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations*. NEPA analysis and evaluation of impacts on subsistence uses would be conducted for each application to further develop site-specific mitigation measures.

J.2.3.5. Upper Black River Alternative E (Proposed RMP)

Alternative E (Proposed RMP) differs from Alternative C (Preferred Alternative in the Draft RMP/EIS) for the following decisions: The Salmon Fork ACEC would be slightly larger (623,000 acres, Map 69); 28 watersheds would be managed as Riparian Conservation Areas (RCAs, Map 11); and ACEC, RCAs, and Black River watershed would be closed to locatable and leasable minerals (1,813,000 acres, Map 43).

Evaluation of the Effects of Use, Occupancy, or Disposition

Impacts to subsistence resources and uses would be less from decisions in this alternative than for Alternative C because the ACEC, RCAs, and Black River watershed would be closed to both locatable and leasable minerals. Under Alternative E, the Salmon Fork ACEC would be slightly larger than in Alternative C. BLM-managed lands in the rest of the subunit (547,000 acres) would be open to leasable and locatable minerals. The entire subunit would be open to salable minerals and to the year-round use of OHVs.

The remoteness of the area and low mineral potential render it likely that little or no development or increase in use would occur and impacts would be expected to be the same as for Alternative B. No active State mining claims or Federal Plans or Notices currently exist in the subunit. The anticipated number of suction dredging or small or large placer mining operations on BLM-managed lands in the Upper Black River subunit would be zero (Reasonably Foreseeable Development Scenario Section 4.2.1.3.4.).

Analytical assumptions for leasable minerals are in Section 4.2.1.3.3.1. No oil and gas development would occur but limited seismic exploration could occur in the Upper Black River Subunit near Circle.

Applications for any land use, including for exploration, would require a project level analysis to which stipulations would be attached (Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*) and an ANILCA Section 810(a) Evaluation and Finding would be conducted.

Summer cross-country use of OHV 1,500 pounds curb weight and under would be allowed throughout the area, including the ACEC. Use would not be expected to increase due to the remoteness of the location and difficulty of summer cross-country travel over the terrain. Boat and winter cross-county snowmobile travel would be expected to be local and in support of subsistence activities. Some use by recreational aircraft would be expected, mostly during state hunting seasons. Although some areas outside the RCAs and ACEC important to fish, wildlife

and vegetative subsistence resources would be open to minerals through this alternative, limited development would be anticipated and impacts to subsistence resources and uses would be negligible.

Evaluation of the Availability of Other Lands

The purpose sought to be achieved under Alternative E is to manage BLM lands in the subunit following the BLM mission of multiple use, while at the same time protecting priority habitat and enhancing natural resource values. Lands managed by other federal agencies in the planning area are managed under National Park Service or U.S. Fish and Wildlife Service planning documents, and are considered conservation system units. Other BLM lands in the state either already have land use planning documents in place that specify the amounts and types of activities that can or cannot occur, or are currently being evaluated by separate planning processes. State and Native Corporation lands cannot be considered in a BLM plan and BLM lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the no action and the four action alternatives that are presented in Chapters 2 and analyzed in Chapters 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are discussed in Chapter 2.

Findings

Alternative E would not significantly restrict subsistence use by communities in or adjacent to the planning area. Most impacts to subsistence resources and uses would be negligible, and any impacts from the limited amount of development allowed to occur would be minimized by the leasing stipulations and SOPs discussed in Appendix A, *Standard Operating Procedures and Fluid Mineral Leasing Stipulations*. Any impacts to subsistence species would be expected to be localized and temporary, and would not be expected to impact resources at the population level. No impacts to access by subsistence users would be expected to occur.

J.2.3.6. Upper Black River Cumulative Case

The goal of the cumulative analysis is to evaluate the incremental impact of the proposed decisions in conjunction with all past, present, and reasonably foreseeable future actions in or near the planning area. The cumulative analysis considers in greatest detail activities that are more certain to happen, and activities that were identified as being of great concern during scoping for the RMP. Actions considered in the cumulative analysis include, but are not limited to, the following (section 4.2.4 Cumulative Impacts):

The Yukon Flats and Arctic National Wildlife Refuges (NWRs) encompass 43 percent of the Upper Black River Subunit (Map 4). The Yukon Flats NWR is managed according to ANILCA (Section 302(9)(B)) to conserve fish and wildlife resources; fulfill international treaty obligations of the United States with respect to fish and wildlife resources; provide the opportunity for

continued subsistence uses by local residents; and ensure water quality and quantity within the region. Activities within the refuge include hunting, fishing, recreation use, subsistence harvest, and research and management activities. Although oil and gas exploration has occurred on the refuge, no oil development has occurred. Several acres of Native allotments are scattered throughout the Yukon Flats. The communities of Chalkyitsik and Fort Yukon are within the boundaries of the refuge and both use the area for harvest of subsistence resources. The Yukon Flats NWR provides protection of subsistence resources and use opportunities. Management in the Yukon Flats NWR is expected to continue to be similar to that of the past decade.

The Arctic NWR lays north of BLM-managed lands in the subunit. Its creation began with the designation of the Arctic National Wildlife Range (Arctic Range) in 1960 (Public Land Order 2214). The Arctic Range was established for the "purpose of preserving unique wildlife, wilderness and recreational values." In 1980, ANILCA (Section 303(2)) established the Arctic NWR, encompassing the lands and waters of the Arctic Range. ANILCA identified four purposes for Arctic NWR. Three of these purposes (ANILCA Section 303(2)(B)(ii),(iii), and (iv)) are identical to the purposes of Yukon Flats NWR, and one (i) is similar: "to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to, the Porcupine caribou herd (including participation in coordinating the Western Arctic caribou herd), polar bears, grizzly bears, muskox, Dall's sheep, wolves, wolverines, snow geese, peregrine falcons, and other migratory birds, and arctic char and grayling." The ANILCA purposes apply to the entire refuge, and to the extent they are not inconsistent with ANILCA, the lands that were part of the original Arctic Range retain the 1960 establishing purpose. No communities, roads, developments, or trails occur within the Upper Black River Subunit portion of the refuge. The Arctic NWR is considered to be the most primitive and undisturbed conservation area in the Nation. Subsistence use areas for Chalkyitsik and Fort Yukon residents extend into the refuge. Management of the refuge is expected to continue to be similar to the past three decades.

The northern portion of the Yukon-Charley Rivers National Preserve (Preserve) borders BLM-managed and Doyon, Limited, lands in the south end of the subunit and totals 13 percent of the subunit (Map 4). Established under ANILCA, the purpose of the Preserve is to protect and conserve natural and cultural resources to ensure use and enjoyment by future generations. Within the borders of the Preserve are private lands, mining claims and state managed submerged lands. The Coal Creek mining area is accessible by a right-of-way for a state road. No communities are located within the Preserve however the Preserve is within the subsistence use areas for upper Yukon River residents, Eagle, Eagle Village, Fort Yukon, and Circle. The Preserve provides protection of subsistence resources and use opportunities. Management in the Preserve is expected to continue to be similar to that of the previous three decades.

State lands total 5 percent of the subunit. State lands are managed for multiple uses (Map 4). ADF&G is responsible for management of fish and wildlife resources and its management activities apply to all lands in Alaska.

Private lands, including lands conveyed by ANCSA, total 9 percent of the subunit (Map 4). Objectives for village and corporation lands include oil and gas exploration, mineral development, traditional uses, subsistence and conservation. Conveyance of selected lands is ongoing. Approximately 2 percent of lands within the subunit are ANCSA selected. Higher priority lands will be conveyed. ANILCA Title VIII, which provides for a subsistence preference to rural residents, will not apply to conveyed lands. Harvest regulations developed by the Alaska Boards of Fish and Game will apply to these lands.

Oil and gas exploration has been conducted in the subunit, mostly on Yukon Flats NWR where development potential is high. High potential has been identified for parts of the Kandik River. Test results within the Kandik Basin were not favorable and no development has occurred or been proposed. No permits for oil and gas development are in preparation or expected during the life of the plan. Oil and gas development in the area remains speculative and would not be considered as a potential cumulative impact over the next 30 years.

No mining is occurring on federal or state mining claims in the Upper Black River Subunit according to the Alaska Resource Data File. No current or proposed mining activity adjacent to the subunit is within the geographic scope for consideration in the analysis of cumulative impacts. The geographic scope is the Eastern Interior Planning Area (Map 1).

Three Military Operations Areas occur within the subunit. Activity is expected to remain the same or slightly increase. Impacts to wildlife resources important to subsistence could potentially occur. Current practices by the military are to avoid exercises during calving and to implement minimum ceilings to reduced impacts to caribou. Research, monitoring and other land management activities will continue on all lands in the subunit and include access to remote areas by fixed-wing and rotary aircraft, snowmobiles and other OHV. Disturbance from these activities is and would be expected to be localized and temporary.

Climate change will benefit some subsistence resources and negatively affect others. Changes in species distribution and vegetative communities in subarctic areas are predicted to occur by 2040. Frequency and severity of wildland fire in Interior Alaska are predicted to increase and result in shifts to deciduous and shrub-dominated landscapes, which may benefit moose and some furbearers but not caribou. Predicted increases in water temperatures would alter chemical and biotic conditions to the detriment of subsistence fish diversity and abundance. Increases in soil temperatures would result in drying of lakes and ponds. Non-native invasive species (invasive species) can tolerate marginal and wider ranges of environmental conditions than native species. Longer frost-free seasons, drying of lakes and ponds, increases in wildland fire frequency and severity favor pioneering invasive species. BLM-authorized activities that would be allowed under the Eastern Interior RMP could result in removal of vegetation that insulates permafrost. In combination with climate change features, melting of permafrost could be accelerated from actions that remove vegetative cover. However, little change in uses on the BLM-managed lands in the Upper Black River subunit would be expected. Any permitted activities could be permitted would analyze the cumulative effects of the action, including climate change.

Lands managed by BLM in the Upper Black River are surrounded by conservation units and corporation lands. Past, present or reasonably foreseeable future actions by adjacent land managers and uses would be consistent with protection of subsistence uses in the subunit.

Evaluation of the Effects of Use, Occupancy, or Disposition

According to the fish and aquatic resources, vegetative communities, wildlife resources and subsistence analysis in Chapter 4 of the Eastern Interior RMP/EIS, the combination of ongoing leasable and locatable mineral development occurring on state, federal and private lands in the subunit and future development projected for the subunit, would not have cumulative impacts on these resources in the subunit. The privatization of State of Alaska or Native corporation lands could lead to additional development. Depending on the location of development, these impacts could include: short or long-term disturbance to fish and wildlife habitat and migratory routes; disruption of wildlife distribution and movements; stress and disturbance impacts during

all seasons of the year; and possible reductions in productivity. If substantial activity occurred within habitat important for subsistence species these impacts could be detectable. Based on the areas of the subunit with high potential leasable and locatable minerals no significant cumulative impacts would be expected to occur.

Evaluation of the Availability of Other Lands

The Cumulative Case, as presented in the planning document, contains information on persistent conditions from past and present actions and reasonably foreseeable future activities that could have an effect on the management decisions being analyzed as part of the RMP/EIS. The purpose of the Cumulative Case is to present known ongoing activity by all entities on all lands near or within the planning area, as well as those activities that have been proposed for the future and would be likely to occur. The Cumulative Case is not an implementable alternative that specifies land uses and management, but instead is a discussion of impacts that could affect the management decisions contained within Alternatives A through E. As such, no other lands are evaluated under the Cumulative Case.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the four action alternatives that are presented in Chapters 2 and analyzed in Chapters 4 of the main body of this RMP/EIS, as well as Alternative A. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are discussed in Chapter 2.

Findings

The cumulative case, as presented in this analysis, is not expected to result in a reasonably foreseeable or significant restriction of subsistence resources or uses for rural communities within the planning area.

J.2.4. Evaluation and Finding for White Mountains Subunit

J.2.4.1. White Mountains Alternative A

Selection of Alternative A would result in continued management of the White Mountains Subunit as specified in the 1986 White Mountains National Recreation Area Resource Management Plan (Plan). Valid decisions contained in the Plan would be implemented if not already completed. Direction contained in existing laws, regulation and policy would also continue to be implemented, sometimes superseding provisions in the Plan. The current levels, methods and mix of multiple use management of public land in the planning area would continue, and resource values would receive attention at present levels. In general, most activities would be analyzed at the project level and few uses would be limited or excluded as long as they were consistent with state and federal laws. Wildland fire would be managed consistent with the Alaska Land Use Plan Amendment for Wildland Fire and Fuels Management (BLM 2004b, 2005c).

Evaluation of the Effects of Use, Occupancy, or Disposition

Under Alternative A, the primary impacts to subsistence would be associated with continuation of the current management of Recreation and Off Highway Vehicle (OHV) use as described in the Plan.

Management of resources, including water, cultural and paleontological, fish, wildlife, and vegetation, and of resource uses, including mining and lands activities, requires inventory and monitoring of conditions and populations. Field site visits for compliance examinations are also required. Activities that support data collection may displace subsistence resources from traditional harvest areas. Disturbance from the use of aircraft and OHV during management surveys will be temporary and localized and will not affect any fish, wildlife or vegetative resources at the population level. Inventory and monitoring efforts will benefit subsistence resources by providing valuable data on distribution and population parameters.

Under Alternative A BLM-managed lands in the subunit would be withdrawn from mineral leasing and entry. Mining is limited to existing valid claims, which are primarily in the Livengood area.

Fish, wildlife and vegetative resources in the White Mountains Subunit have been impacted by past placer mining activity in the White Mountains National Recreation Area (NRA). No mining currently occurs or will occur within the NRA under any of the alternatives. Although the subunit is closed to mineral location and entry under Alternative A, 3500 acres of valid existing claims continue to be worked on BLM-managed lands around Livengood. Several claims are also actively mined on adjacent state-managed lands.

Beaver Creek contains the highest value fishery resources in the subunit, aside from the Yukon River. In addition to the White Mountains NRA being closed to locatable minerals in all alternatives and leasable minerals under Alternatives A through C, stream buffers within one-half mile of the banks of Beaver Creek WSR would be withdrawn from locatable minerals under ANILCA, which applies for all alternatives (sections 2.6.3.8 and 2.10.1.2.6 Withdrawals). Given the closure to locatable minerals on BLM-managed lands in the majority of the subunit, impacts to fish and aquatic habitats would be expected to be minimal under the no action and action alternatives. Preserving riparian and stream bank vegetation largely mitigates impacts from placer mining to aquatic systems and is recommended as a standard stipulation for mining operations on all streams.

Under Alternative A, the greatest impact to subsistence resources and uses would result from continuing current management standards of OHV and recreational use in the White Mountains Subunit. Cross-country summer travel by OHV 1,500 GVWR and under would generally be allowed in about 40 percent of the White Mountains NRA and on other BLM-managed lands in the subunit (Map 48). The Beaver Creek WSR Corridor and Primitive area would be closed to summer OHV use and the Research Natural Areas (RNA) would be closed to both summer and winter OHV use. Cross-country summer use in the Semi-Primitive motorized area has resulted in a network of trails. Unmanaged trail proliferation would continue under Alternative A.

With limited restrictions on OHV use and no established limits on visitor use, impacts to subsistence resources and uses could occur. Recreation and OHV use is predicted to continue increasing with population growth in the state and as OHV technology continues to advance. Cross-country access could increases participation in harvest of wildlife resources by all users and could lead to direct and indirect impacts to subsistence uses. Relief for subsistence users would be through the proposals to the Alaska Board of Game and Federal Subsistence Board.

During scoping for the plan no concerns specific to subsistence resources or uses in the White Mountains Subunit were raised, although general comments are common to all subunits.

A small harvest from the White Mountains caribou herd occurs annually. Harvest ticket and registration permit requests and returns documented that the major participation in harvest of caribou in the subunit is by residents from non-rural areas. Participation in other subsistence activities on BLM-managed lands in the subunit is also minimal based on harvest ticket returns and technical reports documenting use areas of communities in and adjacent to the subunit.

Evaluation of the Availability of Other Lands

The purpose sought to be achieved under Alternative A would be to continue the current management of BLM-managed lands in the subunit under the 1986 White Mountains RMP. Other federal public lands in the subunit are managed under U.S. Fish and Wildlife Service (Yukon Flats NWR) planning documents. Other BLM lands in the state either already have land use planning documents in place, or are being addressed by separate planning processes. State and Native corporation lands cannot be considered in a BLM plan and BLM lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative A would not significantly restrict subsistence use by communities in and adjacent to the planning area, as impacts to subsistence resources would be minimal. Under this alternative the closure of locatable and leasable minerals would be retained, prohibiting new mineral activities on BLM-managed lands. The current levels, methods, and mix of multiple uses would continue. Impacts to subsistence species would be expected to be localized and would not be expected to impact resources at the population level. No impacts to access by subsistence users would be anticipated.

J.2.4.2. White Mountains Alternative B

Alternative B emphasizes active measures to protect and enhance resource values. As in all alternatives, the White Mountains NRA remains closed to mineral entry. Valid existing mining claims occur in the Livengood area and will continue to be mined and developed. The White Mountains Area of Critical Environmental Concern (ACEC) and Special Recreation Management Areas (SRMA) would be identified, and specific measures would be proposed to protect or enhance values within these areas. One eligible river, Fossil Creek (scenic), would be recommended suitable for designation under the Wild and Scenic River Act. Limited areas would be proposed for Off Highway Vehicles (OHV) to protect habitat, soil and vegetation resources.

Evaluation of the Effects of Use, Occupancy, or Disposition

The analysis of effects from Alternative B concludes that impacts as a result of management actions or designations within the planning area will not result in significant reductions in subsistence resources or uses. Many of the proposed actions serve to positively impact subsistence in that management would emphasize habitat and resource protection. While some development activity could occur under this alternative, areas of priority habitat would be protected by special designation, and by the stipulations and SOPs as presented in Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations*. Actions such as the creation of new SRMAs, ACECs, and/or the designation of WSR segments, do not limit or impose unreasonable restriction on subsistence use as defined by ANILCA Title VIII.

No oil and gas or locatable mineral development will be allowed in the White Mountains NRA. Development of salable minerals would be allowed in the Middlecountry and Frontcountry RMZs. Development would be concentrated near projects and highways and is not expected to impact subsistence resources or uses.

The White Mountains NRA, Beaver Creek WSR Corridor and access into the NRA would be designated as a special recreation management area (SRMA). The White Mountains ACEC (589,000 acres), which is within the SRMA, would be created to protect current and historic calving and postcalving habitat for the White Mountains caribou and Dall sheep habitat. The entire SRMA would remain closed to entry, location, and leasing of minerals.

No summer cross-country use would be allowed in the White Mountains NRA. Only a portion of the SRMA would be open to summer motorized use on designated trails. Future trail development would be compatible with the purpose of NRA.

No OHV use would be allowed in the RNAs. Winter use of snowmobiles would be allowed in the White Mountains Spine Primitive and all other RMZs and would allow cross-country winter use of snowmobiles 1,500 pounds and under curb weight. Permits would be required for all other OHV use. These prescriptions will limit impacts to subsistence resources and uses.

BLM-managed lands around Livengood would be managed as an undesignated recreation area where winter and summer cross-country use of OHV would generally be allowed. Vehicles weighing 10,000 pounds and under curb weight would be allowed but restricted to existing roads only.

The ACEC, RNA and WSR would be right-of-way avoidance areas. One transportation corridor would be retained in the Nome Creek valley. Both actions would benefit subsistence resources and uses by keeping any new roads or other rights-of-way consolidated in as few corridors as possible.

Areas important to fish and wildlife subsistence resources would be largely protected because they would be within the Beaver Creek WSR Corridor, ACEC, RCAs and SRMA.

Evaluation of the Availability of Other Lands

Alternative B would manage BLM public lands in the White Mountains Subunit in order to optimize conservation. Lands managed by other federal agencies in the planning area are managed under U.S. Fish and Wildlife Service planning documents and are considered conservation system units. Other BLM-managed lands in the state either already have land use planning documents in place that specify the amounts and types of activities that can or cannot occur, or are currently

being evaluated by separate planning processes. State and Native corporation lands cannot be considered in a BLM plan and BLM-managed lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Analysis of effects from Alternative B concludes that impact as a result of management actions or designations within the planning area will not result in significant reductions in subsistence resources or uses by residents in or adjacent to the subunit. Most impacts to subsistence resources would be beneficial, and any impacts by way of the limited amount of development allowed to occur under this alternative would be minimized by leasing stipulations and SOPs (see Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations* and Chapter 2).

J.2.4.3. White Mountains Alternative C

Alternative C emphasizes a moderate level of protection, use, and enhancement of resources and services. Constraints to protect resources would be implemented, but would be less restrictive than under Alternative B. This alternative would designate no ACEC; however the SRMA would remain the same (the entire White Mountains NRA and Beaver Creek WSR Corridor). The seven Recreation Management Zones (RMZs) would change in area with a shift away from Semi-Primitive RMZs and more toward Backcountry and Middlecountry RMZs. The shift to a larger Middlecountry would result in more area available for summer OHV use, albeit on designated trails. Limits on travel would change to more lenient use of OHV in this RMZ to include off-trail game retrieval. No rivers would be recommended as suitable for designation under the WSRA. The SRMA would be closed to leasable and locatable minerals. All but the Beaver Creek WSR Corridor would be open to salable minerals but impacts would be minimal.

Evaluation of the Effects of Use, Occupancy, or Disposition

Impacts to subsistence resources and uses from the increased level of use allowed by this alternative would be similar in nature to Alternative B, except under Alternative C more acres would be available for salable mineral development and use of OHV 1,500 pounds curb weight and less on designated trails expands to allow off-trail retrieval of game in the Middlecountry RMZ.

Placer mining activity under Alternative C is estimated to remain the same as Alternative A with no impacts to the high-value fishery resources supported by the Beaver Creek or to wildlife and vegetative resources. Development of valid existing claims near Livengood would be expected to continue to occur with little or no impacts to subsistence.

Under Alternative C, no White Mountains ACEC would be created. Caribou calving and postcalving habitat and Dall sheep habitat, which is within the SRMA, would be protected by other prescription. Entry, location and leasing of minerals would be closed in the SRMA (except salable mineral disposal could be authorized in all but the WSR). Most of the highest value wildlife habitat is within the Backcounty and Semi-Primitive RMZs where cross-country winter use of snowmobiles 1,500 pounds curb weight and less would be allowed but no other OHV use would be allowed, except with a permit or approved Plan of Operations.

In the Livengood area cross-country summer and winter use of OHV 1,500 pounds curb weight and less would be allowed (see sections 2.10.2.1.2.6 and 2.10.2.2.2.6 Travel Management for limitations). Vehicles of 10,000 pounds curb weight and less would be allowed on existing roads only. Permits or approved Plan of Operations would be required for any other OHV use.

Further trail development could be allowed if compatible with the decisions for this alternative and subsistence uses. Off-route game retrieval could increase participation by all hunters. The potential increase in impacts to subsistence resources and uses from travel management prescriptions in this alternative would be minor, particularly compared with the No Action Alternative (current situation) and Alternative D.

Evaluation of the Availability of Other Lands

The purpose sought to be achieved under Alternative C is to manage BLM lands in the subunit following the BLM mission of multiple use, while at the same time protecting priority habitat and enhancing natural resource values. Lands managed by other federal agencies in the planning area are managed under U.S. Fish and Wildlife Service planning documents, and are considered conservation system units. Other BLM lands in the state either already have land use planning documents in place that specify the amounts and types of activities that can or cannot occur, or are currently being evaluated by separate planning processes. State of Alaska and Native corporation lands cannot be considered in a BLM plan and BLM-managed lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative C would not significantly restrict subsistence use by communities in or adjacent to the planning area. Most impacts to subsistence resources and uses would be minor, and any impacts from the development allowed to occur would be minimized by the leasing stipulations and SOPs discussed in Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations*. Any impacts to subsistence resources would be expected to be localized and temporary, and would not be expected to impact resources at the population level. SOPs and stipulations to protect riparian and aquatic habitats would be necessary to mitigate impacts from

the few allowed uses, especially along streams where buffers would not apply. No impacts to access by subsistence users would be expected to occur.

Little or no use of wildlife resources by rural communities has been documented by harvest reports or other documentation, such as technical reports on subsistence use by local communities. Forty-five rural residents participated in harvest of the WMCH during regulatory years 1999–2009 (total participation by all residents was 1468). Eighteen rural communities statewide are represented in that statistic. Over the 11 year period, of the 186 caribou harvested, 5 were taken by rural residents (0.45 caribou/year) (Seaton, Pers. Comm. 2009). Participation and harvest success data of rural residents for moose in the subunit are not available but would be expected to be similar.

Nominal competition for subsistence resources would be expected to occur if large numbers of hunters would be attracted to areas where off-trail game retrieval would be allowed. Participation by rural residents would be expected to remain about the same over the life of the plan.

J.2.4.4. White Mountains Alternative D

Alternative D emphasizes active management to facilitate resource development on BLM lands in the subunit. All ANCSA 17(d)(1) withdrawals would be revoked on lands retained in long-term federal ownership. The SRMA would be closed to locatable minerals (Map 36). Approximately 55 percent of these lands would be closed to mineral leasing (Map 37). Travel and trail restrictions would be minimized. A smaller ACEC, focused on habitat protection management would be identified.

Evaluation of the Effects of Use, Occupancy, or Disposition

Impacts to subsistence resources and uses from the increased level of development and use allowed by this alternative would be similar to the other action alternatives. Higher percentages of land would be available for leasable minerals and limits on OHV and recreation would be less.

Under Alternative D the entire subunit would remain closed to locatable mineral entry, subject to valid existing rights. Areas open to leasable minerals include portions of the current White Mountains caribou calving, postcalving and winter range, moose habitat and Dall sheep movement corridors and habitat. An area of high potential oil and gas that includes most of the Yukon Flats National Wildlife Refuge dips to Victoria Creek in the northern most part of the White Mountains NRA. The rest of the area has low or no oil and gas potential. Impacts from development of leasable minerals include direct disturbance to wildlife on priority habitats, fragmentation of habitat through important movement corridors, and long-term impacts to streams and riparian habitats from placer mining (sections 4.7.1.2 and 4.7.1.7 Impacts Specific to the White Mountains Subunit, Fish, Wildlife). Exploration may be proposed in the White Mountains Subunit but is not expected to occur. No oil and gas development would be expected over the life of the plan.

RNAs carry the only Primitive RMZ designations and would be closed to OHV use without a permit. Semi-Primitive and Backcountry RMZs would be open to winter use of snowmobiles 1,500 pounds curb weight and under. All other OHV use would require a permit. Summer cross-country use would be allowed within the White Mountains Foothills Middlecountry RMZ. Middlecountry would expand to include most of Victoria Creek and the Ray Creek drainage and would allow summer cross-country travel by OHV 50” wide and less and 1,500 pounds curb weight and under. Impacts to Dall sheep, caribou, moose and other wildlife from cross-country

summer use would potentially occur in these areas. Travel in the Nome Creek Frontcountry RMZ would continue to be limited to designated trails except that off trail retrieval of legally harvested game would be allowed. The Wickersham Dome-Blixt Frontcountry RMZ generally allows cross-country summer OHV use. No impacts would be expected from the Frontcountry prescriptions.

BLM-managed lands around Livengood would be managed as an undesignated recreation area where winter and summer cross-country use of OHV would generally be allowed. Vehicles weighing 10,000 pounds curb weight and less would be allowed but restricted to existing roads only.

Use of OHV under this alternative would have the greatest potential for impacts on subsistence resources and uses. In addition to areas currently open to cross-country summer OHV use under Alternative A, Victoria Creek would be open to cross-country summer OHV use. Important winter range for the WMCH and priority moose habitat occur in the Victoria Creek area. At current levels of subsistence use in the White Mountains Subunit however, impacts to subsistence resources and uses are not expected to be significant.

Evaluation of the Availability of Other Lands

Alternative D would manage BLM lands in the subunit to optimize resource use and development, with the fewest restraints of all alternatives on commercial activity (leasable minerals and forest products) and the fewest limitations on travel management and recreation activity of the action alternatives. Lands managed by other federal agencies in the subunit are managed under U.S. Fish and Wildlife Service planning documents and as conservation system units. Other BLM lands in the state are managed by current planning documents that allow a mixture of development and conservation following BLM's multiple-use mission, or are currently being evaluated by the planning process. State of Alaska and Native corporation lands cannot be considered in a BLM plan and BLM-managed lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence use and resources include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative D would not restrict subsistence use by communities in or near the planning area. Any impact from responses to potential locatable mineral development and cross-county summer use of OHV would not be significant. Management parameters outlined in Chapter 2 of the main document and the leasing stipulations and SOPs found in Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations* would mitigate the impacts. Should the amount of potential locatable mineral development, or other land uses, expand beyond expected activity, this finding may need to be revised to take into account impacts to the WMCH and other subsistence resources and uses that cannot be mitigated.

J.2.4.5. White Mountains Alternative E (Proposed RMP)

Differences between the Alternative E and Alternative C (Preferred Alternative in the Draft RMP/EIS) include the addition of one riparian conservation area (total 14); allowing fluid and solid leasable mineral development on 4,000 acres and maintaining the White Mountains NRA as closed; changing RNAs from closed to motorized vehicles to limited to snowmobile use; lifting prohibition on airboats and hovercraft; and deferral of the Travel Management Plans with adoption of the no action alternative (Alternative A) as interim management.

Evaluation of the Effects of Use, Occupancy, or Disposition

Placer mining activity under Alternative E would remain the same as Alternative A with no impacts to the high-value fishery resources supported by the Beaver Creek or to crucial and priority wildlife habitat and vegetative resources. Development of valid existing claims near Livengood would be expected to continue to occur with little or no impacts to subsistence.

Under Alternative E, the Wildlife Conservation Area would be renamed Crucial Caribou and Dall Sheep Habitat. The area would be the same size as the Wildlife Conservation Area in Alternative C. Caribou calving and post-calving and Dall sheep habitat would be protected by limiting OHV use to no summer use, except with a permit or approved Plan of Operations. Summer OHV use would not be allowed within the Primitive, Semi-Primitive, Backcountry, and Wickersham Dome-Blixt RMZs.

In the Livengood area cross-country summer and winter use of OHV 1,500 pounds curb weight and less would be allowed (see sections 2.10.2.1.2.6 and 2.8.2.2.2.6 Travel Management for limitations). Vehicles of 10,000 pounds curb weight and less would be allowed on existing roads only. Permits or approved Plan of Operations would be required for this or any other OHV use.

Further trail development or changes to travel management could be allowed by the Travel Management Plan, which would be completed within five years of signing the White Mountains Record of Decision. Analysis specific to impacts from the Travel Management Plan and an ANILCA Section 810(a) Evaluation and Finding will be conducted.

Evaluation of the Availability of Other Lands

The purpose sought to be achieved under Alternative E is to manage BLM lands in the subunit following the BLM mission of multiple use, while at the same time protecting priority habitat and enhancing natural resource values. Lands managed by other federal agencies in the planning area are managed under U.S. Fish and Wildlife Service planning documents, and are considered conservation system units. Other BLM lands in the state either already have land use planning documents in place that specify the amounts and types of activities that can or cannot occur, or are currently being evaluated by separate planning processes. State of Alaska and Native corporation lands cannot be considered in a BLM plan and BLM-managed lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS. These alternatives were created to represent a wide-range

of potential activities that could occur on BLM lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative E would not significantly restrict subsistence use by communities in or adjacent to the planning area. Most impacts to subsistence resources and uses would be minor, and any impacts from the development allowed to occur would be minimized by the leasing stipulations and SOPs discussed in Appendix A, *Required Operating Procedures and Fluid Mineral Leasing Stipulations*. Any impacts to subsistence resources would be expected to be localized and temporary, and would not be expected to impact resources at the population level. SOPs and stipulations to protect riparian and aquatic habitats would be applied to mitigate impacts from the few allowed uses, especially along streams where buffers would not apply. No impacts to access by subsistence users would be expected to occur.

Little or no use of wildlife resources by rural communities has been documented by harvest reports or other documentation, such as technical reports on subsistence use by local communities. Forty-five rural residents participated in harvest of the WMCH during regulatory years 1999–2009 (total participation by all residents equaled 1468,). Eighteen rural communities statewide are represented in that statistic. Over the 11 year period, of the 186 caribou harvested, 5 were taken by rural residents (0.45 caribou/year) (Seaton, Pers. Comm. 2009). Participation and harvest success data of rural residents for moose in the subunit are not easily determined but would be expected to be similar. Specific data on participation is discussed in Chapter 3 Section 3.5.3.2. Subsistence Harvest Levels and 3.5.3.3.1. Subsistence Use Areas.

As the FCH continues to expand its range into the north Steese National Conservation Area and White Mountains NRA participation in harvest by rural residents from across the state would increase. Participation by federally qualified subsistence users and non-rural hunters could also increase as opportunities to harvest wildlife become more restrictive in other parts of the state.

J.2.4.6. White Mountains Cumulative Case

The goal of the cumulative analysis is to evaluate the incremental impact of the current action in conjunction with all past, present, and reasonably foreseeable future actions in or near the planning area. The cumulative analysis considers in greatest detail activities that are more certain to happen, and activities that were identified as being of great concern during scoping. Actions considered in the cumulative analysis include, but are not limited to the following (refer to section 4.2.4 Cumulative Effects):

Development of minerals will occur on state and private lands in the subunit. Effects will be similar to those described for activities on BLM lands, except that the level of activity is expected to be higher due to higher mineral potential, particularly on state lands adjacent to BLM-managed lands.

Military aircraft use is allowed in Military Operation Areas (MOAs) over much of the White Mountains Subunit and is likely to increase. Impacts to wildlife resources important to subsistence could potentially occur. Current practices by the military to avoid exercises during caribou calving and implementing minimum ceilings have reduced but not eliminated impacts to caribou.

Research, monitoring and other land management activities will continue on all lands in the subunit and include access to remote areas by fixed and rotary wing aircraft, snowmobiles and other OHVs. Disturbance from these activities is localized and temporary.

Climate change will benefit some subsistence resources and negatively affect others. Changes in species distribution and vegetation communities in subarctic areas are predicted to occur by 2040. Frequency and severity of natural wildland fire in Interior Alaska are predicted to increase and result in shifts to deciduous and shrub-dominated landscapes, which may benefit moose and some furbearers but not caribou. Predicted increases in water temperatures would alter chemical and biotic conditions to the detriment of subsistence fish diversity and abundance. Increases in soil temperatures would result in drying of lakes and ponds.

The population of Fairbanks and the surrounding area is predicted to increase by about 10 percent from the 2000 census to the 2020 census. Development of a gas line or other projects may boost the population beyond the estimate. Demands for recreation and subsistence resources are predicted to increase between 10 and 15 percent over the next 20 years. With the management emphasis on recreation in the White Mountains Subunit, increased use would be expected in this area.

Conveyance of remaining selected lands to the state and Native corporations is ongoing. Planning area wide, about 1.1 million acres are in selection by Native corporations (ANCSA 1971) and 1.4 million acres are in selection by the State of Alaska. Fish and wildlife management of harvest would be predicated on state regulations. Based on joint state/federal harvest management of WMCH and FCH in the subunit, no impacts to subsistence uses would be expected to occur. Impacts to use of fish and other wildlife could occur if state regulations are more restrictive than federal regulations on those lands.

Alternative B would best protect subsistence resources in concert with actions occurring adjacent to BLM-managed lands in the White Mountains Subunit because wildlife habitat would be protected from cross-country summer OHV use in areas open to summer use. Alternative C would somewhat increase impacts to subsistence resources and uses collectively with actions by adjacent land managers because more area would be open to summer use, however by designated trails. Alternative E would be similar to the current management, which would allow cross-country summer OHV use. Alternative A-C and E would be closed to locatable and leasable minerals. Alternative D would potentially have the greatest impacts on subsistence resources and uses when added to decisions by adjacent land managers because parts of the White Mountains NRA would be open to leasable and locatable minerals.

Evaluation of the Effects of Use, Occupancy, or Disposition

According to the fish and wildlife analysis in Chapter 4 of the Eastern Interior RMP/EIS, the combination of ongoing locatable mineral development occurring on state, federal and private lands in the subunit combined with future uses and development projected for the subunit would have few cumulative impacts on subsistence resources within the White Mountains Subunit. The privatization of State of Alaska or Native corporation lands could lead to additional development but is not expected to have cumulative impacts within the subunit.

Evaluation of the Availability of Other Lands

The Cumulative Case, as presented in the planning document, contains information on reasonably foreseeable activities that could have an effect on the management decisions being analyzed as part of the RMP/EIS. The purpose of the Cumulative Case is to present known ongoing activity by all entities on all lands near or within the planning area, as well as those activities that have been proposed for the future and are likely to occur. The Cumulative Case is not an implementable alternative that specifies land uses and management, and instead is a discussion of impacts that could affect the management decisions contained within Alternatives A–D. As such, no other lands are evaluated under the Cumulative Case.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the four action alternatives that are presented and analyzed in Chapters 2 and 4 of the main body of this RMP/EIS, as well as Alternative A. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

The cumulative case, as presented in this analysis, would not result in any reasonably foreseeable or significant restriction of subsistence use for rural communities within the planning area.

J.3. Notice and Hearings

The ANILCA Sec. 810(a) provides that no "withdrawal, reservation, lease, permit, or other use, occupancy or disposition of the public lands which would significantly restrict subsistence uses shall be effected" until the federal agency gives the required notice and holds a hearing in accordance with ANILCA Sec. 810(a)(1) and (2). The BLM will provide notice in the *Federal Register* that it has made positive findings pursuant to ANILCA Sec. 810 that the following alternatives or the cumulative case presented in the Proposed RMP/Final EIS meets the "may significantly restrict" threshold: Fortymile Subunit, Alternative D in combination with the Cumulative Case; Steese Subunit, Alternative D in combination with the Cumulative Case. As a result, public hearings will be held in the potentially affected communities. Notice of these hearings will also be provided by way of the local media, including the newspaper and the local radio station, with coverage to many villages in Eastern Interior Alaska.

J.4. Subsistence Determinations Under ANILCA Section 810

The ANILCA Sec. 810(a) provides that no "withdrawal, reservation, lease, permit, or other use, occupancy or disposition of the public lands which would significantly restrict subsistence uses shall be effected" until the federal agency gives the required notice and holds a hearing in accordance with the ANILCA Sec. 810(a)(1) and (2), and makes the three determinations required by the ANILCA Sec. 810(a)(3)(A), (B), and (C). The three determinations that must be made are: 1) that such a significant restriction of subsistence use is necessary, consistent with sound management principles for the utilization of the public lands; 2) that the proposed activity

will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other such disposition; and 3) that reasonable steps will be taken to minimize adverse impacts to subsistence uses and resources resulting from such actions [16 U.S.C. Sec. 3120(a)(3)(A), (B), and (C)].

The BLM has found in this subsistence evaluation that Alternative D and the cumulative case in the Steese Subunit and Alternative D combined with the cumulative case in the Fortymile Subunit, which are considered in Draft RMP/EIS, could significantly restrict subsistence uses. Therefore, the BLM undertook the notice and hearing procedures required by the ANILCA Sec. 810 (a)(1) and (2) in conjunction with release of the Draft RMP/EIS in order to solicit public comment from the potentially affected communities and subsistence users. The BLM did not find in the subsistence evaluation that any alternatives considered in the Resource Management Plan for the Upper Black River Subunit or the White Mountains Subunit would significantly restrict subsistence uses.

The Proposed RMP (Alternative E) was found through the ANILCA Sec. 810(a) process to have no significant restriction on subsistence uses nor with the cumulative case. Therefore the determination process as described in ANILCA Sec. 810(a)(3)(A), (B), and (C) would not be required.

Appendix K. BLM Alaska Sensitive Species List

This appendix includes the BLM Alaska Sensitive Species List (Instruction Memorandum No. AK-2010-18, May 18, 2010). Many species on this list are not known to occur in the Eastern Interior Planning Area. A list of the species known or likely to occur in the planning area is included in Chapter 3 of this document.

Table K.1. BLM Alaska 2010 Sensitive Species List

Category	Scientific Name	Common Name
Birds	*Brachyramphus brevirostris*	Kittlitz's Murrelet
	Gavia adamsii	Yellow-billed Loon
	Chen canagica	Emperor Goose
	Calidris canutus	Red Knot
	Numenius tahitiensis	Bristle-thighed Curlew
	Brachyramphus marmoratus	Marbled Murrelet
	Plectrophenax hyperboreus	McKay's Bunting
	Branta canadensis occidentalis	Dusky Canada Goose
	Cygnus buccinator	Trumpeter Swan
	Contopus cooperi	Olive-sided Flycatcher
	Euphagus carolinus	Rusty Blackbird
	Calidris ptilocnemis tschuktschor	Bering Sea Rock Sandpiper
	Aquila chrysaetos	Golden Eagle
	Asio flammeus	Short-eared Owl
	Dendroica striata	Blackpoll Warbler
Fish	*Lampetra alaskense*	Alaskan Brook Lamprey
	Salvelinus alpinus	Arctic Char (Kigluaik Mtns.)
Insects	*Rhithrogena ingalik*	Alaska Endemic mayfly
	Acentrella feropagus	a mayfly
	Alaskaperla ovibovis	Alaska Sallfly
Mammals	*Lepus othus*	Alaskan hare
	Spermophilus parryii osgoodi	Osgood's arctic ground squirrel
	Mustela americana kenaiensis	Kenai marten
	Sorex yukonicus	Alaskan Tiny Shrew
Plants	*Antennaria densifolia*	
	Arnica lonchophylla	Northern Arnica
	Artemisia globularia ssp. lutea	
	Artemisia laciniata	Siberian Wormwood
	Artemisia senjavinensis	Arctic Sage
	Aster pygmaeus (Eurybia pygmaea)	Pygmy aster
	Botrychium ascendens	moonwort
	Carex adelostoma	Circumpolar sedge
	Claytonia arctica	Arctic Springbeauty
	Claytonia ogilviensis	Ogilvie Mtns. spring beauty
	Cryptantha shackletteana	Shacklettes' Catseye
	Douglasia alaskana	Alaska Rock-jasmine
	Douglasia arctica	Mackenzie River Douglasia
	Douglasia beringensis	Artic dwarf primerose
	Draba micropetala	Alpine Whitlow-grass
	Draba murrayi	Murray's Whitlow-grass

Category	Scientific Name	Common Name
Plants	*Draba ogilviensis*	Ogilvie Mountains Whitlow-grass
	Draba pauciflora	Adam's Whitlow-grass
	Erigeron muirii	Muir's Fleabane
	Erigeron yukonensis	Yukon Fleabane
	Eriogonum flavum var. aquilinum	Yukon Wild-buckwheat
	Erysimum asperum var. angustatum	a Wallflower
	Gentianopsis detonsa ssp.detonsa	Sheared Gentian
	Koeleria asiatica	Oriental Junegrass
	Lesquerella calderi	Calder's Bladder-pod
	Mertensia drummondii	Drummond's Bluebell
	Montia bostockii	Bostock's Miner's-lettuce
	Oxytropis arctica var. barnebyana	Barneby's Locoweed
	Oxytropis huddelsonii	
	Oxytropis kobukensis	Kobuk Locoweed
	Papaver alboroseum	Pale Poppy
	Papaver gorodkovii	
	Papaver walpolei	Walpole Poppy
	Parrya nauruaq	
	Pedicularis hirsuta	
	Phacelia mollis	Macbride Phacelia
	Pleuropogon sabinei	Sabine-grass
	Poa hartzii ssp. alaskana	
	Poa porsildii	
	Potentilla stipularis	Circumpolar Cinquefoil
	Primula tschuktschorum	Chukchi Primrose
	Puccinellia wrightii	
	Ranunculus chamissonis	
	Ranunculus glacialis var. 1	
	Ranunculus turneri	Turner's Butter-cup
	Rumex graminifolius	
	Rumex krausei	Cape Krause Sorrel
	Smelowskia johnsonii	
	Smelowskia pyriformis	
	Trisetum sibiricum ssp. litorale	Siberian False-oats

Appendix L. Public Comments and Response

L.1. Introduction

We divided this chapter into four main sections. Section L.1, Introduction, provides an overview of the comment response process. Section L.2, Summary of General Concerns, summarizes some nonsubstantive comments. Section L.3, Consultation and Cooperating Agencies, summarizes comments from tribes and cooperating agencies. Section L.4, Issue Topics and Responses, contains summary statements and responses for all topics. We divided each section into sub-topic headings that include comment numbers, a summary statement, and the BLM's response to the summary statement.

The Proposed RMP is the same as Alternative E. This appendix refers to Alternative E as the Proposed RMP, per 43 CFR 1610.4-8.

The BLM published the Draft RMP/EIS and initiated a 160-day public comment period to receive comments on the Draft. The agency then later extended this comment period indefinitely, pending publication of a Supplemental EIS. The BLM released its Supplement to the Draft EIS on Jan. 11, 2013, for 90-day public comment period that closed April 11, 2013, for both the Draft RMP/EIS and the Supplement. Altogether, the comment period on the Draft RMP/EIS totaled 411 days.

The BLM received written comments on the Draft RMP/EIS and Supplement by mail, email, online, and at public meetings. Comments covered a wide spectrum of thoughts, opinions, ideas, and concerns. Recognizing that commenters invested considerable time and effort to submit their comments on the Draft RMP/EIS, the BLM developed its comment analysis methodology to ensure full tracking and consideration of all comments as directed by NEPA regulations. NEPA requires that the BLM identify and formally respond to all substantive public comments submitted to the BLM.

The BLM assigns a unique identification number to each comment letter, and then logs the comment into CommentWorks. CommentWorks is a Web-based database that the BLM uses to organize, categorize, and respond to the comments. Codes for each comment letter identified appropriate comment categories based on the comment's content and retained the link to the commenter. The comment categories generally follow the sections presented in the Draft RMP/EIS, although some categories relate to the planning process or editorial concerns.

The BLM grouped similar comments under a topic heading and drafted a statement summarizing the ideas contained in these comments. The response indicates whether the commenters' points resulted in a change in the document or not. As a result of public comments, the BLM made changes to the Draft RMP/EIS that reflect the consideration given to public comments. The Executive Summary, Summary of Changes from Draft to Final contains the summary of major changes between the Draft RMP/EIS and the Proposed RMP/Final EIS.

Although the BLM diligently considered each comment letter, the comment analysis process involves determining whether a comment is substantive or nonsubstantive in nature. To perform this analysis, the BLM relies on the CEQ's regulations to determine what constitutes a substantive comment. A substantive comment does one or more of the following:

- Questions, with a reasonable basis, the accuracy of the information and/or analysis in the EIS
- Presents reasonable alternatives other than those presented in the Draft EIS that meet the purpose and need of the proposed action and addresses significant issues
- Questions, with a reasonable basis, the merits of an alternative or alternatives
- Causes changes in or revisions to the proposed action
- Questions, with a reasonable basis, the adequacy of the planning process itself

Additionally, BLM's NEPA handbook identifies the following types of substantive comments:

- Comments on the Adequacy of the Analysis: Comments that express a professional disagreement with the conclusions of the analysis or assert that the analysis is inadequate are substantive in nature, but may or may not lead to changes in the Proposed RMP/Final EIS. Interpretations of analyses should be based on professional expertise. Where there is disagreement within a professional discipline, a careful review of the various interpretations is warranted. In some cases, public comments may necessitate a reevaluation of analytical conclusions. If, after reevaluation, the manager responsible for preparing the EIS (authorized office [AO]) does not think that a change is warranted, the response should provide the rationale for that conclusion.
- Comments That Identify New Impacts, Alternatives, or Mitigation Measures: Public comments on a draft EIS that identify impacts, alternatives, or mitigation measures that were not addressed in the draft are substantive. This type of comment requires the AO to determine whether it warrants further consideration. If it does, the AO must determine whether the new impacts, new alternatives, or new mitigation measures should be analyzed in the Final EIS, a supplement to the Draft EIS, or a completely revised and recirculated Draft EIS.
- Disagreements with Significance Determinations: Comments that directly or indirectly question, with a reasonable basis, determinations regarding the significance or severity of impacts are substantive. A reevaluation of these determinations may be warranted and may lead to changes in the Final EIS. If, after reevaluation, the AO does not think that a change is warranted, the response should provide the rationale for that conclusion.

Although we read, analyzed, and considered comments on the Draft RMP/EIS containing opinions, feelings, and preferences for one element or one alternative over another, and comments of a personal and/or philosophical nature, we did not respond in writing to these comments. It is also important to note that while agency reviewers considered all comments, but they did not count comments as "votes". The NEPA public comment period is not an election or a representative sampling of the population. Therefore, public comments are not appropriate to use as a democratic decision-making tool, or as a scientific sampling mechanism.

We recognize that it can be difficult to write comments that meet the definition of *substantive*. Therefore, section L.2. summarizes some of the opinions, feelings, and preferences in the comment letters.

We have incorporated comments citing editorial changes to the document and maps as appropriate. We also edited and revised the Proposed RMP/Final EIS to fix typos, missing references, definitions, and acronyms, and other clarifications where needed. We have reviewed all maps to

fix typos, clarify, and improve content when possible. Additionally, combining multiple maps is reducing the total number of maps in the Proposed RMP/Final EIS.

L.2. Summary of General Concerns

Many of the comments do not require a written response in the EIS because they did not meet the substantive threshold. However, we recognize the validity of these comments and considered them when formulating the Proposed RMP and the analysis of impacts. The sections below provide a summary of general comments and concerns.

The BLM received four form letters on the Draft RMP and two form letters during the public comment period on the Fortymile and Mosquito Flats areas of critical environmental concern (ACECs). As discussed above, multiple identical form letters are considered a single comment. Approximately 2,400 letters expressed general support for protecting lands from development and Alternative B; 9 letters expressed support for multiple use and Alternative D; 9 letters expressed support for increased motorized access and Alternative A; and 20,000 letters expressed support for designation of the Fortymile and Mosquito Flats ACECs.

L.2.1. Climate Change

Many commenters expressed concern about ongoing climate change and its potential effects on resources and subsistence. Others indicated that climate change was not an issue. Some examples are listed below.

- Global warming is adversely affecting fish and wildlife in Interior Alaska and this in turn is impacting local residents who depend on these resources.
- Melting permafrost is affecting lake levels in areas utilized for hunting and gathering.
- Mining and industrial development would increase future greenhouse gas emissions, contributing to climate change. The BLM should minimize increases in these types of activities.
- Climate change will particularly impact Alaska's wilderness areas and management should be conservative until these impacts are better understood.
- Preserving the planning area lands in an undeveloped state will help cut down on the pollution that causes climate change.
- The RMP should not address climate change because it is outside of BLM’s mandate or because is it not happening.

L.2.2. Wildlife and Fisheries Management

Commenters cited various concerns about potential impacts on wildlife and fisheries, such as those listed below.

- Mining may lead to contamination of the Black River leading to negative effects on fish, waterfowl, and furbearers.
- The RMP may lead to increases in hunting guides, lodges, and mining operations in the Upper Black River Subunit with corresponding impacts to fish and wildlife.

- The RMP may have negative effects on crucial wildlife habitat in the Black River, including moose calving.
- Potential impacts of encroachment in the Fortymile Caribou Herd range, including calving grounds.
- The RMP may negatively impact caribou which is of increased importance as a subsistence resource given the decline of Chinook salmon.
- Many commenters expressed concern about the declining Yukon River Chinook salmon stock and potential effects on salmon if mining occurred in tributaries to the Yukon River. Listed below are some examples.
    - "At a time when our Chinook salmon stocks have rapidly declined, and many subsistence needs are thus not met, as well as the real potential to not meet escapement goals into Canada, removing current protections from vast areas such as the Upper Black, Salmon Fork, and Kandik rivers to allow for new mineral entry and transportation routes and development, is the opposite of what BLM should be advocating for."
    - "At a time when our Chinook salmon stocks have rapidly declined, and many subsistence needs are thus not met, as well as the real potential to not meet escapement goals into Canada, removing current protections from vast areas such as the Upper Black, Salmon Fork, and Kandik rivers to allow for new mineral entry and transportation routes and development, is the opposite of what BLM should be advocating for."

L.2.3. Cultural Resources and Subsistence

Commenters expressed the following general concerns relative to cultural resources and subsistence:

- The Gwich'in way of life is dependent upon a clean and undeveloped environment that provides sufficient habitat for subsistence resources. The people’s culture and traditions are tied to the land and water.
- The Draanjik River (Black River) is the lifeline for the animals, plants, and humans alike. We depend on this clean and pristine water for our life and our health.
- Mining is hard on the land and affects water quality. That is what we live off of, the water, good water.
- We would like to see our land and rivers in as good condition 100 years from now as they are today; maybe even better if we continue being good stewards of our precious land.
- We need the Black River to stay pure and clean so we can continue to live the way our ancestors lived. The government wants us to make our own living and not to depend on it. How are we supposed to do that if we cannot live off the land and have clean water?
- You can't do things like mining, moving the dirt around, adding extra chemicals, changing the landscape without effecting watersheds. The watershed affects the whole ecosystem. So, you've got damage not only to the fish and water quality, but you also got damage to all the animals that survive on that. Not to mention the plants that use the riparian area, and if it is affecting all those things, it’s also affecting the people who use those areas for subsistence.

L.2.4. Minerals Management

At public meetings and during government-to-government consultation, residents of the Yukon Flats and others expressed concerns related to opening the planning area to mining. An often-expressed concern was a fear of contamination of the Black River and tributaries. Alternatively, some segments of the public recommended that the RMP promote mining to increase economic opportunities in the state and to speed up the permitting process.

Examples of comments in support of limiting or excluding mining include:

- Mining could lead to pollution of land and waters, and contamination of subsistence foods. Contamination of subsistence foods may lead to other health effects, such as cancer.
- Impacts from mining are long-term or permanent.
- Impacts of mining in the far north boreal forest are unknown, and allowing mining is an unnecessary risk to fish, waterfowl, animals, the subsistence way of life, and the Gwich'in culture.
- Industrial access into the Washington Creek drainage (Fortymile Subunit) is incompatible with current uses of this area for trapping and subsistence.
- The BLM does not anticipate mining in the Black River area during the life of the plan. What if the BLM is wrong? Once mining claims are established, it is too late.
- Mining will not provide any jobs or benefits to Alaska Natives.
- If mining occurs, it will not be possible to contain the waste over the long-term. Eventually, it will get into the water and come downstream.
- Companies already have enough leases. Let them develop the ones they have before you give out more.
- Mining companies do not always follow through and clean up as they are required to do.
- Mining regulations are not sufficient to protect the land and the government has limited control over what miners do.
- The BLM should be conservative and retain mining withdrawals until there is adequate research and consideration of traditional ecological knowledge to ensure that important resources will be conserved.

Examples of comments in support of expanding opportunities for mining are:

- The RMP should be flexible and allow for inventory and development of mineral resources to support future job development and associated economic benefits.
- The BLM is not meeting its mandate for multiple uses. Many of these lands have been off-limits to mineral development for more than four decades in an area where mining, recreation, and wildlife have coexisted for more than a century. The BLM manages 72 million surface acres (and 220 million acres of subsurface mineral estate) in Alaska; there are 54 million acres of National Parks, and 22 million acres of National Forest. Alaska has over two-thirds of the nation’s park lands. It is imperative that the BLM manage its lands as multiple-use and

consider development options, not wilderness closures and withdrawals, to create some balance with what has already been set aside.

- Alaska's mining industry faces significant regulatory impacts from a number of new, pending, or expected federal rules and regulations. Stronger federal mining regulations - in recent years are sufficient to protect the resources without withdrawing the lands.

- The RMP would impose a large number of standard operating procedures for mining. This is a large burden for small mining companies.

- The ANCSA withdrawals in the planning area are outdated and have long since served their purpose. The completion of Alaska Native land selections and the passage of the Alaska National Interest Lands Conservation Act (ANILCA) resolved disposition of the conservation selections. The BLM should revoke these outdated withdrawals.

- The RMP is too restrictive in limiting mineral assessment and exploration, and arbitrarily restricts the possibility of discovering economic deposits on lands that have been withdrawn for the past 40 years.

- Closing large areas to mining would result in negative economic impacts to the region.

L.2.5. Recreation and Travel Management

Several commenters expressed opinions about the personal value of recreation and approval of current management for recreational values in the White Mountains National Recreation Area (NRA) and the Steese National Conservation Area (National Conservation Area). Others expressed concerns about access; either the lack of access or damage to resources from motorized access. For example:

- The White Mountains and Steese are exceptional for both their proximity to Fairbanks and their outstanding wildness and recreation potential. Both areas are certain to grow in popularity, and the White Mountains trail system is one of the nation's premier backcountry cabin systems. Any economic activity that threatens the recreation potential of these areas would be shortsighted and akin to "killing the goose that lays the golden egg."

- We like the way that the BLM manages the White Mountains NRA now. Don't change things.

- Restricting motorized access to these vital hunting and fishing areas would cripple our ability to provide for our families.

- We do not need any more land or access control. We have lost a lot of rights already. Keep it the way it is.

- If there is a need for more non-motorized trails, then construct new non-motorized trails rather than converting existing motorized trails to non-motorized. Retain all existing trails that are open to motorized use. There should be no net loss in motorized access and preferably an increase in access opportunity.

- The Alaska Statehood Act promises access to state lands; this plan is trying to deny or hinder those rights.

- As off-highway vehicles (OHVs) have improved and become larger, it is more difficult to meet weight limitations. Trail use guidelines should more closely match what the manufacturers are producing, rather than making it more difficult for users to enjoy motorized recreation.
- The ability to use recreational vehicles, aircraft, and boats to access vast tracts of public land is very important due to the lack of secondary roads within the planning area.
- Use of all-terrain vehicles (ATVs) are ruining the land because they destroy the ability of the soil to absorb nutrients.
- OHVs destroy habitat, disrupt wildlife, and leave scars in wetlands that will last for decades.

L.2.6. Special Designations

Many comments are both in support of and in opposition to special designations such as wilderness characteristics, ACECs, and wild and scenic rivers. Examples of comments in support of these types of management include:

- The BLM should manage the Upper Black River area to maintain wilderness characteristics to protect traditional and customary use patterns for current and future generations of Gwich'in. This area is unsurpassed for remoteness and wildness. It is worthy of designation as wilderness and a national conservation area.
- Some areas should be set aside for people to enjoy solitude and primitive recreation undiminished by development.
- The RMP should be conservative and preserve wilderness areas because we do not fully understand the importance of wilderness. Development should be tabled until we have more knowledge. Once a wilderness area is opened for any kind of development or use, it is immediately diminished and will never be “truly wild” again.
- The power of being in quiet, untouched wilderness is healing. Our children and future generations need such places to be preserved because the mushrooming industrial activities have consumed places and spaces that my parents' generation simply took for granted.
- Preserve wilderness -for its intrinsic value to the ecosystems and maintenance of clean air, water, and healthy wildlife and people.
- The BLM should recommend rivers as suitable for designation under the Wild and Scenic Rivers Act in the agency preferred alternative, not just in Alternative B.
- The BLM should designate ACECs and limit uses within these areas to protect the important and relevant values.
- Close the Fortymile Wild and Scenic River Corridor, including its recreation and scenic segments, to new federal mining claims.
- Manage the Pinnell Mountain National Recreation Trail to maintain the scenic beauty and wildlife habitats of the surrounding areas. Opening lands to mining or oil and gas leasing, north of the trail and east of Preacher Creek, would degrade the experience on the Pinnell Mountain Trail.

- The Draft RMP proposes to maintain too few acres of lands with wilderness characteristics, resulting in unacceptable degradation of the pristine qualities of these areas, which residents treasure and are important to wildlife. Manage to maintain wilderness characteristics to be consistent with purposes for which the Steese National Conservation Area and White Mountains NRA were established.

Other comments did not support single-use designations such as wilderness, wild and scenic rivers, or any other restricted designation. Examples of comments in opposition to these types of management include:

- Wilderness designation only allows access for an elite few.
- Managing to maintain wilderness characteristics violates ANILCA and is a *de facto* wilderness designation.
- Properly evaluate the mineral potential of these areas before implementing special designations that may interfere with Alaska's economic development.
- Manage only the Beaver Creek WSR corridor in the White Mountains for wilderness characteristics.
- The BLM should not designate any areas as ACECs, wilderness, or wild and scenic rivers.
- The designation of ACECs (or any designations) would unnecessarily impede the ability of the BLM to facilitate responsible resource exploration and development on public lands and would interfere with public use and access.
- It is absurd to claim that there is either a wild or scenic river existing within the highly industrialized Fortymile River.
- The Draft RMP recommends management of too many acres for wilderness characteristics.

L.2.7. Out of Scope

Many comments were beyond the scope of the RMP because they involve decisions that the BLM does not have the authority to make or are they are not a required land use planning decision. Some examples include:

- "Remediation of Salmon Village was not included in the Draft EIS. The Old Salmon Village needs to be protected." Response: Old Salmon Village is located on the Yukon Flats National Wildlife Refuge. Commenters should direct questions related to protecting this site to the U.S. Fish and Wildlife Service. This RMP only covers BLM-managed lands.
- "It would be nice if the BLM provided more [signage] on the trails in the White Mountains, built more cabins and trails, and provided more educational outreach." Response: These are administrative actions that can occur now and do not require a RMP to implement.
- "Please provide public easements through selected native corporation lands." Response: Designation of ANCSA 17(b) easements for public access occurs during land conveyance, which is an ongoing activity not regulated by the RMP.

- "Responsibility for all lands in Alaska should be returned to the Alaska Natives." Response: Congress would need to address changes to ANCSA.
- State "House Bill 77 if passed would remove public participation on state permit processing. How can we support the RMP knowing that the State of Alaska will not have to consult with the tribal governments?" Response: House Bill 77 is proposed state legislation. The actions of the State Legislature are outside of BLM's authority.
- "Include predator control in the plan or explain why the BLM does not have the authority to make predator control decisions or why it is not a required land use planning decision". Response: The BLM considers predator control a state function and it is not a required land use planning decision. The Scoping Report available online at http://www.blm.gov/ak/eirmp describes in detail why predator control is beyond the scope of this RMP.
- "The BLM should manage areas in the Fortymile Subunit that have not been assessed with the Wilderness Review Process as 'Potential Wilderness Study Areas' (PWSA) under BLM's Interim Management Policy, until such time as they have been removed from further consideration through the Wilderness Review Process or until Congress makes a determination of their ultimate management." Response: The designation of potential wilderness study areas is outside the scope of the RMP. Additionally, BLM Manual 6330 – Management of BLM Wilderness Study Areas, does not apply to Alaska outside of the Central Arctic Management Area Wilderness Study Area.

L.3. Consultation and Cooperating Agencies

L.3.1. Tribal Consultation

The Gwichyaa Zhee Gwich'in tribal government and Chalkyitsik Village are cooperating agencies. The BLM has engaged in government-to-government consultations with them. The BLM made minor changes to alternatives, clarifications and editorial changes based on comments from tribes.

The Gwichyaa Zhee Gwich'in tribal government made the following formal requests or comments at a government-to-government consultation meeting in May 2012. The BLM responded to these request in writing on August 12, 2012.

Formal Request	BLM Response to Gwichyaa Zhee Gwich'in tribal government
Designate the Upper Black, Kandik, Salmon, Grayling and Wood rivers as wild and scenic rivers.	The RMP recommends the Salmon Fork suitable as a wild river in Alternative B of the Proposed RMP/Final EIS. Designation requires an act of Congress. The BLM did not find any outstandingly remarkable values (ORVs) on the other four rivers.
Retain all ANCSA 17(d)(1) withdrawals in the Upper Black River Subunit until further study.	Alternative B of the Proposed RMP/Final EIS recommends keeping the entire subunit withdrawn from mining and closed to mineral leasing. The Proposed RMP (Alternative E) recommends keeping 77 percent of the subunit withdrawn from mining and closed to mineral leasing.
Conduct cultural and biological documentation or research before removing any withdrawals and opening areas to mining.	The BLM conducted three inventories in the subunit and will continue to work with the State and other federal agencies to inventory and monitor fish and wildlife populations and habitats, but will not necessarily conduct additional research before recommending to the Secretary to revoke withdrawals if that is the final decision.
Continue consulting with the Gwichyaa Zhee Gwich'in tribal government.	The BLM is committed to continued and expanded government-to-government consultation with the Gwichyaa Zhee Gwich'in tribal government.

Formal Request	BLM Response to Gwichyaa Zhee Gwich'in tribal government
Provide a written response on why the Draft RMP/EIS identified a preferred alternative (before public comment period).	The Council of Environmental Quality (40 CFR 1502.14) and BLM regulations (43 CFR 1610.4–7) require that the agency identify a preferred alternative in the Draft EIS, if one exists.
Allow the tribe be a signatory and participate on any working group for any future EIS (and regional management plan level) in the Eastern Interior Region.	While BLM's planning process does not include formation of a "Record of Decision working group," the BLM will ensure that the tribe's input is sought and remains informed as the BLM develops and finalizes the Proposed Eastern Interior RMP/Final EIS and record of decision. Briefings with the State Director are internal to the agency.
Designate the entire Upper Black River Subunit as an ACEC. The cultural/fish values of the Upper Black River are substantial and of more than local importance.	The BLM reevaluated the area nominated for the Black River ACEC twice: first based on public comments and the second time based on comments from the tribes on the Preliminary Proposed RMP. From information available at that time, the BLM found that only the Salmon Fork watershed meets the relevance and importance criteria for ACEC designation. The Salmon Fork is a proposed ACEC in all action alternatives. However, the entire subunit is not considered as a potential ACEC in the Proposed RMP/Final EIS.
Provide a copy of the Draft RMP/EIS to the Gwich'in in Canada for comment.	The BLM notified the Kluane, Tr'ondek Hwech'in, Vuntut Gwitch'in, and White River First Nations, the Gwitch'in tribal Council, Inuvik, NT, and Northwest Territories Region Indian and Northern Affairs of the availability of the Draft RMP/EIS and provided them with copies of the document.
Reconsider the Section 810 finding of no significant restriction in the Upper Black River subunit.	The BLM revisited the Section 810 findings in the Upper Black River Subunit as part of this Proposed RMP/Final EIS. The findings are in Appendix J.
Schedule a meeting between the BLM Alaska State Director and the Gwichyaa Zhee Gwich'in tribal government.	The BLM State Director met with the Gwichyaa Zhee Gwich'in tribal government on March 6, 2013 in Fort Yukon and again by teleconference on February 24, 2015.
Enter all Gwichyaa Zhee Gwich'in tribal government comments and questions into the official record for the RMP.	The comments and questions are part of the administrative record for the RMP.
The Gwichyaa Zhee Gwich'in tribal government and Tanana Chiefs Conference (representing 42 villages within the region support Alternative B of the Draft RMP/EIS	The BLM recognizes that tribal governments support Alternative B in the Draft RMP/EIS. The Proposed RMP (Alternative E) incorporates several elements from Alternative B.

Concerns of Chalkyitsik Village and Gwichyaa Zhee Gwich'in tribal governments

The BLM provided the Gwichyaa Zhee Gwich'in and Chalkyitsik Village alternatives for the Preliminary RMP/EIS for review in September 2014. The tribes submitted joint comments in January 2015. The table below lists the tribes' major concerns and requests from their comment letter submitted January 30, 2015. The tribes also adopted and incorporated by reference the Black River Working Group, Alaska Wilderness League et al., and scoping comments from the Chalkyitsik Village Council submitted to the BLM on the Draft RMP/EIS. Additional comments submitted in April and May of 2016 reiterated tribal concerns about the size of the Salmon Fork ACEC, possible revocation of withdrawals in the Black River, and request for additional riparian conservation areas on Bull Creek.

Concerns	Requests and Recommendations	BLM Response
Tribal consultation inadequate	Refrain from making any decisions with the potential to harm tribal interests until completing adequate consultation and gathering of traditional and local knowledge.	The BLM held two section 810 hearings in both Chalkyitsik and Fort Yukon (one with Draft RMP public meetings and one with the Supplement to the Draft RMP).
Unsupported finding of "no significant impact" on subsistence; failure to provide ANILCA section 810 hearing and to make section 810(a)(3) determinations concerning impacts on subsistence.	Maintain ANCSA withdrawals and closures to locatable and leasable minerals (and other forms of development with the potential to adversely affect subsistence) throughout the subunit until after ANILCA section 810 procedural and substantive requirements have been satisfied.	The BLM held two section 810 hearings in both Chalkyitsik and Fort Yukon. The BLM found that the Proposed RMP (Alternative E) would have no significant restriction on subsistence uses. Therefore the determination process described in ANILCA Sec. 810(a)(3)(A), (B), and (C) is not required. We have satisfied the procedural requirements of Section 810.
Lack of clarity in narrative text and maps regarding withdrawals accompanying State-selected and Native-selected lands	Revise narrative text and maps to clearly demonstrate that selected lands will not be immediately open to mineral development as a result of revocation of ANCSA withdrawals or BLM management decisions.	The BLM has revised the referenced maps and text to clarify this point.
Premature decisions relating to ANCSA withdrawals and mineral development without knowing which selected lands the BLM will convey or how these lands will be used by the State and Native entities.	Maintain ANCSA withdrawals and closures to locatable and leasable mineral development until the BLM has completed conveyances and State and Native corporations relinquished over selections.	The Proposed RMP/Final EIS does not recommend retaining all ANCSA withdrawals until all conveyances are complete, as it will take many more years to finalize all conveyances. The Proposed RMP (Alternative E) does recommend retaining ANCSA withdrawals within the Salmon Fork ACEC, RCAs, and Black River watershed until they can be replaced with a new withdrawal. The Secretary of the Interior makes the decision to retain or revoke.
Geographic scope of the proposed ACEC is too small; it only protects the Salmon Fork watershed. Decision fails to take into account traditional and local knowledge regarding fish, wildlife, subsistence, historic, and cultural resources.	Expand the ACEC southward to encompass additional watersheds important for fish, wildlife, subsistence, historical and cultural resources, including the mainstem Black River, Grayling Fork, Bull Creek, and Wood River watersheds. Make southern boundary of the ACEC conform to original ACEC nomination by Chalkyitsik Village in 2008.	The Proposed RMP (Alternative E) does not expand the Salmon Fork ACEC. Based on current knowledge, the larger Black River nomination does not meet the importance criteria in the BLM ACEC Manual. Nor is special management needed to protect existing values. The BLM cannot designate an ACEC based on a lack of data. Positive findings on relevance, importance, and special management are needed for ACEC designation. We will seek funding to conduct a moose telemetry study in this area to gather more information on the area's importance to moose. If additional information collected in the future indicates that the area meets the relevance and importance criteria, and requires special management, we could reconsider designation in future planning efforts. We will also use information from this study when considering any proposed activities in the area or for developing mitigation measures to protect moose habitat and subsistence.

Concerns	Requests and Recommendations	BLM Response
Several important watersheds are not included in the riparian conservation areas (RCA), but the tribes' main priority is to encompass these watersheds in an expanded ACEC.	Tribes strongly support expansion of RCA designations from 13 to 28. See above regarding the proposal to expand ACEC to encompass important watersheds not currently proposed for designation as part of an ACEC or RCAs (especially excluded areas of the mainstem Black River, Grayling Fork, Bull Creek, Wood River and their tributaries).	The BLM revisited the RCA designation based on the January 2015 comments, but did not find that the referenced watersheds met the criteria for an RCA. In May 2016, tribes submitted additional information on Bull Creek that does support identifying at least lower Bull Creek as an RCA. These comments were submitted late in the planning process and we did not identify Bull Creek as an RCA in the Proposed RMP.
Regarding exclusion of locatable mineral development within ACECs and RCAs, Alternative E is an improvement over Alternative C, but not protective enough. It would allow excessive degradation outside of designated areas.	The BLM should expand the ACEC as indicated above, and apply mineral exclusions throughout the expanded ACEC as well as RCAs to ensure consistency with management objectives for those areas and protect key watersheds important for fish, wildlife, subsistence, historical, and cultural values. Tribes also recommend applying mineral exclusions more broadly throughout entire subunit to preserve character of subunit, protect resources, and ensure consistency with management of neighboring conservation system units.	The BLM appreciates the tribes concerns and understand the upper Black River is culturally important to the Gwich'in. We are charged with managing for multiple use and sustained yield; a recommendation to the Secretary to open 26% of the planning area (23% of the Upper Black River Subunit) to mineral entry and leasing is a balanced proposal and will enhance the likelihood of accomplishing new withdrawals in the Salmon Fork ACECs, Black River watershed, and RCAs. The Proposed RMP (Alternative E) recommends closing the Salmon Fork ACEC, Black River watershed and RCAs mineral leasing and locatable minerals.
Alternative E proposal to allow commercial use of forest and woodland products, gravel sales, and other mineral material sales is inconsistent with ACEC and RCA designations and would allow excessive degradation. Tribes support proposal to allow personal use of timber and forest products. The Alternative E proposal to allow commercial use of forest and woodland products, gravel sales, and other mineral material sales is inconsistent with ACEC and RCA designations and would allow	Preclude commercial forestry uses of all types, gravel mining, and other salable mineral development throughout the expanded ACEC and RCAs. Tribes also recommend precluding commercial forestry more broadly throughout entire Upper Black River Subunit.	The Proposed RMP (Alternative E) closes the Salmon Fork ACEC to commercial timber sales, with an exception for salvage sales. Salvage sales allow for removal of wood after a fire or other surface disturbance. The entire subunit would be open to mineral material sales. The BLM does not believe excessive degradation would occur. The timber in the area is not commercially valuable and there is no easy access to remove the timber, making interest in timber sales unlikely. Mineral sales are usually located adjacent to roads, and there are no roads in the Upper Black River Subunit. Nor are any roads proposed for this area. Even in areas with roads, there are few mineral sales on BLM-managed lands, as there are ample sand, gravel, and rock resources on state and private lands. Closing the subunit to all commercial timber and forest product sales would prevent the villages from harvesting biomass or special forest products from BLM-managed lands, thus reducing potential economic opportunities for local residents. If the RMP closed the area to mineral material sales and Chalkyitsik or Circle villages wanted to buy some of these materials, the BLM

Concerns	Requests and Recommendations	BLM Response
excessive degradation. Tribes support the proposal to allow personal use of timber and forest products.		could not allow it without amending the RMP. Given the long life of the RMP, the need for management flexibility in the future, and the lack of interest in timber and mineral material products in the subunit, the Proposed RMP (Alternative E) does not propose closing the entire Upper Black River Subunit to these uses. However, the BLM will evaluate all proposals for environmental impacts under NEPA and Section 810 of ANILCA. It will mitigate these impacts to the extent possible, and may modify the project to reduce these impacts. The BLM will consult with the tribes if it receives applications for these types of uses.
Alternative E fails to establish right-of-way avoidance areas in the subunit. Allowing road corridors poses a threat of direct impacts, as well as indirect impacts, due to facilitation of mining and other extractive development.	Establish right-of-way avoidance areas throughout expanded ACEC and RCAs to ensure consistency with management objectives and protect key watersheds important for fish, wildlife, subsistence, historical, and cultural values. Tribes also recommend establishing right-of-way avoidance areas throughout entire subunit.	A right-of-way includes more than roads. For example, communication sites (remote radio transmitters) and remote weather monitoring stations that improve safety in the area are issued under a right-of-way. A right-of-way avoidance area does not preclude rights-of-way. It just means the applicant tries to find alternate sites. The BLM will take a hard look at applications under its normal permitting processes and will consider subsistence resources. It will require mitigation to eliminate or reduce impacts to subsistence resources. Given the long life of the RMP, the need for management flexibility in the future, and Doyon and State inholdings in the Upper Black River Subunit, the Proposed RMP (Alternative E) does not propose a right-of-way avoidance area. The BLM will evaluate any proposed rights-of-way for environmental impacts under NEPA and Section 810 of ANILCA, and mitigate those impacts to the extent possible. The BLM will consult with the tribes if we receive applications for a right-of-way in the subunit.
The BLM has deemed the Salmon Fork of the Black River eligible in all alternatives and suitable in Alternative B. There is no good reason cited for failing to find this river suitable in Alternative E.	The BLM should recommend designation of the Salmon Fork as a WSR in the agency preferred alternative. Designation would complement management objectives in the ACEC and RCAs, as well as surrounding conservation units.	The Proposed RMP (Alternative E) does not propose the Salmon Fork as suitable for designation under the Wild and Scenic Rivers Act. This decision will not foreclose the option to consider the river for that designation in the future. The BLM revised Appendix E to clarify the non-suitable finding for the Salmon Fork and to document tribal support for the designation. The BLM determined that there is not broad public and congressional support for a WSR designation; that the Salmon Fork is within a proposed ACEC and RCAs. ACEC designation combined with the management in the Proposed RMP (Alternative E) is sufficient to protect the outstandingly remarkable river values of the Salmon Fork. No values would be foreclosed or diminished if the area is not designated as a WSR.

Concerns	Requests and Recommendations	BLM Response
The BLM declined to recommend the Black River and its tributaries for designation under the Wild and Scenic Rivers Act based on inadequate data, and through failure to gather adequate traditional and local knowledge.	The BLM should continue investigating outstandingly remarkable values, eligibility, and suitability of the Black River and its tributaries; and manage these watersheds to preserve their wild river characteristics and maintain the possibility of future designation under the WSR Act.	The BLM evaluated these rivers, but did not find any outstandingly remarkable values based on the data available. The RMP comment period identified no additional outstandingly remarkable values for these areas. As budget allows, the BLM will continue to inventory resources in the Upper Black River Subunit, including river values. Decisions in the RMP will not foreclose future consideration of these rivers if the agency identifies outstandingly remarkable values in the future.
BLMs proposed management standards relating to the preservation of wilderness are too weak and allow too much degradation.	The BLM should apply wilderness and visual resource management standards in Alternative B and Class II to the entire subunit. This will complement management objectives relating to fish, wildlife, subsistence, historical, and cultural values; preserve the character of the subunit; ensure consistency with management of neighboring conservation system units; and, maintain the possibility of future designations of wilderness or National Conservation Area.	The Proposed RMP (Alternative E) does not propose managing the entire subunit as a VRM Class II or minimizing impacts to wilderness characteristics on the entire subunit. We do propose managing the Salmon Fork ACEC and RCAs as VRM II and minimize impacts to wilderness characteristics in these same areas. Managing 47 percent of the subunit is this manner is a reasonable compromise. The vast majority of the subunit will retain wilderness characteristics over the life of the RMP for several reasons. Access is expensive and difficult; conservation system units surround the area; and the economic value of extractive resources in the area is low compared to more accessible areas of the state. Based on these factors and past history, we anticipate few surface disturbing activities. We have issued only two permits in the Upper Black River Subunit over the past 10 years: A communication site right-of-way on Snowy Peak and a filming permit involving a local trapper, with the only access by air and snow machine.

The BLM discussed the comments and responses listed above with the Chalkyitsik Village tribal representatives by teleconference on February 24, 2015, and with Gwichyaa Zhee Gwich'in tribal government on June 2, 2015, in Fort Yukon. Section L. 4 addresses additional comments submitted by tribes, tribal organizations, and tribal members.

L.3.2. Other Cooperating Agencies

The State of Alaska provided comments during both internal cooperating agency reviews and public comment periods. Section L.4 addresses the substantive comments. The BLM met with the State on several issues. The BLM made many clarifications and editorial changes, including minor changes to the alternatives, especially regarding consistency with ANILCA, in response to the State's comments. Summarized below are the State's general comments and concerns.

- The State is opposed to wild and scenic river study, eligibility, and suitability recommendations and contends this process is in direct conflict with ANILCA.
- The State is opposed to Wild Lands and managing lands for wilderness characteristics. It contends these are in direct conflict with ANILCA and FLPMA.
- Any provisions of ANILCA that apply to designated Wilderness must also apply to lands with wilderness characteristics.

- The State questions the validity of proposed ACECs and BLM's contention that these areas require special management to protect the identified values. Federal regulations and management practices currently in place are adequate to protect relevant and important values in the ACECs without a mineral withdrawal.

- The State questions the justification for research natural areas, opposes any new RNA designations, and is concerned that these designations may be inconsistent with ANILCA.

- The RMP oversteps BLM's authority to manage fish and wildlife populations. The RMP needs to consistently reflect ADF&G as the primary agency responsible for fish and game management.

- The RMP does not meet the BLM's multiple use mandate.

- The RMP must clearly show the State's ownership of navigable rivers. The State disagrees with the BLM's navigability determinations.

- The State has significant concerns regarding proposed restrictions on use of motorboats, snowmobiles, off-highway vehicles, and access. The proposed restrictions conflict with sections 811 and 1110 of ANILCA.

- The BLM must follow regulations at 43 CFR 36.11(h) to implement any proposed restrictions or limits to modes of access protected by sections 811 and 1110 of ANILCA. The BLM should recognize and commit to following the criteria and notice requirements in the USFWS and NPS regulations for implementing Section 811 of ANILCA (50 CFR 36 and 36 CFR 13).

- The State recommends deferring travel management planning to a step-down plan that is subject to robust public input.

- The State is concerned that the RMP will unnecessarily hinder access and development of state or private lands in the planning area due to limitations on access or special designations.

- The State supports revocation of the ANCSA 17(d)(1) withdrawals as they have served their purpose and are no longer needed. Additionally opening these areas to mining will enhance economic opportunities in the state and enhance the probability of economic development on adjacent state and private lands.

- The State requests that the BLM clarify discussions of withdrawals in the Proposed RMP/Final EIS, as it is unclear if the BLM is proposing new withdrawals or just retaining withdrawals associated with ANILCA designations, which are different from ANCSA 17(d)(1) withdrawals.

- Making the revocation of ANCSA 17(d)(1) withdrawals conditional upon securing new withdrawals for a completely different purpose, is inappropriate and legally questionable.

- Proposing new mineral withdrawals to provide greater protection of existing wild and scenic rivers is contrary to the WSR Act and ANILCA 606(a).

- Any new withdrawals from mineral entry are subject to Section 1326(a) of ANILCA, which states that any future executive branch action that withdraws more than five thousand acres in the aggregate shall not become effective until notice is provided in the *Federal Register* and to both Houses of Congress.

- The State provided many data sources, technical review, editorial comments, suggestions to improve readability of the document, and suggestions for changes to maps.

The U.S. Fish and Wildlife Service (USFWS) is not a formal cooperating agency. However, the BLM consulted with the agency during development of the Draft RMP/EIS. USFWS also submitted comments during the public comment period. Section L. 4 addresses substantive comments submitted during the public comment period. The BLM made clarifications, minor changes to alternatives, and editorial changes in response to USFWS comments. The BLM also considered these comments during development of the Proposed RMP/Final EIS. Major concerns are summarized below.

- The range of alternatives for the Steese National Conservation Area and Upper Black River Subunits are too narrow in scope.
- Consider riparian buffers to exclude mining in riparian areas on all streams and water bodies in the planning area.
- Limit mineral openings to lands with high mineral potential, only after evaluating fishery, wildlife, and aquatic resources in these areas
- Do not allow suction dredging in anadromous streams.
- The majority of the watersheds should be riparian conservation areas.
- Collect more baseline fisheries data, particularly on Preacher Creek and in the Black River region.
- The RMP should address intensive management and predator control.
- Strengthen and add additional standard operating procedures, including some from the BLM's Bay RMP and for migratory birds, and remove the discretionary language.
- Desired habitat conditions for fish and aquatic species are unattainable under some of the alternatives, given that alternatives recommend opening areas to mining. It is unclear how the RMP can meet the 43 CFR 3809 requirements to rehabilitate fish habitat.
- Close ACECs to mining.
- A combination of the No Action Alternative and Alternative B afford the highest probability for maintaining and enhancing fish populations and their habitats and is the USFWS preferred alternative.

L.4. Issue Topics and Responses

L.4.1. Climate Change

Comment Numbers: EIRMP000000153E-22, EIRMP000000153-28, EIRMP000000153-32, EIRMP000000148-5, EIRMP000000153B-20, EIRMP000000153B-24, EIRMP000000153B-25, EIRMP000000153B-26, EIRMP000000153B-27, EIRMP000000153B-28, EIRMP000000153B-33, EIRMP000000126-2, and EIRMP000000153B-36

Organization: Alaska Wilderness League and cosigners, Chalkyitsik Village Council, Fortymile Miners Association

Commenter Type: tribe, environmental organization, mining organization

Summary

Many comments related to climate change, including:

- Incorporate climate change into each section of the plan for each subunit, not just in a stand-alone section within the plan. This is one of the most significant factors affecting the landscape, water, habitats and wildfire over the next thirty years.
- The BLM should engage the Scenarios Network for Alaska and Arctic Planning (SNAP) to model climate change and provide objective scenarios for future landscape conditions.
- Additional information on climate change impacts is available in reports such as Global Climate Change Impacts in the United States, available online at http://www.globalchange.gov
- BLM's baseline data on climate change must be sufficient to permit analysis of impacts under NEPA. The BLM must provide the public with an explanation of both the data used in analyzing the potential effects of management alternatives and the methods used to conduct the analysis, as well as an opportunity to provide comments and propose corrections or improvements.
- Making conclusions about the cause of the warming planet is outside of the BLM's mandate and inconsequential to the BLM's responsibility to manage natural resources for the benefit of the public.
- Secretarial Order No. 3289 mandates all agencies within the Department of the Interior analyze potential climate change impacts when undertaking long-range planning exercises, developing multi-year management plans, and making major decisions regarding potential use of resources under their management. The BLM must assess impacts from the plan that may directly, indirectly, or cumulatively result in exacerbating climate change within the Eastern Interior RMP.
- Guidance in 523 Departmental Manual 1 requires the deliberate and proactive planning that is necessary now to ensure that critical resources are protected and resilient in the future. General statements that the BLM will conduct monitoring are not an appropriate form of mitigation. Simply monitoring for expected damage does not actually reduce or alleviate any impacts. Instead, a vigilant science-based monitoring system should be set out in the RMP in order to address unforeseeable shifts to the ecosystem due to climate change.

Response

Based on comments from agencies and the public, the BLM revised the RMP/EIS to include a more robust discussion of Climate, Climate Change, and Greenhouse Gas Emissions. This discussion follows the December 18, 2014, Council on Environmental Quality (CEQ) guidance that describes how federal departments and agencies should consider the effects of Climate Change and Greenhouse Gas (GHGs) emissions in their planning and NEPA reviews. This guidance explains that agencies should consider two climate issues, (1) the potential effects of a proposed action on climate change, as indicated by the estimated greenhouse gas emissions associated with the action, and (2) the environmental effects of climate change on agency

proposed actions and resources. Based on the CEQ guidance, the Proposed RMP/Final EIS addresses and discusses climate change -within this CEQ 2 issue framework.

Issue Statement: (1) How will current and future BLM-authorized actions affect GHG emissions, and where a proposed action is anticipated to emit GHGs to the atmosphere in quantities that [the] BLM finds meaningful, how will [the] BLM quantify and disclose its estimate of the expected annual GHG emissions in the environmental documentation for the proposed action?

The BLM Greenhouse Gas and Climate Change 2015 NEPA Toolkit (http://ghgtoolkit.blm.gov/) was the primary tool used in analyzing current and projected GHG emissions from BLM-authorized actions, primarily placer-mining, in the planning area. The toolkit is a comprehensive tool and resource designed for use by BLM resource specialists to estimate total annual greenhouse gas emissions and output summary reports for documentation of reference data and computations. The estimate level of GHG emissions serve as a reasonable proxy for assessing potential climate change impacts, and provide decision makers and the public with useful information for a reasoned choice among alternatives.

Issue Statement: (2) How will projected climate change due to global conditions impact current and future BLM-authorized actions in the context of the reasonably foreseeable future condition of the affected environment?

Through a formal 2009 Assistance Agreement, the BLM participated in a research consortium, Scenarios Network for Alaska Planning (SNAP), with the University of Alaska Fairbanks (UAF) to conduct modeling studies intended to identify vegetation and fire regime response to projected future climate changes in Interior Alaska. The BLM incorporated the analysis of these climate change projections and associated objective models of landscape conditions into the RMP. The SNAP Program published a summary report of simulation results for eastern Interior Alaska to the program website for reference by agencies and the public. The report is also available on the BLM Eastern Interior website at http://www.blm.gov/ak/eirmp. The EIS uses outcomes from this report, as well as historical climate data, to help describe the existing environment and to discuss climate change impacts in Chapter 4. These predictions were also used to help develop Standard Operating Procedures (SOPs) and Fluid Mineral Leasing Stipulations that would be adaptable over time.

L.4.1.1. Analysis of Climate Change Impacts

Comment Numbers: EIRMP000000153B-32, EIRMP000000153B-38, EIRMP000000153C-41, EIRMP000000157-6, EIRMP000000220-4, EIRMP000000055-7, EIRMP000000153-48, EIRMP000000153B-21, EIRMP000000153B-35, and EIRMP000000455-2

Organizations: Alaska Wilderness League and cosigners, Eastern Interior Federal Subsistence Regional Advisory Council, Northern Alaska Environmental Center

Commenter Types: environmental organizations, federal advisory committee, and individuals

Summary

- The cumulative effects of shifts in ecological patterns that are documented through climate change in the region are not adequately addressed in the Draft EIS. The BLM needs to consider the uncertainty about future impacts of climate change in the cumulative impact assessment. For example, draw down of water for mining activities in conjunction with climate

change-induced drought would greatly decrease stream flow and ground water quality. Mining activities that reduce steam flow could also exacerbate warming temperatures and that could affect vegetation and specific water temperature ranges critical to fish health.

- The BLM is required to include qualitative analysis of impacts. A suggested approach for this type of analysis can be found in the "Risk Assessment" section in the document entitled, "Recommended Risk Assessment and Management Approach for Addressing Climate Change in BLM Land Use Planning." Although there is no widely accepted method to assess and manage risk, breaking risk down into its component parts—vulnerability, exposure, and uncertainty—is a useful way to think about risk to biodiversity and productive potential.

- Many prescriptions in the RMP may contribute to and exacerbate the impacts of human-induced global climate change. In addition to a genuine analysis of impacts, it is imperative that the BLM craft strategies in its alternatives for addressing the impacts of climate change both in terms of mitigating management decisions' contributions to climate change and adapting to inevitable impacts of climate change.

Response

The climate model results from Rupp and Springsteen (2009b) show that Eastern Interior Alaska is projected to become warmer and drier over the next century and are in broad agreement with other global climate model results for Interior Alaska (Chapman and Walsh, 2007; NOAA, 2013). Warmer temperatures and a longer growing season are expected to increase evapotranspiration enough to outweigh a regional increase in precipitation. Their simulation results show a general increase in wildland fire activity through the end of this century in response to projected warming temperatures and less available moisture. It suggests that boreal forest vegetation will change from a spruce-dominated landscape to a more deciduous-dominated landscape. In spite of the vegetation shift towards less flammable younger age stands and deciduous species, the simulation results indicate that there will be more frequent wildland fires, resulting in an overall increase in area burned annually. Projected future climate changes include:

- Increases in annual average temperatures over the coming decades at an average rate of about one degree F per decade from the 1961-1990 historic 30-year average (about 24 degrees F). Rising in average annual temperature by about 6.4 degrees F by 2049, and by as much as 9.4 degrees F by 2099.

- Increases in average annual precipitation (about 16 inches) to 19.6 inches by 2049 and to 21.1 inches (about 30 percent) by 2099, but these increases will not be enough to offset increases in potential evapotranspiration in the Eastern Interior region, especially during the last half of this century.

- These projected future climate changes suggest the recent (1949-2005) warming trend in Interior Alaska will continue over the next few decades with similar resource impacts, as discussed in Chapters 3 and 4. Current and future projected climate change impacts that affect BLM management actions and resources are primarily related to a warming climate and include: 1) thawing permafrost, 2) increased length of growing season, and 3) increased wildland fire frequency. The BLM continues to utilize Adaptive Management as a tool in managing lands and resources to predict, mitigate, implement, monitor, and adapt to climate change impacts as well as in NEPA analysis of current and future BLM-authorized actions in the planning area.

L.4.1.2. Greenhouse Gas Emissions Assessment

Comment Number: EIRMP000000153B-22, EIRMP000000153B-29, and EIRMP000000153B-30

Organization: Alaska Wilderness League

Commenter Type: environmental organization

Summary

Under Executive Order 13514, the BLM is required to analyze greenhouse gas emissions (GHG) as part of the EIS. The Draft EIS does not include an estimate of greenhouse gas emissions, nor does it estimate the significance of greenhouse gas emissions for each alternative.

Response

The BLM completed quantitative analysis of greenhouse gas (GHG) emissions for the largest GHG emission sources in the planning area, communities, and seasonal placer mining respectively, as part of the Proposed RMP/Final EIS (sections 3.2.1.2 and 4.3.1.1). In determining what levels of GHG emissions to measure as "significant" under NEPA, the BLM followed the December 18, 2014, Council on Environmental Quality (CEQ) guidance.

Guidance is focused on: (1) encouraging agencies to draw from their experience and expertise to determine the appropriate level (broad, programmatic, or project- or site-specific) and type (quantitative or qualitative) of analysis required to comply with NEPA; and, (2) recommending agencies focus their analysis on the projects and actions with the greatest impacts by providing a reference point of 25,000 metric tons of CO2-equivalent emissions (MtCO2e) on an annual basis, below which a quantitative analysis of GHG emissions is not recommended unless it is easily accomplished. This guidance does not change or substitute for any law, regulation, or other legally binding requirement, and is not legally enforceable. Furthermore, the CEQ does not propose the 25,000 metric tons of CO2e reference point as an indicator of a level of GHG emission that may significantly affect the quality of the human environment, as that term is used by NEPA, but rather serves as a minimum standard for reporting emissions under the Clean Air Act.

Our analyses of projected development in the planning area shows GHG emissions associated with local communities would continue to be the largest anthropogenic source of GHG emissions within the planning area. In 2010, the Fairbanks and Delta areas contributed the most GHG emissions 1,893,205 and 196,382 MtCO2e, respectively. The Eagle area, at 12,803 MtCO2e, and Fort Yukon area at 42,129 MtCO2e, contributed the least emissions (Table 3.6).

In 2014, active placer operations (exploration, suction dredge, small and large placer mines) on BLM-managed lands contributed, in total, approximately 4,100 MtCO2e; less than 20 percent of the 25,000 MtCO2e annual emissions levels, above which quantitative reporting of GHG emissions is recommended by CEQ (2014). For comparison, total GHG emissions for all subunits under Alternative D, the most pro-development alternative, were estimated at 7,500 MtCO2e annually, well below the 25,000 MtCO2e reporting limit (Table 4.6).

There are no current or projected large-scale lode mines on BLM -managed lands. However, for reference, there are two large-scale lode gold mines within the planning area boundary; Fort Knox Mine near Fairbanks reported 2014 GHG emissions of 417,000 tonnes CO2e (www.kinross.com)and Pogo Mine near Delta reported 2007 GHG emissions of 75,000 tonnes CO2e (www.teck.com).

The BLM will address estimates of GHG contributions from travel and transportation activities, including emissions from OHV use, in the forthcoming travel management plans. However for context, based on anecdotal reports from recreation staff, GHG emissions from recreation OHVs would likely be less than half of the annual emissions associated with the placer mining industry.

Specific data on greenhouse gas emissions from wildland fire in the planning area was unavailable due to a lack of detailed vegetation inventory information and an associated historic burn severity inventory. While general statewide emissions estimates from the past for Alaska are available (ADEC 2015), more refined, higher resolution estimates for wildland fire emissions specific to the planning area are not available at this time.

L.4.1.3. Carbon Sinks

Comment Number: EIRMP000000153B-31

Organization: Alaska Wilderness League and cosigners

Commenter Type: environmental organization

Summary

Because failure to conserve carbon sinks results in direct and quantifiable greenhouse gas (GHG) emissions as well as indirect effects from reduction in carbon sequestration, the BLM should analyze the GHG effects of destruction of carbon sinks as part of the EIS. The analysis of GHG effects of destruction of carbon sinks should be both in terms of carbon already stored in the landscape and the soil itself in terms of the landscape's ongoing carbon-capturing properties.

Such an analysis requires that an initial inventory of carbon storage potential be conducted for each landscape. The environmental review should assess and where possible quantify all the various component carbon pools – live trees, other vegetation, dead trees or vegetation (coarse, woody debris and snags), logs, litter, duff, and mineral soil – and the fluxes of carbon to and from these pools, due to natural processes like decay and fire. Also those associated with management, harvest and/or manufacture of extracted resources, including the burning of fossil fuels needed to remove, transport, and process those materials. In conducting this assessment, the BLM should account for fluxes associated with fire management and the restoration of the resilient native ecology separately.

Response

There are no reasonably foreseeable land-use actions associated with the proposed alternatives that would result in a substantial anthropogenic- related change in landscape carbon sequestration in the planning area. For the purpose of this plan, the net contribution to atmospheric carbon from effects of climate change will likely be minimal. Increased wildland fire frequency and, to a lesser extent, thawing permafrost, would likely contribute carbon. However, increased temperatures, length of growing seasons, and expanded growth of forests in former permafrost-rich areas would all act as carbon sinks. Release of carbon from thawing of permafrost soils remains a concern. However, Schurr et al., (2009) found that areas that thawed over the past 15 years had more annual losses of old carbon than minimally thawed areas, yet had overall net ecosystem carbon uptake as increased plant growth offset these losses.

Assessment of various component carbon pools and the fluxes of carbon to and from these pools are beyond the scope of this plan, but it is a topic of on-going research. Much of the available information for Interior Alaska is associated with the Long-Term Ecological Research (LTER) network program and the Bonanza Creek LTER site near Fairbanks. Researchers report, "Because a relatively large fraction of soil carbon is at or near the soil surface, boreal forest carbon dynamics track inter-annual fluctuations in climate and disturbance more closely than in other biomes. This sensitivity, coupled with the large size of the boreal forest soil carbon reservoir and the predicted magnitude of climate change at high latitudes, reinforces the widely held view that the boreal forest will strongly influence future atmospheric CO2 levels. It is clear, however, that long-term assessments of the decomposition rates of major litter types, including roots, coarse woody debris, and bryophytes, are needed to complete our understanding of carbon balance and nutrient cycling." (Valentine et. al. 2006).

Specific data on carbon emissions from wildland fire in the planning area was unavailable due to a lack of detailed vegetation inventory information and associated historic burn severity inventory. While general statewide emissions estimates from the past for Alaska are available (ADEC 2015), more refined, higher resolution estimates for wildland fire emissions specific to the planning area are not available at this time.

L.4.2. Cultural and Paleontological Resources

Comment Number: EIRMP000000307-2

Commenter Type: individual

Summary

The comment states that the RMP is incomplete in terms of cultural resource sites. It also implies that the BLM is not considering Alaska Native sites in its planning process.

Response

The commenter is correct that the RMP does not present all archaeological sites actually present in the planning area. The plan indicates 2,500 known sites in the planning area, and about 365 of those sites are on BLM-managed lands. Relatively little of the land in Alaska has been systematically surveyed for cultural resources. There are likely thousands more sites in the planning area not yet known about. The BLM needs to proceed with the currently available information, no matter how few sites that number actually is. The commenter also seems to indicate that only certain types of sites (i.e., Euroamerican) are among the known sites listed in the Alaska Heritage Resources Survey (AHRS) (i.e., Alaska's listing of known cultural sites). The commenter points out that "they don't consider our [Alaska Native] sites as historical places." This is not the case. The AHRS is a listing of all archaeological sites across the state, regardless of cultural affiliation (Alaska Native, Euroamerican, or other). Archaeologists are interested in the entire history of Alaska, from the first peopling more than 12,000 years ago up to the present.

L.4.2.1. Survey and Inventory of Cultural Sites

Comment Number: EIRMP000000157-5

Organization: Eastern Interior Federal Subsistence Regional Advisory Council

Commenter Type: advisory committee

Summary

Hard rock mining in the White Mountains NRA would impact "traditional activities" and unknown Alaska Native cultural sites. The BLM should conduct additional survey work to inventory important Gwich'in cultural sites.

Response

BLM archaeologists and management agree with the statement that “additional survey work should be conducted to understand and inventory important Gwich'in cultural sites" in the White Mountains NRA and throughout the planning area. We also agree with the implied issue that not enough cultural inventories have been done in the planning area, and that there are probably many more Alaska Native cultural sites than those we know about. Existing federal cultural laws, in particular the National Historic Preservation Act, are in place to discover and protect/mitigate damage to cultural sites when any action on federal land (such as hard rock mining) takes places. BLM archaeologists are very interested in Alaska Native historic and prehistoric use in the White Mountains and planning area. If hard rock mining ever proceeded in the White Mountains, federal laws and personnel are in place to deal with any repercussions to cultural sites. Furthermore, federal laws and regulations provide for involvement and participation in the cultural resources process by interested outside parties (such as Alaska Native villages and corporations).

Additionally, the Proposed RMP (Alternative E) would not allow hardrock mining in the White Mountains.

L.4.2.2. Protection of Cultural Sites

Comment Number: EIRMP000000163B-18

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

The comment suggested rewording a decision under Cultural Resources to add in a statement on restricted access to the inventory of sites to protect them from inappropriate use and destruction.

Response

This decision under section 2.6.2.2 Cultural Resources was changed in the Proposed RMP/Final EIS to: "Maintain an inventory of archaeological sites and localities for the planning area. The locations of these sites and localities are protected by federal law from disclosure to the public, certain exceptions aside, so as to better protect them."

L.4.2.3. Cultural Values of Beaver Creek

Comment Number: EIRMP000000153E-7

Organization: Alaska Wilderness League and cosigners

Commenter Type: environmental organization

Summary

Extensive Alaska Native cultural ties exist to the Beaver Creek WSR, and the BLM did not adequately review the relevant literature when it determined that "cultural" values were not an outstandingly remarkable value in the designation of values related to the WSR. The review provided no documentation regarding the extent of the review research and no citations for relevant data.

Response

As of September 2013, the Beaver Creek WSR (127 river miles from its beginning at the confluence of Bear and Champion creeks to a point 16 river miles downstream from the mouth of Victoria Creek, where Beaver exits the White Mountains NRA and enters the Yukon Flats) still has no known cultural sites. BLM staff is aware of all archaeological surveys that have taken place inside the WSR corridor. Ethnographic studies mention use of the northern portion of the White Mountains NRA and associated portion of Beaver Creek, but do not mention specific sites or locales that were utilized. To the BLM's knowledge, there are no published Alaska Native place names studies that deal with this area. There are no known ANCSA Section 14(h)(1) sites, or applications for sites that were ultimately turned down, known within the confines of the Beaver Creek WSR corridor, nor in the entire surrounding White Mountains NRA.

Published information appears to indicate that much of the White Mountains NRA and most of the Beaver Creek WSR fell outside of the regular/traditional use of any particular Athabaskan group in the 19th and early 20th centuries, particularly the Birch Creek Gwich'in to the northeast and the Lower Tanana Athabaskans to the southwest and (earlier in time) northwest (contrast the following maps: Caulfield 1983 Maps 11A, 11B, 11C, 12; Andrews 1977 Figures 21, 28; Raboff 2011 Figure 25). References examined include the following: Andrews 1977, Caulfield, 1983, Drozda 2013, Mills 199-2013, Osgood 1936, Pratt 2013, Raboff 2001, Schneider 1976, and Will 1984. For full references see the References Cited section in the Proposed RMP/Final EIS.

However, this does not mean that the Beaver Creek WSR was not used in the prehistoric, protohistoric, and historic pasts by Alaska Native groups. It would be nothing short of astounding that any area of Interior Alaska, the Beaver Creek corridor included, was not utilized by Athabascan or earlier Alaska Native prehistoric populations. However, sites of use are not presently known. If the commenter or tribes know of references or sources that contain instances of cultural use at specific locales in the Beaver Creek WSR, we urge them to supply this data to the BLM.

The BLM follows specific guidance when considering any value as an outstanding remarkable value for a designated Wild and Scenic River. As mentioned in Appendix E.1, Wild and Scenic Rivers Inventory, Determining Eligibility "The value must be rare, unique, or exemplary in a regional or national context." In addition for Cultural values, "Sites must be rare, have unusual characteristics, or exceptional human-interest values. Sites may have national or regional importance for interpreting prehistory; may be rare; may represent an area where culture or a cultural period was first identified and described; may have been used concurrently by two or more cultural groups; or may have been used by cultural groups for rare, sacred, tribal, or spiritual purposes." Any cultural sites identified in the future must then pass the threshold outlined by this guidance.

L.4.2.4. Cultural Values in Black River ACEC

Comment Number: EIRMP000000163B-126, EIRMP000000163B-127, and EIRMP000000296-3

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government and individual

Summary

The Draft RMP found that there is no data on which to recommend an ACEC designation for the Upper Black River watershed based upon cultural resources. If this is the case, the BLM should collect necessary data prior to dismissing this area for consideration as an ACEC (a culturally relevant area). In fact, later in the table (page 914 of the Draft RMP) subsistence activities are noted to occur on the mainstem Black River. Residents who have used this area would argue that the Upper Black River watershed is an important cultural site for the purpose of subsistence. The BLM should conduct subsistence use surveys and incorporate the data to assess if the Upper Black River watershed is important throughout their annual subsistence cycle. If it is deemed culturally important, then the ACEC should encompass the Upper Black River watershed.

Response

The BLM cannot designate an ACEC in the absence of supporting data. If additional data supporting an ACEC is collected in the future, we could reconsider ACEC designation in a future planning effort.

L.4.2.5. Black River ACEC Expansion for Cultural Values

Comment Number: EIRMP000000141-16

Organization: Black River Working Group

Commenter Type: concerned citizen organization

Summary

There is a significant historical and Alaska Native cultural component in the upper Black River drainage sufficient to justify a larger ACEC as recommended by those who nominated this area for an ACEC.

Response

The BLM concurs that the Gwich'in have an historical and cultural connection to the upper Black River drainage. However, an ACEC designation requires three factors: (1) an area must meet criteria of "relevance," (2) it must meet criteria of "importance," and (3) it must require "special management attention" (43 CFR 1610.7-2).

Relevance and Importance. "An area meets relevance criterion if it contains one or more of the following: 1. A significant historic, cultural, or scenic value (including but not limited to rare or sensitive archaeological resources and religious or cultural resources important to Native Americans." Also, in order to qualify as "significant," This generally means that the [cultural] value [or] resource … is characterized by one or more of the following: (1) Has more than locally

significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource. (2) Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse chance." The other characteristics listed are not applicable to cultural resources.

Although the number of presently identified archaeological and other cultural sites in the Upper Black River Subunit is admittedly very small, this factor is a lack of archaeological surveys and research in the area, not necessarily a factor of absence, as was explained in the Draft RMP. It is possible that hundreds (or more) of archaeological sites (historic and prehistoric) are present in the Upper Black River Subunit. The question is one of "significance," not presence. Are the types of sites we expect to find in the subunit rare or sensitive? Of particular religious importance? Threatened? Or, of more than local interest or significance? At present, none of these criteria applies to the known sites in the subunit, and few would apply to unknown sites waiting to be discovered.

This does not mean that the cultural sites present in the Black River Subunit (known or unknown) are either not important or significant to the Gwich'in people. Without a doubt, they are. However, the historic sites (e.g., the refugium sites mentioned in the comments) that are known and mean so much to the Gwich'in peoples in this area are locally important, and thus do not rise to the level of significance as required by the ACEC manual. While there may be quite rare, unique, and quite ancient prehistoric sites present in the area, at the present time, none such as these are known.

Special Management Attention. "To be designated as an ACEC, an area must require special management attention to protect the important and relevant values. … 'Special management attention' refers to management prescriptions developed … expressly to protect important and relevant values of an area from the potential effects of actions permitted by the RMP." In other words, even if the BLM found cultural resources in the Black River Subunit to be "relevant" and "important," they would still require a special set of protection measures in place to keep them relevant, important, and an ACEC value. In short, cultural resources in the Black River Subunit require no further protections not already adequately provided by existing laws, most notably the American Antiquities Act of 1906, the Archaeological Resources Protection Act of 1979, as amended, and the National Historic Preservation Act of 1966, amended in 2014.

L.4.3. Fish and Aquatic Species

Comment Number: EIRMP000000163B-70

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

The planning issues identified for Fish and Aquatic resources (section 1.5.1.3 Draft RMP) during external scoping and internal review are not specific enough to address the management question.

Response

The BLM revised the planning issues related to fish and aquatic species in the Proposed RMP/Final EIS see section 1.5.1.4.

L.4.3.1. Management Goals

Comment Number: EIRMP000000153C-1, EIRMP000000163B-76, EIRMP000000163-17, and EIRMP000000163-20

Organization: Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: environmental organization and federal government

Summary

- The management goals for fish and aquatic species described for all subunits in section 2.6.1.3 are excellent, but not achievable, based on the Standard Operating Procedures and Stipulations for mining and the lack of understanding of the ecosystem within the Upper Black River.
- The fisheries goals listed in the RMP are not consistent with the National Fish Habitat Action Plan (NFHAP), as is stated in the Draft RMP. The BLM should adopt NFHAP goals and include them in the RMP.
- Previously mined streams within the planning area do not currently meet the desired stream and riparian habitat conditions outlined in the Draft RMP. It is reasonable to conclude that with any future mining, streams will not meet the desired conditions and a downward trend can be anticipated.

Response

The Standard Operating Procedures for the Proposed RMP (Alternative E) have changes to achieve management goals for fish and aquatic resources. The majority of streams in the upper Black River watershed are either within a riparian conservation area (RCA) or an ACEC, both of which have higher standards. See section 2.6.2.3 and Appendix A.4 in this document.

The fisheries goals listed in the RMP are consistent with some, but not necessarily all, of the goals found in the NFHAP. Recognizing that the BLM is a multiple-use agency and valid existing mining claims currently exist, not all fish habitat can be maintained and protected. Thus, the BLM cannot meet all of the NFHAP goals. Section 4.3.1.4 states that all BLM land-use authorizations would incorporate appropriate project design, SOPs, and mitigation, to not result in any adverse, long-term (less than 20 years) trends for water quality and aquatic habitats at the watershed level (6th level HUC).

The BLM created SOP FA-6 (Appendix A.4.2) to meet the desired conditions for fish and aquatic resources, within the life of the plan, and to meet the regulatory requirements for the rehabilitation of fish habitat when fish habitat has been impacted by instream mining. The reclamation standards found in section 2.4.1.3 have not been used in the past. The intent of SOP FA-6 and associated objectives is to reverse the downward trend and rehabilitate fish habitat in a much shorter time frame by using active, not passive methods of rehabilitation. Active revegetation of the riparian area would be necessary to meet the desired conditions for numerous resources.

L.4.3.2. Ability to Achieve Riparian Function

Comment Number: EIRMP000000163B-87, EIRMP000000164-25, EIRMP000000164-39, EIRMP000000164-4, and EIRMP000000164-40

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

- Mining reclamation plans often lack the detail needed to meet the requirements for rehabilitation of fish habitat. The RMP should include a mechanism to prevent approval of a mining plan if the applicant does not provide the detailed information needed.
- The standard operating procedures (SOPs) and management actions for riparian vegetation and function proposed in the RMP are insufficient to meet the goals and desired conditions for numerous resources, obtain proper functioning condition, or result in the rehabilitation of fish habitat within the life of the plan.

Response

The BLM regulations under 43 CFR 3809 require specific information regarding mining operations and reclamation. The BLM can and routinely does reject applications until the applicant has provided sufficient information. Also, the BLM Alaska recently created Information Memorandum AK-2015-004, which outlines measurable Performable Standards for determining when reclamation on post-mined streams and the rehabilitation of fish habitat will be considered complete as well as information required for complete mine plans.

We have revised the SOPs in the Proposed RMP (Alternative E). Please see the following in Appendix A.4: SOP Water-11, SOP Wetland-7, SOP Soils-11, SOP FA-6, and SOP FA-7.

L.4.3.3. Stream Reclamation

Comment Number: EIDRMP_mail_000000023-1, EIRMP000000040-8, EIRMP000000153C-7, EIRMP000000163-50, EIRMP000000163-60, EIRMP000000163-61, EIRMP000000163-62, EIRMP000000164-38, EIRMP000000164-42, EIRMP000000164-44, and EIRMP000000170-32

Organization: Alaska Wilderness League and cosigners, and Alaska Department of Natural Resources

Commenter Type: individuals, environmental organizations, federal government, and state government

Summary

- Previous stream reclamation efforts in Alaska have been largely unsuccessful, very expensive, and the partial recovery of stream function has been measured in decades.
- The RMP/EIS underestimates projected time frames for the recovery of stream function, fish habitat, and riparian function and these time frames are not supported by any examples from Interior Alaska.
- Clarification is needed what constitutes rehabilitation of streams within riparian conservation areas. The RMP needs to clarify what the BLM expects from permittees regarding rehabilitation.

Response

While several attempts to use a science-based approach to stream reclamation have had limited success, it is important to recognize that most of those efforts were artificially constrained to reduce cost, which also created a high level of vulnerability. Most reclamation failures are based on the absence of a site-specific design, resulting in significant stream adjustments following the completion of reclamation. These sites typically take over a decade to stabilize and revegetate. The rehabilitation of fisheries and wildlife habitat is required per the 3809 regulations. As a result, the SOPs and management decisions in the Proposed RMP (Alternative E) are written to allow instream mining practices to continue while achieving the required Performance Standards and for the recovery of stream functions in a shorter time frame than has occurred in the past.

The BLM adjusted time frames for recovery in Chapter 4. We also changed some of the SOPs and management decisions in an attempt to accelerate fisheries habitat recovery and meet the applicable Performance Standards and management goals for fish and aquatic resources (Appendix A.4).

Please see, "The following decisions apply to mining operations on all watersheds" and "Riparian Conservation Areas and ACEC Specific Requirements" in section 2.6.2.3 of the Proposed RMP/Final EIS. See also Chapter 4, "The Effect of Proposed Management Actions in RCAs and ACECs."

L.4.3.4. Analysis of Riparian Reclamation

Comment Number: EIRMP000000139-11, EIRMP000000153D-1, EIRMP000000153D-15, EIRMP000000153D-7, EIRMP000000163-47, EIRMP000000163-48, EIRMP000000209-3, EIRMP000000345-1, and EIRMP000000357-2

Organization: Northern Environmental Center, Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: Environmental organizations, federal government, and individuals

Summary

Given the harsh environment, limited growing season, complexity of stream reclamation, and examples of stream reclamation efforts (failures) in Alaska, the anticipated time for recovery for riparian and stream function have been under estimated in the Draft RMP. The analysis should acknowledge and reflect the fact that solutions to achieve successful stream reclamation in Alaska have yet to be developed.

Response

Projected time frames for recovery in Chapter 4 of the Proposed RMP/Final EIS have been adjusted. Some of the SOPs and management decisions for all watersheds have also been changed in an attempt to accelerate the time frame for recovery and meet the applicable Performance Standards and management goals for fish and aquatic resources.

L.4.3.5. Effects of WSR Designation

Comment Number: EIRMP000000163B-58

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

Analysis in the Draft RMP indicates that designating new streams as wild and scenic rivers would provide additional protection to fish and aquatic resources. This is not necessarily true because the BLM has already closed some of these areas to mineral entry. This type of statement suggests that an alternative would provide some new protection when such protection may already be in place.

Response

The impact analysis for Alternative B in the Proposed RMP/Final EIS was reviewed for these types of statements and clarifications were made. Designation may provide additional protection to aquatic resources because the BLM must manage designated rivers to protect and enhance the outstandingly remarkable values. Fish are an outstandingly remarkable value in Birch and Beaver creeks. This direction from the Wild and Scenic Rivers Act provides additional management direction when the BLM is considering authorization of activities in wild and scenic river corridors. Also, other activities in river corridors besides mining have the potential to affect fish or aquatic habitats.

L.4.3.6. Desired Future Conditions

Comment Number: EIRMP000000153E-26 and EIRMP000000163B-81

Organization: Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: environmental organization and federal government

Summary

- The RMP needs to set specific goals for fish populations and habitats in Beaver Creek WSR because fish are an outstandingly remarkable value of the river.
- The RMP needs to establish time frames for desired future condition metrics for aquatic habitats.

Response

The BLM will update the Beaver Creek Wild and Scenic River Management Plan after approval of the RMP. The agency will also consider more specific goals and objectives at that time.

As the BLM continues to refine reclamation techniques, it will establish time frames to achieve the desired future conditions for aquatic habitats on a project-specific basis and through adaptive management. When authorizing land use activities that would affect desired future conditions for aquatic habitats, the BLM will establish measurable Performance Standards meant to achieve the desired future conditions as required by regulations under 43 CFR 3809. Those standards would need to be met before the BLM the release of bonding or final reclamation approval.

L.4.3.7. Essential Fish Habitat

Comment Number: EIRMP000000163B-88

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

The RMP states that it will implement the conservation measures outlined in Appendix G of the Final Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska (NMFS 2005). These measures are included in Appendix I.6 of the RMP. One of the conservation measures in this appendix is to avoid mining in essential fish habitat. What percent of the riparian areas and floodplains containing essential fish habitat does the RMP recommended closed to locatable mining and mineral leasing?

Response

The recommended percent of closure to mining and mineral leasing ranges from 66 percent in Alternative D to over 99 percent in Alternative B. The Proposed RMP (Alternative E) recommends that 99 percent of essential fish habitat be closed to mining and mineral leasing.

L.4.3.8. Evaluating Stream Function

Comment Number: EIRMP000000163B-110

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

The comment recommended the BLM use the Harman et al. (2011) hierarchical framework to evaluate stream function.

Response

The BLM will use an adaptive management approach to evaluate stream function and develop measurable objectives and is currently considering using the Harman et al. (2012) framework to evaluate stream function and to develop guidance for improved reclamation techniques. Given the anticipated life of the RMP (more than 20 years) and the uncertainty with stream reclamation techniques in Alaska, an adaptive approach is most beneficial to the resource.

L.4.3.9. Special Status Fish

Comment Number: EIRMP000000153C-3, EIRMP000000153F-2, EIRMP000000163-39, EIRMP000000163B-15, EIRMP000000141-9, EIRMP000000151-4, EIRMP000000157-1, EIRMP000000163-39, EIRMP000000188-1, and EIRMP000000371-1

Organization: Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service, Black River Working Group, Tanana Chiefs Conference, and Eastern Interior Federal Subsistence Regional Advisory Council

Commenter Type: environmental organization, individuals, concerned citizen organization, tribal organization, advisory committee, and federal government

Summary

The adverse impacts from mechanized mining could lead to designation of the Fortymile River Chinook salmon as a BLM Alaska Sensitive Species.

- The Upper Black River is also important habitat for Chinook salmon, which are on the BLM watch list. The Draft RMP/EIS poorly describes fish and aquatic resources for the Black River Subunit.

- The BLM designated the Beaver Creek Chinook salmon as a BLM Alaska sensitive species in 2004 due to the downward trend of this small population, but this species was recently removed from that list and placed on a watch list. Could the previous mining in Nome Creek have affected the sustainable level of Chinook salmon in Beaver Creek?

- Due to the recent decline of Chinook salmon in Alaska and their importance to subsistence users, the RMP should provide protections to their migratory corridors and to the habitats necessary to support all life stages.

Response

Chinook salmon are not currently a BLM Watch List species in the Fortymile River or the Black River drainages, but they are in Beaver Creek. In 1999, the Alaska Department of Fish and Game (ADF&G) concluded that anadromous fish runs in the Fortymile River are at the upper limit of their natural distribution and they may not successfully reproduce on an annual basis because of an inadequate winter water flows to support a successful egg hatch. Based on information available the ADF&G delisted the Fortymile River and its tributaries from the "Catalog and Atlas of Water's Important for the Spawning, Rearing or Migration of Anadromous Fish" about 15 years ago. Thus, mining in the Fortymile River would have minimal impacts on Chinook salmon.

The Proposed RMP/Final EIS recognizes the importance of the Black River Chinook and other species of salmon. The Proposed RMP (Alternative E) designates the Salmon Fork ACEC and identifies 28 RCAs. Section 3.2.4.1.2 of the Proposed RMP/Final EIS describes fish and aquatic resources in the Upper Black River Subunit. The submitted comment did not provide any additional information on fish and aquatic resources in the Upper Black River Subunit.

The previous large-scale mining efforts in Nome Creek, obliteration of the stream and floodplain from valley wall to valley wall, would have resulted in adverse impacts to the Beaver Creek Chinook salmon. BLM observed Chinook salmon spawning activity in the lower few miles of Nome Creek (BLM observations 1990s and early 2000s). In 2012, the BLM conducted spawning ground surveys in lower Nome Creek and did not observe any Chinook. However, 2012 was one of the lowest escapements for the Yukon River Chinook salmon stock. Finally, Chinook salmon generally spawn in larger rivers like Beaver, Birch, Chena, Salcha, Chatanika, and Tozitna, all of which are considerably larger than the upper reaches (mined) of Nome Creek.

Under the Proposed RMP (Alternative E), 99 percent of essential fish habitat, which includes migratory corridors and habitat necessary to support all life stages of Chinook salmon, would be recommended closed to mining and mineral leasing. The percent of recommended closure of essential fish habitat to mining and mineral leasing ranges from 66 percent in Alternative D to over 99 percent in Alternative B.

L.4.3.10. Impacts to Fish and Aquatic Species

Comment Number: EIDRMP-1-20011-1, EIRMP000000153C-28, EIRMP000000157-6, EIRMP000000158-3, EIRMP000000163-19, EIRMP000000163-80, and EIRMP000000126-4

Organization: Alaska Wilderness League and cosigners, Eastern Interior Federal Subsistence Regional Advisory Council, U.S. Fish and Wildlife Service, Fortymile Miners Association

Commenter Type: environmental organization, advisory committee, federal government, mining association

Summary

The Draft RMP does not accurately describe the impacts of mining on fish and aquatic resources. It either underestimates or overestimates the impacts.

- Impacts from leasable mineral development are not included.
- Consider the cumulative impacts from climate change, combined with the cumulative impacts from mining.
- The RMP should describe the long-term impacts of acid rock drainage.
- The plan is too general in describing how the BLM plans to reduce the adverse impacts from mining.
- Alternative A may not have the least amount of impacts as is described because under Alternative A the fish and aquatic resources will not benefit from the improved reclamation standards proposed in this plan.
- Mining and access to mines in the upper Black River will negatively impact critical fish habitat in the Yukon, Porcupine, and Black rivers.
- Even the slightest change in water temperature or oxygen content can have wide reaching impact to fish and other animals in the food chain. This can cause severe disruptions in many areas, including natural predators and eventually resident communities who depend on hunting, fishing, and other industries.
- The impacts from placer mining described in the Draft EIS are not realistic, as they are based on studies performed prior to the current reclamation requirements.

Response

Sections 3.2.4.1.3, 4.3.1.4, 4.4.1.2, 4.5.1.2, 4.6.1.2, and 4.7.1.2 of the Proposed RMP/Final EIS address impacts to fish and aquatic habitat.

Leasable mineral development is not reasonably foreseeable during the life of the RMP. In the future, if there were interest from industry sufficient to warrant consideration of a lease sale, the BLM would analyze the impacts from the lease sale and associated development activities in additional NEPA analysis. The BLM would make a decision to lease or not lease based on the impacts of that future analysis. In the case of coal leasing, a land use plan amendment would also be required.

Acid mine drainage (AMD) commonly forms as a result of natural geochemical processes that oxidize metal sulfides exposed at the earth's surface and is a potential environmental hazard associated with lode mining activities. The factors that influence AMD formation are highly variable from one mine to another, and among different geologic materials within a proposed mine site. Severity of adverse environmental impacts, primarily to fisheries and water quality, are often very difficult to predict due to the variability of discharge and composition, the effect of surface runoff from exposed areas of the mines during heavy rainfall, and discharge characteristics of the watershed affecting dilution and the concentration of acidic waters. Potential impacts include long-term water quality degradation and loss of fishery resources. See Jennings et al., (2008) review of "Acid Mine Drainage and Effects on Fish Health and Ecology for the U.S. Fish and Wildlife Service, Anchorage Fish and Wildlife Field Office," for more detailed information on potential impacts to fisheries. Section 4.3.1.4.2 considers cumulative effects, including climate change and includes a discussion of acid rock drainage.

Under the Proposed RMP (Alternative E), no projected large mine developments would occur in the planning area. Nonetheless, if a lode mine of any size were proposed for development on BLM- managed lands a broad set of environmental informational variables and data would be generated and developed during the NEPA analysis so that informed decisions could be made with respect to the potential for acid drainage and toxic metal release.

Appendix A includes SOPs for the revegetation of disturbed areas, specifically riparian areas. Additional requirements can be developed on a site specific basis during implementation of the approved plan of operations. Section 2.4.1.3 provides a general description of how fish habitat will be reclaimed. The BLM will use an "adaptive management" approach to achieve desired future conditions and metrics for aquatic habitats.

The BLM reviewed and revised impacts from Alternative A in the Final EIS.

NEPA only requires the analysis of activities that are reasonably foreseeable. Based on the reasonably foreseeable development scenario for locatable minerals (low mineral potential) and anticipated number of mining operations (zero), as discussed in section 4.2.1.3. Resource Use Assumptions, no mining activities are anticipated in the Upper Black River Subunit. Therefore, we did not analyze impacts in this EIS. The Proposed RMP (Alternative E) recommends closing the Salmon Fork ACEC and numerous other drainages to leasable and locatable minerals.

Citations found in Section 4.3.1.4 describe the impacts of mining where reclamation techniques are similar to those employed today.

L.4.3.11. Impacts from Mechanized Mining

Comment Number: EIRMP000000153C-35, EIRMP000000209-1, EIRMP000000296-9, EIRMP000000157-2, and EIRMP000000163-72

Organization: Alaska Wilderness League and cosigners, Eastern Interior Federal Subsistence Regional Advisory Council and U.S. Fish and Wildlife Service

Commenter Type: environmental organization individuals, advisory committee, and federal government

Summary

Mechanized machinery is only evaluated as a means for access (roads). The RMP does not evaluate the use of mechanized machinery as a tool for mining in rivers and streams. This method of mining will damage streams, riparian vegetation that negatively impacts the health and productivity of the watershed.

Surface water runoff through mine tailings can affect the "homing" instincts for salmon. The RMP should discuss these impacts.

The EIS should more fully address the effects of upstream mining on downstream aquatic habitat.

Response

Section 4.3.1.4 describes the impacts of conventional mechanized mining on fish and aquatic resources. While it's not uncommon for hard rock mine tailings, which are mined from mineralized areas, to contain metals that could impact the aquatic ecosystem, placer mine tailing involves the washing of alluvial deposits, which in general are not rich in metals considered of concern to aquatics. Suction dredging involves processing alluvial deposits within the active stream channel and would not be expected to affect the availability of metals, such as copper or lead, in the aquatic environment. As such, conventional mechanized placer mining and suction dredging activities are not likely to affect the homing instincts for salmon and therefore are not discussed in the EIS.

Section 4.3.1.4 of the Final EIS includes analysis of downstream effects. The effects of conventional mining described in this section can extend to downstream areas. The extent and magnitude of the effects that upstream mining has on downstream aquatic habitat is variable, and would depend on the amount and type of disturbance at the mine site and the success of reclamation.

L.4.3.12. Suction Dredging

Comment Number: EIRMP000000153C-32 and EIRMP000000153C-56

Organization: Alaska Wilderness League and cosigners

Commenter Type: environmental organization

Summary

The analysis of impacts from suction dredging in the Draft EIS is inadequate. Little study has taken place regarding suction dredge mining as noted by Bret C. Harvey and Thomas E. Lisle in their report “Effects of Suction Dredging on Streams: a Review and an Evaluation Strategy.” Effects of dredging commonly appear to be minor and local, but natural resource professionals should expect effects to vary widely among stream systems and reaches within systems.

Response

The Final EIS discusses general impacts from suction dredging that are common to all alternatives and subunits in section 4.3.1.4.1. We reviewed and considered the referenced report by Bret C. Harvey and Thomas E. during impact analysis. More specific impacts from suction dredging are discussed under each subunit and action alternative. The level of analysis in both the Draft and Final EIS is commensurate with the level of impact expected from suction dredging. Site specific

analysis would occur at the site specific project level, if the proposed suction dredging exceeds casual use as defined by the 43 CFR 3809.10.

L.4.3.13. Fish and Aquatic Data Gaps

Comment Number: EIDRMP_PM_000000028-1, EIRMP000000141-10, EIRMP000000153-53, EIRMP000000164-61, EIRMP000000209-4, and EIRMP000000333-3

Organization: Upper Black River Working Group, Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: individuals, concerned citizen organization, environmental organization, and federal government

Summary

Agencies need to conduct more fisheries studies within the planning area particularly in the Upper Black River Subunit, Seventy-mile River, Preacher Creek, and the Steese National Conservation Area. With this lack of fisheries information, the impact analysis in the EIS is not very accurate.

Response

More data are always helpful. With limited staff and more than six million acres of BLM land within the planning area, the BLM must rely upon case studies performed under similar conditions and observations to anticipate the impacts from land use authorizations. We performed four fishery inventories/projects in Preacher Creek and three in the Black River drainage during this planning process. We shared the data from these studies with USFWS and ADF&G. We welcome any data from fisheries studies that the USFWS has performed on Preacher Creek or other areas. We always consider partnering with adjacent land managers to collect information that would be useful for both agencies. We will consider and mitigate impacts from site specific surface disturbing activities through the NEPA process as we receive applications for activities.

The BLM has conveyed lands along the Seventy-mile River to either the State or Doyon, Limited, Inc. The majority of Preacher Creek is on Yukon Flats NWR. The remainder is within the Steese National Conservation Area. Under the proposed RMP (Alternative E), the entire National Conservation Area would remain closed to new mining claims. Additionally, the Proposed RMP (Alternative E) recommends many of the watersheds in the upper Black River watershed be closed to mining. Future studies will likely focus on areas open to new mining claims or those with existing mining claims. Current efforts are underway to develop observed/expected models for fisheries habitat and macroinvertebrate community composition across the entire planning area using a probabilistic sampling design. This study is part of the National Assessment, Inventory, and Monitoring program.

L.4.3.14. Inventory and Monitoring

Comment Number: EIRMP000000141-7, EIRMP000000153D-5, EIRMP000000163-29, EIRMP000000163-31, EIRMP000000141-8, EIRMP000000153C-6, and EIRMP000000163-32

Organization: Black River Working Group and Alaska Wilderness League and cosigners

Commenter Type: concerned citizen organization and environmental organization

Summary

- Agencies should conduct more fisheries surveys to determine the extent of anadromy as the extent of anadromy is not fully known in the planning area.
- The Supplement for Hardrock Mining in the White Mountains made no mention of additional survey work to identify anadromous streams in areas in the White Mountains that may be opened to mining, but the BLM proposes to allow mining.
- The BLM should conduct watershed assessments prior to lifting the ANCSA 17(d)(1) withdrawals for the Black River as the extent of anadromy is not known in this subunit.
- The RMP should provide some insights about the type of monitoring and inventory information that would be collected. For fish (and all organisms), understanding the population's fundamental life history properties is critical for measuring the success of management actions. The RMP should require the completion of watershed assessments prior to revocation of the ANCSA 17(d)(1) withdrawals in all action alternatives and in all watersheds not just those with moderate or high mineral potential.

Response

The BLM agrees that additional surveys to determine the extent of anadromy are needed and often cooperates with other agencies in efforts to collect this type of data. As stated in section 2.5.1.3 the BLM will "cooperate and coordinate with state agencies, federal agencies, Native organizations, and other groups to ensure efficient and effective program implementation toward conservation of native and desired, non-native aquatic species."

The Proposed RMP (Alternative E) would keep the White Mountains closed to mining and mineral leasing, thus these watersheds may be a lower priority for fish surveys and habitat assessments compared to areas that are currently open or recommended to be opened to mining or mineral leasing. The BLM's Aquatic Assessment, Inventory, and Monitoring program uses a probabilistic sampling design, which includes sample sites distributed across the entire planning area. This program includes data collection on riparian habitat conditions, instream habitat conditions, substrate composition, macroinvertebrate and fish community composition, and water quality.

Appendix I Fisheries and Aquatic Resources describe the BLMs inventory and adaptive management strategy for fish and aquatic resources. Table I.1 identifies the type of information to be collected during the watershed assessment process. Table I.2 lists indicators used to evaluate the effects of site-specific actions on fish and aquatic species.

The BLM agrees that the extent of anadromy in the Black River watershed may not be fully known. The Proposed RMP (Alternative E) recommends keeping the Salmon Fork watershed and many other watersheds including some on the Black River, Little Black River, Kandik River, and Grayling Fork closed to mining. In the event that the ANCSA 17(d)(1) withdrawals were lifted in the Black River drainage the fish and aquatic resources will be managed consistent with this RMP and all applicable regulations. Watershed assessments will be conducted as time and funding allows and will be prioritized based on management issues at the time.

It is not feasible for the BLM to complete watershed assessments on all watersheds, thus the need to prioritize those watersheds with the most likelihood of disturbance. This decision does not preclude completing a watershed assessment on any watershed, regardless of priority should the need arise.

L.4.3.15. Riparian Conservation Areas

Comment Number: EIRMP000000170-33, EIRMP000000170-34, EIRMP000000153C-4, EIRMP000000163B-9, EDIRMP_mail_000000037-8, EIRMP000000139-10, EIRMP000000153-49, and EIRMP000000153E-25

Organization: Alaska Department of Natural Resources, U.S. Fish and Wildlife Service, Chalkyitsik Village Council, Northern Environmental Center, and Alaska Wilderness League and cosigners

Commenter Type: state government, federal government, tribes, and environmental organizations

Summary

- The Draft RMP does not clearly explain what Riparian conservation areas (RCAs) are, how they would be managed, or how people may be impacted by them. The glossary of the Draft RMP defines RCAs as "Conservation watersheds that contain the highest fisheries and riparian resource values within the planning area. In the watersheds, riparian-dependent resources receive primary emphasis and management activities are subject to specific Required Operating Procedures." It is not clear what this definition means, required operating procedures are not explained in an understandable manner, and the RMP does not describe the priority resources in the RCAs. It does not appear that the BLM has assessed existing on-the-ground conditions, nor how such stringent management objectives would impact users.

- When considering subsistence use during the watershed ranking process used to determine RCAs, did the relative harvest need to be within BLM-managed lands?

- Within the Draft RMP there is a range of RCAs identified, but none of the alternatives protect the full Beaver Creek watershed. Since many of the streams have not been surveyed for salmon or other fish, it is important to err on the side of caution.

Response

The definition of RCA in the glossary was edited. RCAs are 6th level watersheds that the BLM has identified as priority habitats for fish and aquatic species. These watersheds have processes and functions that occur in a relatively undisturbed and natural landscape setting. Hydrologic function, such as sediment amounts and stream flow regimes resulting from disturbance, are within a natural range of frequency, duration, and intensity. Inventory efforts would focus on these areas. The watershed assessment process used to identify the RCAs was done using geospatial data and professional knowledge. Watersheds within the Eastern Interior Planning Area were categorized as either conservation or restoration watersheds. Within these two categories, BLM Alaska evaluated and prioritized watersheds based on ten factors developed by the fisheries program staff and based on fisheries science, BLM policy, and law. The process is explained in Appendix I. Section I.1.2 includes a table summarizing the values of each RCA.

Yes. Points were awarded to watersheds where it appeared that subsistence harvest of fish occurred on BLM-managed lands, based on the data available at the time.

The RMP/EIS considered alternatives that protect the full Beaver Creek watershed. The entire Beaver Creek watershed would be closed to locatable mineral entry in all of the action alternatives, except for Alternative D where leasing of hardrock minerals was considered in some

headwater tributaries. In the Proposed RMP (Alternative E) the entire White Mountains NRA including all of Beaver Creek, would remain closed to mining.

L.4.3.16. Restoration Watersheds

Comment Number: EIRMP000000163-41, EIRMP000000163B-89, and EIRMP000000163B-103

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

- The RMP should describe the status of the Harrison Creek floodplain reclamation project and if this data was used in establishing SOPs, and monitoring plans.
- The BLM should consider stream buffers in watersheds where significant time and money has spent on stream rehabilitation such as Nome and Harrison Creeks.
- The RMP should not open upstream watershed areas to mining where there is active reclamation/restoration going on downstream due to the probability of undoing reclamation/restoration efforts.

Response

Under the Proposed RMP (Alternative E), the Steese National Conservation Area (Harrison Creek) and White Mountains NRA (Nome Creek) would remain closed to new mining. The BLM will consider reclamation techniques that have proved successful in these areas in future reclamation plans. Given the access rights associated with mining claims, stream buffers were not considered the best avenue for limiting the effects of placer mining.

The Proposed RMP (Alternative E) would keep all watersheds in the Steese National Conservation Area and White Mountains NRA closed to new mining claims. There are valid existing claims in the Steese National Conservation Area, however, so some mining may occur upstream of the Harrison Creek reclamation area.

L.4.3.17. RCA and ACEC Fisheries Management

Comment Number: EIRMP000000153C-5 and EIRMP000000163-55

Organization: Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: environmental organization and federal government

Summary

The RMP should define reduced levels of reclamation proposed for streams outside of RCAs, ACECs, and WSR because impacts from placer mining are far-reaching. The BLM should consider placing the same standards on all operations regardless of their location.

Response

The standards applying to all watersheds are outlined section 2.4.1.3 Management of Watersheds and Appendix A, SOPs. In RCAs and the Salmon Fork ACEC, additional pre-disturbance hydrological data would be required. All mining operations must meet the requirements of 43 CFR 3809, regardless of their location within or outside of an RCA.

L.4.4. Water Quality and Water Resources

Comment Number: EIRMP000000153-34, EIRMP000000164-11, EIRMP000000209-2, and EIRMP000000320-3

Organization: Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: environmental organization, federal government, and individuals

Summary

- The Black River is the municipal water supply for the Village of Chalkyitsik. Water quality should be maintained at or above drinking water standards. There should be a one mile setback from the river where no development is allowed.
- If there are impacts to water quality, how will the BLM handle it and what kind of enforcement will there be?
- There is a lack of consistency in proposed management and unresolved resource conflicts include continued water quality degradation stemming from non-point erosion related to 1,600 to 8,300 miles of proposed open to mining.

Response

The BLM's role in water resource management includes ensuring that BLM activities, programs, and projects comply with applicable state and federal laws and regulations and BLM-authorized activities comply with conditions and stipulations in leases and permits. Surface and ground water of sufficient quality and quantity, is integral to the successful management of the public lands managed by the BLM including those lands in the Black River area. The BLM water quality goals are to protect, restore, and maintain the natural chemical, physical, and biological quality of surface and ground waters, wetlands, and floodplains influenced by BLM resource management activities and ensure full compliance with applicable federal and state laws and executive orders.

To achieve the water quality goals, and meet the Desired Future Conditions for aquatic habitats and species, and maintain a thriving natural ecological balance and multiple-use relationship; the SOPs in Appendix A Standard Operating Procedures and Fluid Mineral Leasing Stipulations would be implemented on a project-specific basis and would include mitigation of non-point erosion impacts from any proposed mining activity. Please see "The following decisions apply to mining operations on all watersheds" and "Riparian Conservation Areas and ACEC Specific Requirements" in section 2.6.2.3 of the Proposed RMP/Final EIS.

L.4.4.1. Water Resources- Instream Flow

Comment Number: EIRMP000000096-3 and EIRMP000000096-6

Organization: Alaska Miners Association

Commenter Type: mining organization

Summary

Decisions in the Draft RMP propose reservation of instream flows. Reserving instream flows is a State authority. If the BLM wishes to have an instream flow reservation, they need to apply to the state under AS 46.15.145(a). All references to instream flow should be deleted from the RMP.

Response

The BLM has submitted instream flow water right applications for Beaver Creek, Birch Creek, and the Fortymile River, as well as seven tributaries within the Fortymile WSR corridor. The State of Alaska granted instream flow water rights for Beaver Creek in 1989. Applications for instream flow water rights for Birch Creek and the Fortymile River and its major tributaries were submitted over a period of time, 2001-2012, following 5-year documentation of flows for each stream.

Instream Flow Water Right Applications deemed complete by the State are assigned a priority date. The priority date establishes the order of priority for the allocation of water within and from the source of water. Following the prior appropriation doctrine, Alaska water rights are "first in time, first in right."

L.4.4.2. Water Quality

Comment Number: EIRMP000000141-5 and EIRMP000000164-27

Organization: Black River Working Group and U.S. Fish and Wildlife Service

Commenter Type: concerned citizen organization, federal government

Summary

- The Draft RMP states (page 774) "Land use activities permitted in the subunit, such as development of transportation routes and locatable minerals, may affect water quality at downstream locations, fish spawning or rearing areas; indirectly impacting subsistence fisheries harvested off BLM-managed lands." It further states, "No impacts to subsistence fishery resources or uses in or adjacent to BLM-managed lands are expected from the alternatives." Please explain how these two conflicting statements can be reconciled.

- How will existing water quality be protected while meeting State of Alaska water quality standards when the plan proposes opening an additional 1,600 to 8,300 stream miles to mining (range established by the various action alternatives) and the corresponding loss or degradation of riparian resources?

Response

Language in the Final EIS was revised as follows: "Land use activities permitted in the subunit, such as development of transportation routes and locatable minerals, could potentially affect water quality at downstream locations and indirectly impact subsistence fisheries harvested off of BLM-managed lands. However, no significant impacts to subsistence fishery resources, or uses in or adjacent to BLM-managed lands, would be expected from the alternatives because in instances where permitted activities could potentially impact resources, site specific stipulations to mitigate potential adverse impacts are developed and issued as part of the land use permit.

All BLM-authorized activities are required to meet State of Alaska water quality requirements. Standard Operating Procedures (SOPs) and Fluid Mineral Leasing Stipulations would be adopted for subsequent authorizations to reduce water quality impacts from surface-disturbing activities. The RMP includes goals and decisions relative to water quality in Alternatives B, C, D, and E. Additionally, Appendix A, Standard Operating Procedures and Fluid Mineral Leasing Stipulations includes SOPs that protect water quality, directly and indirectly by protection of soil and vegetative resources.

For authorizations under 43 CFR 3809, the BLM would ensure authorized uses do not impact the hydrologic regime (ground water, streamflow, water quality, biologic integrity, or floodplain/riparian connectivity) to the impairment of other private and public users above or below BLM lands. If the hydrological regime is impacted, the causes should be identified to ensure bonding is sufficient to comply with BLM Instruction Memorandum No. 2009-153 and 43 CFR 3809 regulations.

L.4.4.3. Impacts to Water Quality from Mining

Comment Number: EIRMP000000141-6, EIRMP000000157-3, EIRMP000000158-3, EIRMP000000163-86, EIRMP000000194-1, EIRMP000000204-1, EIRMP000000213-6, EIRMP000000221-1, EIRMP000000227-2, and EIRMP000000365-1

Organization: Black River Working Group, Eastern Interior Federal Subsistence Regional advisory committee, U.S. Fish and Wildlife Service, and tribal government of Fort Yukon

Commenter Type: concerned citizen organization, advisory committee, federal government, environmental organization, individuals, and tribe

Summary

Historic placer mining has resulted in short- and long-term adverse impacts to fish and aquatic resources in the planning area. There is broad concern about adverse downstream impacts associated with future mining exploration and development. Representative comments for this issue include:

- The BLM should help maintain existing intact, healthy salmon habitat and to avoid direct and indirect impacts of mining exploration and development in healthy streams and watersheds.
- Alternatives C and D would negatively impact critical fish habitat, and would most likely be detrimental not only to residents of Black River but potentially affecting subsistence fisheries along 800 miles of Yukon, Porcupine and Black Rivers.
- Mining is not compatible with the recreational purposes of maintaining the scenic and other values of Beaver Creek and Birch Creek.
- There are concerns regarding acid rock leaching.

Response

All BLM-authorized activities are required to meet State of Alaska water quality requirements. Standard Operating Procedures (SOPs) and Fluid Mineral Leasing Stipulations would be adopted for subsequent authorizations to reduce water quality impacts from surface-disturbing activities. The RMP includes goals and decisions relative to water quality in Alternatives B, C,

D, and E. Additionally, Appendix A, Standard Operating Procedures and Fluid Mineral Leasing Stipulations includes SOPs that protect water quality, directly and indirectly by protection of soil and vegetative resources.

For authorizations under 43 CFR 3809, the BLM would ensure authorized uses do not impact the hydrologic regime (ground water, streamflow, water quality, biologic integrity, or floodplain/riparian connectivity) to the impairment of other private and public users above or below BLM lands. If the hydrological regime is impacted, the causes should be identified to ensure bonding is sufficient to comply with BLM Instruction Memorandum No. 2009-153 and 43 CFR 3809 regulations.

L.4.4.4. Executive Orders Floodplains and Wetlands

Comment Number: EIRMP000000164-39, EIRMP000000164-3, EIRMP000000164-20, EIRMP000000164-16, EIRMP000000153D-6, EIRMP000000153D-14, EIRMP000000153B-55, and EIRMP000000153B-51

Organization: Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: environmental organization and federal government

Summary

The RMP fails to consider and incorporate Executive Orders 11988 Floodplain Management and 11990 Wetland Management. The Alternative C allows for mining in stream channels and the SOPs presented in Appendix A are not sufficient to allow the BLM to meet either Executive Order. Department of Interior Policy 520 DM Departmental Manual 1.8, adopts procedures set forth in Part II of the Water Resource Council (WRC) Guidelines (43 FR 6030, 1978) for implementation of the Executive Orders.

Response

SOPs for floodplains, wetlands and riparian habitat have been updated in Appendix A.4. Procedures for implementing Executive Order 11988, Floodplain Management are set forth as an 8-step decision-making process outlined in Part II of the 1978 Water Resources Council Guidelines. When an action is proposed in a floodplain, the 8-step procedural process will be addressed and integrated in developing land use authorizations.

Procedures for implementing Executive Order 11990, Protection of Wetlands, are outlined in the updated RMP. EO 11990 requires federal agencies (BLM) to avoid destruction or modification of wetlands whenever there is a practicable alternative. DM 520 1.5 (C) states that the Department will conduct its activities regarding wetlands in accordance with the procedures outlined for floodplains.

L.4.5. Nonnative Invasive Species

Comment Number: EIRMP000000163B-9, EIRMP000000163B-93, EIRMP000000163B-95, EIRMP000000163-18, and EIRMP000000163B-108

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

- The decisions in the Draft RMP do not reflect the goal to prevent the introduction of noxious and non-native plants.
- The BLM should require any motorized vehicles accessing BLM lands be cleaned prior to entering BLM lands, especially four-wheelers and mining equipment.
- Non-native plant (terrestrial and aquatic) inventories should be completed for all areas currently and proposed to be open to mining and access routes for all planning subunits. The frequency of monitoring should be increased to implement early detection, rapid response protocols.
- The RMP should note that waterways may also be vectors for spread of invasive species.
- Include a metric in Table 2.22 of the Draft RMP for how many acres, numbers of stream miles or lakes will be infested based on each alternative.

Response

An invasive species strategic management plan for the Eastern Interior Field Office will be developed after the Record of Decision for the RMP is signed. The strategic plan goals will strive to prevent the introduction of invasive plants using all possible tools while meeting the multiple use mandates.

The BLM only has the authority to implement this type of requirement (cleaning of vehicles) on activities that require a permit. The feasibility of including vehicle washing stipulations with permits will be determined through the invasive species strategic management planning process and site specific NEPA analysis.

The recommendations are consistent with the current and proposed management of invasive species in the planning area. Eastern Interior Field Office conducts inventory, treatment and monitoring annually as funding and personnel resources are available. Early detection and rapid response (EDRR) is the primary method employed. Section 2.6.1.4 of the Proposed RMP (Alternative E) includes decisions to develop step down implementation plans, complete inventory and monitoring, monitoring of all control sites, and working with other groups and agencies regarding inventory, prevention, and control of noxious and non-native species. The step down action plan for invasive species management (Invasive Species Strategic Management Plan) will continue to support inventory and monitoring, with an emphasis on EDRR, as funding allows basis.

The Final EIS recognizes that waterways may be a vector for the spread of invasive species. That waterways may also be vectors for spread was added to Section 4.2.1.2.5 of the Final EIS.

Final EIS Table 2.26 Comparison of impacts common to all subunits: The broad scale of potential for invasive species to become established considers that the No Action Alternative cannot be selected. Therefore, Alternative B would have the least potential and Alternative D the highest potential for impacts from nonnative invasive plants. A viable model for the relationship between acres disturbed and acres infested has not been developed that has the power to predict the influence of important variables, such as climate change, persistence over time, soil pH and invasiveness characteristics of plants.

L.4.6. Soil Resources

Comment Number: EIRMP000000153C-12 and EIRMP000000163B-97

Organization: Alaska Wilderness League and cosigners, U.S. Fish and Wildlife Service

Commenter Type: environmental organization and federal government

Summary

- Under the preferred alternative in the Draft RMP exploration/seismic related activities for fluid leasable minerals could occur during the winter, which has been shown to have a lasting impact on vegetation and soils (Jorgenson JC, Ver Hoef JM, Jorgenson MT, ANWR, 2010). It could be argued that the North Slope is different than the Interior of Alaska, but the main point is that impacts to vegetation from winter exploration, which uses the same general methods as North Slope exploration, is lasting. The BLM states the impact would be minor but according to the cited publication, the impacts would last for decades.

- The goals for soil resources appear unattainable. One of the goals is to protect soil surface from erosion. How does the RMP propose to do that in areas that would be mined? Additionally how can RMP ensure "...photosynthesis is occurring effectively..." if the photosynthetic material (e.g. vegetation cover) has been removed for mining associated activities? How can the BLM achieve nutrient cycling goals in areas that would be mined if the soil, associated microbes, and vegetation are removed?

Response

The BLM would evaluate environmental conditions and potential impacts to vegetation from all winter exploration/seismic related activities for fluid leasable minerals and include stipulations to minimize adverse impacts to resources. Where winter exploration/seismic impacts were expected to be substantial, permit applications would not be approved. Mitigating soil and vegetation impacts are dependent on site specific highly variable environmental conditions, and are best evaluated on a case-by-case basis.

Section 3809.420 performance standards apply to all placer-mine notice and plan of operations. Performance standards include reclamation as follows:

(i) At the earliest feasible time, the operator shall reclaim the area disturbed, except to the extent necessary to preserve evidence of mineralization, by taking reasonable measures to prevent or control on-site and off-site damage of the federal lands.

(ii) Reclamation shall include, but shall not be limited to:
(A) Saving of topsoil for final application after reshaping of disturbed areas have been completed;
(B) Measures to control erosion, landslides, and water runoff;
(C) Measures to isolate, remove, or control toxic materials;
(D) Reshaping the area disturbed, application of the topsoil, and revegetation of disturbed areas, where reasonably practicable; and
(E) Rehabilitation of fisheries and wildlife habitat.

L.4.7. Vegetation

Comment Number: EIRMP000000153C-12, EIRMP000000164-6, and EIRMP000000131-3

Organization: Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: environmental organization, federal government, and individuals

Summary

- Seismic exploration in the Upper Black River subunit would impact soils and vegetation, with impacts lasting for decades (Jorgenson JC, Ver Hoef JM, Jorgenson MT, ANWR, 2010).
- What steps would the RMP take to achieve the desired outcome for vegetative communities of "largely undisturbed, except by natural forces" in alternatives where surface disturbing activities are allowed.
- The BLM plans on using natural revegetation as the preferred method, a process that will result in habitat and water quality degradation for long periods of time.

Response

The Jorgenson et al (2010) paper cited, does document changes in vegetation composition at some sites that lasted for decades on trails used by seismic exploration equipment in winter. Seismic lines constructed in the Upper Black River Subunit prior to 1980 remain clearly visible. Although site-specific changes can be high, the overall impact of seismic lines on vegetation in the subunit was characterized as minor in consideration of the small area affected relative to the large area of the subunit.

Activities such as mining will change the nature of vegetation at the site of disturbance. However, within a large area (e.g., basin or drainage), a natural diversity of species and communities can be maintained while allowing surface-disturbing activities on a small portion of the area. In the Proposed RMP (Alternative E), a majority of the BLM-managed lands in the planning area will remain closed to mineral entry/location, thus reducing potential disturbance from that source. In addition, the BLM will apply SOPs (Appendix A) to minimize disturbance and enhance recovery. The BLM will assess impacts on vegetative resources, including cumulative impacts, during NEPA analysis of site-specific land use permits.

The BLM modified decisions in the Vegetative Communities section of the Proposed RMP/Final EIS to make it clear that, although natural revegetation is the generally preferred method, where needed active revegetation may be required. This was carried over into a modified SOP (Appendix A.4, SOP Veg-1). Decision: Utilize and encourage natural revegetation of disturbed sites as the generally preferred method of revegetation (in situations where this is adequate to prevent erosion and will result in rapid establishment of plant cover). In some circumstances, however some combination of seeding, planting, and transplanting of adult plants or vegetation mats, or fertilizing may be necessary. Native species would be utilized whenever possible if seeding or planting is necessary, for example, when immediate vegetation cover is required to prevent impacts from soil erosion.

L.4.8. Special Status Plants

Comment Number: EIRMP000000163-46

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

Chapter 3 of the Draft RMP states that special status management will include proactive conservation measures designed to minimize likelihood of Endangered Species Act listing of species. Define or provide examples of "proactive conservation measures" that will minimize likelihood of a sensitive species being listed as threatened or endangered.

Response

Examples of proactive conservation measures to protect sensitive species occur in the Standard Operating Procedures designed to protect priority raptor nests (including golden eagle) and trumpeter swan nest sites from human disturbance during the nesting season. The Proposed RMP/Final EIS revises decisions in the Special Status Species section and includes development of a Special Status Species management plan, cooperation with partners in inventory and monitoring of rare species, and the ability to require project proponents to conduct inventories for special status species.

L.4.9. Visual Resource Management

Comment Number: EIRMP000000170-36, EIRMP000000170B-12, EIRMP000000170B-13, EIRMP000000170B-15, and EIRMP000000170B-16

Organization: Alaska Department of Natural Resources

Commenter Type: state government

Summary

- The recommendations for Visual Resource Management (VRM) classifications in the Draft EIS extend beyond BLM-managed land for some areas of the planning unit, and do not apply to State owned, or non-federal land. The BLM should remove proposed classifications from State-selected land until the permanent title of the land has been resolved.
- Maps 92, 106, 107, 108, 109 of the Draft EIS should be revised to indicate VRM classifications and recommendations for federal-lands only.
- The proposed protections for lands with wilderness characteristics and restrictions due to the visual resources inventory will effectively prohibit access, which consequently will prohibit development, although the resource areas technically remain open to development in the RMP.
- VRM SOP 1 directs to the extent practicable, all facilities and activities will be located away from the roads (except access roads), rivers, trails, and other transportation features; using distance to reduce the facility's visual impact along travel corridors. Future land uses in the planning unit will likely need to be located next to, or directly accessible to roads, trails and

transportation features for access. This SOP would arbitrarily prevent the establishment of many, if not most, facilities and activities on federal lands without consideration of the merits on a project-specific basis.

- SOP VRM 5 as worded is undefined, subjective, and vague. It states, "in open exposed landscapes, development will be located in the opposite direction from the primary scenic views, where feasible." The definition of the primary scenic views is subjective and may vary among the users of the area. In addition, the siting of development may not provide the intended outcomes, and may establish activities in areas that are opposite, but cause additional or more destructive negative impacts.

Response

The BLM inventories visual values on a landscape/viewshed scale so areas beyond BLM-managed lands are included in the inventory process and descriptions of the visual landscape characteristics. These lands are included in each factor, have a visual resource inventory class assigned, and are included on inventory maps, but only BLM-managed lands will be assigned a management class by the RMP. The BLM would apply the VRM classes to lands retained from non-conveyed State-selected lands and any lands remaining from the Native selection process. The RMP decisions apply to selected lands until they are conveyed.

Visual Resource Management maps 15-25 only depict classes for BLM-managed lands. The maps referenced in the comment are the visual resource inventory maps. As described above, the inventory process is on a landscape scale and does not distinguish differences in land ownership. However, the BLM removed visual resource inventory maps 92, 106, 107, 108, 109 from the Proposed RMP/Final EIS. The referenced maps are included in the Visual Resource Inventory, a separate document from the Proposed RMP/Final EIS.

Visual resource management will not prohibit access. Project design will minimize impacts to visual resources.

The referenced SOPs were dropped from the Proposed RMP (Alternative E) because they were a statement of policy standards for visual resource management. The BLM will evaluate future actions for effects on visual resources to determine if mitigation is needed to maintain visual resource management classifications.

L.4.10. Wildland Fire

Comment Number: EIRMP000000163B-113

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

In section 4.3.1.11.1, Wildland Fire Ecology and Management, Effects Common to All Alternatives the BLM states that non-native invasive species would have either no effect or negligible effects on fire management. Given the predicted climate changes for Interior Alaska some invasive plant species typically found farther south are expected to expand their range north. Cheatgrass (*Bromis tectorum*) has infested millions of acres of BLM-managed rangelands

in the Intermountain West. In Alaska cheatgrass has been documented in the interior-boreal region (and in adjacent Yukon Territory) as well as on the Seward Peninsula and south central Alaska. If allowed to establish it has the potential to invade lands within the planning area. To state that non-native invasive species will have none or negligible effects on fire management is not correct especially if the invasive plant species has the potential to change fuel properties, fire behavior, and fire frequency, extent, and intensity.

Response

An extensive invasiveness ranking system was applied to nonnative species known to occur in Alaska and those most likely to be introduced to Alaska (Carlson et al. 2008). The evaluation included climatic screening, ecosystem impacts, biological attributes, distribution and control measures. Rankings may change as new information on a species becomes available. Of the 113 nonnative species ranked for invasiveness only two may change fire regimes, cheatgrass and false brome.

Cheatgrass is most likely to become established in disturbed areas such as mining sites where a seed source occurs along with exposed mineral soil. It is doubtful that it could become established in Alaska at the landscape scale that has occurred in the Intermountain West (Chambers et al. 2013). Wildfires in Alaska, unlike fire regimes of the Intermountain West, result in significant amounts of organic matter that would impede cheatgrass from establishing large infestations.

A lack of road infrastructure also would impede seed dispersal. The reasonably foreseeable development scenario predicts low levels of surface disturbing activities on BLM-managed lands under all alternatives. False brome has not been documented in Alaska and its preference for well drained neutral soils will likely inhibit it from becoming established in Interior Alaska.

The impacts referenced by the comment and analyzed in the Final EIS refer to the impacts from proposed RMP decisions. Analysis in this section considers how management decisions to prevent introduction and spread of nonnative invasive species impacts wildland fire and ecology. These decisions likely would not have any negative effect on fire and ecology, including frequency. The comment is referring more to the baseline condition of the planning area and how climate change may affect the landscape.

L.4.11. Wildlife

Comment Number: EIRMP000000045-2, EIRMP000000045-4, EIRMP000000151-3, EIRMP000000153C-25, EIRMP000000153C-26, EIRMP000000153F-3, and EIRMP000000333-4

Organization: Tanana Chiefs Conference and Alaska Wilderness League and cosigners

Commenter Type: individuals, tribal organization, and environmental organization

Summary

- Commenters expressed concern over effects of mineral development on subsistence, trapping and furbearers in Washington Creek (Fortymile Subunit).
- The Draft RMP fails to include any meaningful discussion of identifying, managing, or protecting wildlife corridors. BLM Instruction Memorandum 2012-039 directs the BLM to

identify and manage wildlife corridors. Caribou migration corridors are important, in addition to calving habitats.

- Conservation should be emphasized in the Fortymile Subunit until studies to determine which wildlife habitats may require special protection are conducted.

Response

The BLM appreciates the reports that the Washington Creek area is important to several trappers and subsistence users. Trappers and subsistence users also use most other parts of the planning area for such purposes. We did not rate Washington Creek as a RCA and it was not included in the Fortymile ACEC because it is outside of areas of concentrated use by caribou during calving/postcalving. The RMP defers making a decision to allow coal leasing until there is interest from industry. The BLM will not consider coal leasing without an RMP amendment. The BLM will however analyze and mitigate impacts from other potential land uses during the permitting process.

IM 2012-039 (and an associated MOU between several federal departments and the Western Governors' Association) address data gathering and compiling, and mapping of crucial wildlife habitats and corridors. The Crucial Habitat Assessment Tool is not currently available in Alaska. The BLM gathered available information regarding crucial wildlife habitats from ADF&G and other sources, including BLM-gathered information, in formulating this plan. The BLM considered and identified wildlife corridors where necessary and feasible, including a migration corridor for Fortymile Caribou and associated special management. (section 2.6.2.2.1.6 Wildlife). Dall sheep movement corridors were included in Steese, Fortymile and White Mountains ACECs, as well as portions of caribou migration habitats. The Proposed RMP (Alternative E) recommends retaining the existing withdrawal of the Steese National Conservation Area from mineral location and entry, reducing potential impacts to caribou migration habitats.

Wildlife studies by the BLM and other agencies in the Fortymile area include Dall sheep, caribou, peregrine falcon, and trumpeter swan. The BLM delineated the Fortymile ACEC with the use of information about Dall sheep and caribou distributions. Wildlife habitat will be protected in the ACEC and elsewhere through additional management provisions (including SOPs, OHV/travel management, and wild and scenic river management). Additional wildlife study is desirable, and could result in later RMP amendment.

L.4.11.1. Caribou

Comment Number: EIRMP000000170-56, EIRMP000000153D-11, EIRMP000000153F-4, EIRMP000000153F-5, EIRMP000000188-2, EIRMP000000333-4, EIRMP000000254-1, EIRMP000000373-1, and EIRMP000000410-24

Organization: Alaska Department of Natural Resources and Alaska Wilderness League and cosigners

Commenter Type: environmental organization, individuals, Gwichyaa Zhee Gwich'in tribal government, and state government

Summary

- Van Kooten and others (1997) have identified areas of high oil and gas potential north of Eagle Village in the Kandik and Nation River areas. Additional exploration in these areas may verify presence of oil and gas resources. It appears that these areas have been proposed in part, for closure to mineral leasing due to identified wildlife calving and postcalving use (Map 63, Draft RMP) and wildlife wintering areas (Map 69, Draft RMP). The State maintains that protective permit stipulations and mitigations for specific seasonal use would allow multiple uses of these areas, including leasing and exploration while still protecting wildlife resources. Therefore, the RMP should not propose closing these areas to oil and gas leasing.

- The RMP should include a timeline and measurable goals to evaluate Fortymile caribou monitoring; establish strong standards to protect caribou habitat; minimize development in critical habitat areas (including the Black River area, important to Porcupine Caribou); monitor climate change; better manage hunting near roads; and protect migration corridors.

- The Upper Black River subunit is an important area for Porcupine Herd caribou and residents of Forty Yukon and Chalkyitsik. It is important to maintain the integrity of this herd and avoid industrial activities in their habitat.

- The U.S.-Canada Porcupine Caribou Treaty calls upon each of the two nations to "notif[y]" and "consult" with the other prior to making any decision likely to cause "significant long-term adverse impact" on the herd and to "avoid or minimize activities that would significantly disrupt migration or other important behavior patterns." Opening Porcupine caribou wintering areas in the southern portion of the Upper Black River Subunit, as proposed in the Draft RMP, to various types of use present a risk of significant long-term adverse impacts and appear to trigger these notification and consultation obligations and may also conflict with the duty to avoid or minimize harm.

Response

The BLM has chosen to close some areas to mineral leasing and use permit stipulations in other areas. In the Proposed RMP (Alternative E), the upper Kandik River watersheds would be closed to mineral leasing (Map 43) to protect riparian conservation areas. The lower Kandik is on State, Doyon, Limited, and National Park Service lands, as is the mainstem Nations River. Alternative C recommends the upper Kandik be opened to mineral leasing. Currently the area is under ANCSA 17(d)(1) withdrawal, which closes it to mineral leasing.

The Proposed RMP (Alternative E) has increased protection of caribou habitat by recommending closure of the Steese National Conservation Area and the Salmon Fork and Fortymile ACECs to mineral location and entry. A caribou migration corridor is designated in the Steese National Conservation Area. Other corridors occur outside of BLM lands. The Proposed RMP (Alternative E) implements strong protection measures for caribou habitat. Monitoring of the Fortymile herd occurs annually in cooperation with ADF&G and Yukon Department of Environment. Management of hunting near roads is a hunting regulation issue, outside of the scope of the RMP. Similarly, monitoring of climate change is outside the scope of the RMP, although the BLM expects to continue to cooperate in monitoring effects of climate change on wildlife habitat and caribou.

The currently available data on Porcupine Caribou distribution in the Upper Black River Subunit is displayed in Map 84. The Upper Black River Subunit contains 0.3 percent of total Porcupine herd winter concentrated use area and 1.2 percent of total herd general use area. These use areas occur on the edge of the Porcupine Caribou winter range and are not used in all years.

The Proposed RMP (Alternative E) recommends closure of the Salmon Fork and Black River watersheds and several other watersheds to mineral entry/location and fluid mineral leasing. Other caribou habitat in the subunit is generally of low mineral potential and remote, making development of much of the Porcupine caribou winter range in the subunit unlikely.

The pertinent section of the *Agreement between the Government of Canada and the Government of The United States of America on the Conservation of the Porcupine Caribou Herd*, states that, "Where an activity in one country is determined to be likely to cause significant long-term adverse impact on the Porcupine Caribou Herd or its habitat, the other Party will be notified and given an opportunity to consult prior to final decision." The BLM does not consider the Proposed RMP/Final EIS to be an activity; however, analysis in the EIS has indicated that activities allowed by the plan are not likely to cause significant long-term adverse impacts.

L.4.11.2. Special Status and Rare Wildlife

Comment Number: EIRMP000000170-26, EIRMP000000163B-100, and EIRMP000000163B-15

Organization: Alaska Department of Natural Resources and U.S. Fish and Wildlife Service

Commenter Type: state government and federal government

Summary

- The RMP should include discussion of the future potential introduction of wildlife for the purpose of reestablishing populations to contribute to the conservation of species in North America e.g., wood bison. Establish special rules and relaxed provisions to ensure that Non-essential experimental populations (e.g., wood bison) would not impede resources development.

- The BLM should apply similar management to other sensitive and watch list species as are outlined for sensitive plants, including black-polled warbler, olive-side flycatcher, rusty blackbird and Chinook salmon, which are USFWS trust migratory species and are undergoing national population declines. Doing so would allow the BLM to meet their consistency policy with respect to adjacent land management agency's policies and Refuge purposes.

Response

The BLM is not participating directly in the wood bison introduction program and no release sites on BLM-managed lands in the planning area are proposed or envisioned, therefore there is no requirement to address the introduction in the land use plan. If the non-essential population expands onto BLM-managed lands, we would have responsibilities under Section 7 of the Endangered Species Act to confer with the USFWS on actions with the potential to jeopardize the continued existence of the non-essential population. Under the USFWS rule, ADF&G has primary management responsibility for leading and implementing the wood bison restoration effort. While the BLM anticipates it would work cooperatively with the ADF&G to promote wood bison conservation on BLM lands, we would still be required to confer with the USFWS on any actions that may adversely affect the species. The BLM has no authority to promulgate special rules under the Endangered Species Act.

Because plants are sedentary and generally more localized, site-specific provisions such as those referred to are more appropriate and implementable. Animal species are generally more mobile,

dispersed, and may be more transient. These attributes make it harder to specify management actions. The BLM has revised decisions in the Proposed RMP/Final EIS under section 2.6.2.7 Special Status Species, Management Common to All Subunits and All Action Alternatives. It states that where Special Status Species habitat is likely to be negatively affected by use (i.e., such use is likely to result in a significant local or regional decline in species distribution, abundance, or productivity), such uses would be redirected to other locations, or other mitigation actions that will be effective in preventing local population impacts will be implemented. Ensure reclamation and restoration plan objectives incorporate the needs of Special Status Species where habitat potential exists. We also recognize that sensitive species may be impacted by development within and adjacent to streams and wetlands. Assessment and mitigation will take place in NEPA process. In addition, the Proposed RMP (Alternative E) closes those habitats in the Salmon Fork ACEC, Steese National Conservation Area, and Riparian Conservation areas to mineral location and leasing.

L.4.11.3. Moose

Comment Number: EIRMP000000153C-10, EIRMP000000153D-12, EIRMP000000163-2, EIRMP000000163-3, EIRMP000000163-4, EIRMP000000141-15, EIRMP000000163B-50, EIRMP000000239-1, EIRMP000000241-1, and EIRMP000000296-5

Organization: Alaska Wilderness League and cosigners, Black River Working Group, and U.S. Fish and Wildlife Service

Commenter Type: concerned citizen organization, individuals, environmental organization, and federal government

Summary

- The RMP needs to specifically address moose populations and habitat in decisions and expand on the discussion of moose in Chapter 3, Affected Environment.
- Traditional ecological knowledge and local ecological knowledge tell us the upper Black River drainage, including the Grayling Fork, Bull Creek, and Wood River are important moose calving and migration habitats, moose harvest areas, and supplement Yukon Flats moose populations. This area meets the relevance and importance criteria for an ACEC.

Response

Section 2.6.2.13 of the Proposed RMP/Final EIS lists moose as a priority wildlife species. Moose are found throughout the planning area in all but alpine habitats. The RMP does not identify site-specific crucial moose habitats across the planning area. Aerial surveys provide some indication of relative density of moose, but at only one time of year (typically late October). Only a small proportion of survey units in a survey area are sampled/observed, and surveys of BLM lands were completed for only small portions of the planning area. Because moose are generally present across the landscape, and the BLM has not identified planning area wide seasonal concentration areas, it is difficult to formulate specific decisions for protection of moose habitat. Certain wetland areas in the region are high-density moose calving habitat, including Tanana Flats and Mosquito Flats. The Proposed RMP (Alternative E) designates portions of Mosquito Flats as an ACEC. Riparian areas are typically high-value moose habitat. Riparian communities are identified as priority plant communities and one wildlife decision directs us to "Avoid or minimize impacts that could degrade riparian areas".

The BLM considered these comments and others in a re-evaluation of the Upper Black River ACEC nomination. We recognize the importance of moose and the upper Black River to area residents. Our determination, however, is that, based on currently available information, the upper Black River watershed area does not meet the importance criteria or need special management for moose. There is limited information available, for this area, but moose collared in eastern Yukon Flats did not move into this area. The migration of moose to Old Crow Flats is documented and is similar to migration of moose in summer to other wetland areas such as Tanana Flats and Minto Flats. Moose undoubtedly calve throughout most of the upper Black River drainage, but concentrated calving in uplands is unlikely. The Proposed RMP (Alternative E) retains the Salmon Fork ACEC proposal and closes it to locatable and leasable minerals, but does not expand it to include upper Black River drainages. The Proposed RMP (Alternative E) also recommends closing some additional watersheds in the Upper Black River Subunit to mining and mineral leasing including the Grayling Fork, Kandik, and lower Black River, which will prevent impacts to moose from mineral extraction in much of the subunit. Additionally, the BLM considers the potential for mineral and other resource extraction in this remote area to be low. A NEPA analysis of any project proposals will consider impacts to moose and mitigation measures. We will consult with tribes on project proposals in the Upper Black River Subunit.

L.4.11.4. Dall Sheep

Comment Number: EIRMP000000157-4, EIRMP000000178-2, EIRMP000000255-1, EIRMP000000163-6, EIRMP000000163-7, and EIRMP000000163-8

Organization: Eastern Interior Federal Subsistence Regional Advisory Council, and U.S. Fish and Wildlife Service

Commenter Type: federal government, advisory committee, and individuals

Summary

Comments voiced concerns about impacts to Dall sheep from mineral exploration in the White Mountains, OHV use in the area near Mt. Schwatka, and habitat fragmentation in the Steese National Conservation Area.

The RMP/EIS should present or discuss Dall sheep horn anomalies and harvest pressure. Also the RMP should include Dall sheep population trend data from Yukon-Charley Rivers Preserve.

Response

In the Proposed RMP (Alternative E) the White Mountains NRA and the Steese National Conservation Area would remain closed to mining and mineral leasing. The Mt. Schwatka area is closed to summer use of OHVs currently. In the Proposed RMP (Alternative E) wildlife management decisions would not preclude, but would limit summer motorized use to maintain Dall sheep habitat effectiveness.

Horn anomaly information added to Chapter 3 Affected Environment. Trend data from Yukon Charley is not necessary for RMP decisions.

L.4.11.5. Predators

Comment Number: EIRMP000000163-9 and EIRMP000000163-10

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

The comment suggests sources of:

- bear density and harvest information that could be used in the RMP
- wolf population information for Unit 25D

Response

The BLM appreciates the information about the availability of bear density and harvest information. This information is not necessary for RMP planning purposes. We included wolf population information in Chapter 3 of the Proposed RMP/Final EIS.

L.4.11.6. Migratory Birds

Comment Number: EIRMP000000163-44, EIRMP000000163-56, and EIRMP000000163-45

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

The RMP should describe how permitted activities would be conducted in compliance with Migratory Bird Treaty Act and Bald/Golden Eagle Protection Act and what additional protection would bird species of concern would receive, including bald and golden eagles.

Response

Compliance with the Migratory Bird Treaty Act and Bald/Golden Eagle Protection Act will be considered in any permitting decision and, as priority raptor species, SOPs (Appendix A.4) will apply to permitted activities near bald and golden eagle nests.

The Proposed RMP/Final EIS includes protections for bird species of conservation concern (Table 3.17) in several sections. Section 2.6.2.7 Special Status Species describes how sensitive bird species would be protected. Appendix A.4 includes SOPs for priority raptors to protect that class of bird species of conservation concern. Bird species of conservation concern will receive special attention in any proposal to clear vegetation within the May 1 to July 15 time period. As wildlife "priority species", bird species of conservation concern will be priorities for inventory and monitoring of the species and their habitat, as well as priority for identifying important habitats for these species. In addition, habitats that support several of these bird species of conservation concern, (including riparian and wetland habitats) would be given priority consideration in efforts to minimize impacts and restore habitat quality.

Most areas of high potential golden eagle nesting habitat have been (or will soon be) surveyed. Very few active golden eagles nests have been found on BLM-managed lands in the planning area. SOPs will be followed, and NEPA analyses for specific activities may identify additional mitigation measures. Bald and Golden Eagle Protection Act provisions will be assessed during NEPA analysis. Additional site-specific surveys could be required prior to permit issuance for

some activities. The Proposed RMP (Alternative E) limits areas that will be open to locatable and leasable minerals, which limits potential impacts to golden eagles.

L.4.12. Wilderness Characteristics

Comment Number: EIRMP000000152-1, EIRMP000000152-7, EIRMP000000152-2, and EIRMP000000161-15

Organization: Doyon, Limited and Citizen's Advisory Commission on Federal Areas

Commenter Type: Native Corporation and state advisory committee

Summary

- Lands proposed for maintenance of wilderness characteristics under Alternatives B and C will entirely surround Doyon-owned lands and Doyon will require access to these lands. Such access, to which Doyon is entitled under the provisions of ANILCA, could limit BLM's ability to effectively manage the lands to protect their wilderness characteristics.
- Additionally, management of these lands to maintain wilderness characteristics could be used as a basis for the BLM to attempt to deny, or unreasonably condition, access to Doyon's inholdings, frustrating Doyon's and its shareholders' ability to realize the economic development value for which Doyon was permitted to select those lands pursuant to ANCSA.
- Most of these lands are subject to Doyon land selections and are subject to potential conveyance to Doyon, Limited at some time in the future.
- The BLM should manage for wilderness characteristics only within that segment of Birch Creek WSR corridor that lies within the Steese National Conservation Area. Managing for wilderness characteristics in other portions of the Steese could create conflicts between that management strategy and the ANILCA mandate to manage the National Conservation Area "within a framework of a program of multiple use and sustained yield and for the maintenance of environmental quality.

Response

The Proposed RMP (Alternative E) would manage these areas to emphasize other multiple uses while applying management restrictions to reduce impacts to wilderness characteristics. This type of management would not be a basis for the BLM to deny or unreasonably restrict access to Doyon lands. If the lands in question are conveyed, decisions in the RMP would no longer apply. Access to non-federally owned land surrounded by public land will be permitted per ANILCA Section 1323.

The lands referred to in the comment are the Fortymile ACEC, where the BLM management focus will be on caribou and Dall sheep habitat. Proposed management of the ACEC will be sufficient to maintain wilderness characteristics. The Proposed RMP (Alternative E) emphasizes other resource values (caribou and Dall sheep) and multiple uses while applying management restrictions to reduce impacts to wilderness characteristics. The BLM recognizes that there may be some impacts to wilderness characteristics, but we will minimize these impacts through the NEPA process. The size of the ACEC is such that even if an access road went through the area, the polygons on either side of the road will be large enough to meet the criteria for lands with

wilderness characteristics. BLM-manual 6310 Conducting Wilderness Characteristics Inventory on BLM lands (C.2.b.iii) states that human impacts outside of the area will normally not be considered in assessing naturalness of an area and (C.3.b) when establishing boundaries of lands with wilderness characteristics do not create a setback or buffer from the physical edge of the imprint of man. Thus a road traversing a large polygon of lands with wilderness characteristics would split the polygon into two smaller units, but would only remove a small amount of land within the footprint of the road from the lands with wilderness characteristics.

Under the Proposed RMP (Alternative E), the BLM will manage Birch Creek WSR corridor, riparian conservation areas, and Primitive, Semi-Primitive, and Backcountry recreation management zones to emphasize other multiple uses while applying management restrictions to reduce impacts to wilderness characteristics (Map 77). Management of these areas is consistent with wilderness characteristics and conflicts are expected to be limited.

L.4.12.1. Management of lands with Wilderness Characteristics

Comment Number: EIRMP000000153B-10, EIRMP000000153B-11, EIRMP000000153B-12, EIRMP000000153C-19, EIRMP000000153C-20, EIRMP000000153C-21, EIRMP000000153D-8, EIRMP000000410-38, and EIRMP000000410-7

Organization: Alaska Wilderness League and cosigners, and Gwichyaa Zhee Gwich'in tribal government

Commenter Type: environmental organization and tribe

Summary

Proposed management for lands with wilderness characteristics in the Draft RMP is insufficient. The BLM is assuming that wilderness characteristics will persist because there is not a lot of use in these areas. This assumption may not hold true for the life of the RMP. Therefore, management should be meaningful and ensure that wilderness characteristics are actually protected. Specific suggestions include:

- Only permit motorboat use with a wake control mechanism.
- Only allow improvement to landing strips if there is a compelling reason why an unimproved landing area is not sufficient and make all efforts to limit impacts to wilderness characteristics.
- Do not allow locatable mineral entry unless the applicant can provide evidence of high resource potential and there are not comparable resources outside of lands managed for wilderness characteristics.
- Only allow construction of new structures or facilities if needed for preservation or enhancement of wilderness characteristics or necessary for the management of other permitted uses.
- Prohibit construction of new roads.

Response

The BLM believes that management for lands with wilderness characteristics is sufficient. The Proposed RMP (Alternative E) would manage 3.5 million acres (more than half of BLM-managed lands in the planning area) to allow for other multiple uses while applying management

restrictions to reduce impacts to wilderness characteristics (Maps 73, 77, and 81). These lands include wild and scenic rivers, areas of critical environmental concern, Primitive, Semi-Primitive, and Backcountry recreation management zones, and riparian conservation areas. We will manage these areas in a manner consistent with maintaining wilderness characteristics (naturalness, solitude, opportunities for primitive recreation) over the life of the RMP.

L.4.12.2. Conformance with ANILCA

Comment Number: EIRMP000000161-16 and EIRMP000000170-17

Organization: Citizen's Advisory Commission on Federal Areas and Alaska Department of Natural Resources

Commenter Type: state advisory committee and state government

Summary

Section 2.4.1.11 of the Draft RMP identified activities and uses as “generally incompatible” with maintaining wilderness characteristics, including summer OHV use off designated or existing trails, which is allowed on federal public lands, including designated wilderness, under ANILCA Section 811 for subsistence use where “traditionally employed.” Additionally within ANILCA designated areas (Steese National Conservation Area, White Mountains NRA, Birch Creek, Beaver Creek and Fortymile WSR) uses such as snowmachine and motorboat use, aircraft landings, temporary structures for the taking of fish and wildlife and public use cabins should not be subject to any restrictions based on an administrative determination that an area has wilderness characteristics. An administrative policy cannot preempt law. Therefore, the BLM must carefully consider any restrictions that are proposed for the purpose of protecting lands with wilderness characteristics to ensure they do not conflict with congressional intent in ANILCA and DOI ANILCA-implementing regulations.

Response

The BLM has carefully considered restrictions on ANILCA protected uses to ensure that decisions in the RMP do not conflict with ANILCA. We revised the wording in section 2.6.2.11 to remove the list of "generally incompatible" activities. The Proposed RMP (Alternative E) would maintain wilderness characteristics through compatible management of areas of critical environmental concern, wild and scenic rivers, recreation objectives, and riparian conservation areas.

L.4.12.3. Access

Comment Number: EIRMP000000170-36, EIRMP000000411-41, EIRMP000000411-42, EIRMP000000411-43, EIRMP000000411-44, EIRMP000000411-45, EIRMP000000411-46, and EIRMP000000411-47

Organization: Alaska Department of Natural Resources, Alaska Department of Transportation, and Alaska Department of Fish and Game

Commenter Type: state government

Summary

There are unexplored mineral resources in the planning area. It is crucial to maintain access routes to areas with high resource potential because future conditions cannot be predicted. Proposed protections in the Draft RMP for lands with wilderness characteristics will effectively prohibit access, consequently prohibiting development, even if the resource areas technically remain open to development in the RMP. The RMP should consider maintaining access to these energy resources.

Response

The Proposed RMP/Final EIS considered and maintained access options. Rights-of-way would be considered and ANILCA access provisions would apply in all subunits. No right-of-way exclusion areas are proposed under any alternative. Protections, such as those for wilderness characteristics and visual resource management, would not prohibit access but, may increase the level of mitigation required on projects. The Proposed RMP would manage lands to emphasize other resource values and multiple uses, while applying management restrictions to reduce impacts to wilderness characteristics. The purpose of visual resource management is to ensure that scenic values are considered and to minimize those impacts through project design before allowing uses that may have negative visual impacts. Visual resource management classes result from, and conform to, the resource allocations in the RMP.

L.4.12.4. Minerals Management

Comment Number: EIRMP000000153C-22, EIRMP000000153D-9, EIRMP000000194-3, and EIRMP000000170-47

Organization: Alaska Wilderness League and cosigners, Northern Alaska Environmental Center, and Alaska Department of Natural Resources

Commenter Type: environmental organizations and state government

Summary

Some commenters took issue with allowing locatable mineral entry (such as gold mining) on lands with wilderness characteristics. Noting that this activity is generally inconsistent with protecting wilderness characteristics and the BLM has not provided any justification for permitting it. Others noted that it is incompatible to allow leasing or exploring for oil and gas in areas proposed for protection of wilderness characteristics.

Others took issue with the BLM assertion in the Draft EIS that wilderness characteristics would be compromised by oil and gas exploration and development because changes and advancements in oil and gas drilling technologies have greatly reduced the size and severity of surface area disturbances

Response

The Proposed RMP (Alternative E) takes a coincidental approach to management of lands with wilderness characteristics. The BLM is not making decisions to restrict or prohibit certain activities in an area simply to maintain wilderness characteristics. Restrictions or prohibitions are being made to protect some other resource or values (e.g., caribou calving, wild and scenic river corridors, riparian resources, certain types of recreational experiences.) We are recommending

these areas be closed to both mining and mineral leasing for reasons other than wilderness characteristics.

L.4.12.5. Authority to Consider Wilderness Characteristics

Comment Number: EIRMP000000023-3, EIRMP000000075-2, EIRMP000000144-1, and EIRMP000000170-16

Organization: Alaska Department of Natural Resources and Fairbanks Chamber of Commerce

Commenter Type: Business Organization, individuals, and state government

Summary

- The BLM has no authority to manage lands specifically to protect "wilderness characteristics" and should not do so. ANILCA Section 1320 specifically exempts BLM lands in Alaska from FLPMA Section 603. The BLM is not allowed to manage lands recommended for wilderness designation to the non-impairment standard and is instead directed to manage in accordance with applicable land use plans. As an apparent substitute for wilderness reviews, which carry this specific limitation in Alaska, the BLM is instead implementing portions of Secretarial Order 3310 as represented in BLM Instruction Memorandum 2011-154 to administratively identify and subsequently protect what it determines are "lands with wilderness characteristics" through the land use planning process. This is nothing more than a creative effort to circumvent the intent behind Section 1320, which limits the manner in which BLM can manage lands that have been recommended for wilderness designation. The BLM should not implement policy direction, which conflicts with congressional intent in both ANILCA and the Wilderness Act. Only Congress can designate wilderness in Alaska, Congress specifically prohibited non-impairment management of BLM lands.

- The BLM proposal to manage large portions of the planning area as closed to multiple use in general and closed to mineral location under the Mining Laws in particular, is effectively managing the lands as "Wilderness Lands." This is in violation of 43 U.S.C. 1784 Lands in Alaska and Bureau of Land Management Land Review section of the Federal Land Policy and Management Act of 1976. That section states that, "Notwithstanding any other provision of law, section 1782" (Bureau of Land Management Wilderness Study) "of the Federal Land Policy and Management Act of 1976 shall not apply to any lands in Alaska."

Response

Management of lands with wilderness characteristics is determined through the land-use planning process, and does not conflict with Section 1320 of ANILCA. As explained by the U.S. Court of Appeals for the Ninth Circuit in *Oregon Natural Desert Association v. BLM*, 531 F.3d 1114 (2008), Section 202 of FLPMA is independent of Section 603 of FLPMA, and requires BLM to rely on resource inventories in the development and revision of land use plans, including inventories of lands with wilderness characteristics. These lands are not new wilderness study areas, conservation-system units, national conservation areas or national recreation areas, and are not managed as such. Like all public lands, they will be managed by the BLM in accordance with land use plans developed under FLPMA and all applicable provisions of law, the arrangement that Congress presumed in ANILCA Section 101(d) when it deemed its "designation and disposition of the public lands in Alaska" to afford "sufficient protection," and represent "proper balance."

Withdrawal of lands from the mining laws is a land use planning decision and is not equivalent to congressional designation of Wilderness. As noted by the commenter, Section 603 of FLPMA does not apply to Alaska nor is the BLM conducting wilderness review under this planning process.

L.4.13. Forest Products

Comment Number: EIRMP000000163B-33, EIRMP000000170B-11, EIRMP000000170B-10, EIRMP000000410-34, and EIRMP000000410-4

Organization: U.S. Fish and Wildlife Service, Gwichyaa Zhee Gwich'in tribal government, and Alaska Department of Natural Resources

Commenter Type: federal government, state government, and tribe

Summary

- As local communities move away from using diesel to using biomass, the demand for forest products will increase. Therefore, it is imperative that multiple use lands have an allowance for commercial timber. Additionally it is unclear if biomass is considered a commercial use or a local use.

- The Draft EIS describes a Free Use Permit concept for harvest of wood products. This concept could lead to conflicts with surrounding landowners and their management regimes. Users may not know where land ownership changes between the BLM and the other landowners. For example, a local wood lot may be located on State lands and subject to different policies. Public misunderstanding of the State's allowable use of cutting dead and down on State lands is a current issue.

- The Tribes urge BLM to preclude commercial forestry activities—including timber sales, salvage sales, and forest products—on all lands throughout the Upper Black River Subunit, especially within the expanded ACEC and RCAs. Allowing commercial logging and other forestry activities in the ACEC and RCAs would be wholly inconsistent with the management objectives of these designations. Moreover, these activities would have serious adverse consequences for the pristine lands and wild resources throughout the Upper Black River Subunit that are essential for sustaining Gwich'in culture, heritage, and subsistence way of life.

Response

The BLM considered the increased interest of rural communities for new biomass fuels to meet increasing fuels needs. Unfortunately little of the BLM-managed lands lie within a reasonably economic distance from these communities. The Proposed RMP (Alternative E) allows for future timber harvest on the majority of the lands in the planning area, but we anticipate little demand on BLM-managed lands.

The BLM authorizes the harvest of forest resources a number of different ways. With the exception of gathering firewood for recreation purposes on-site and the personal collection of Special Forest Products, a permit is required for all other harvest of forest resources. We address and mitigate issues such as land ownership and other resources impacts through the permitting process. Ongoing issues with confusion about land status and permitting differences between the

state and the BLM is not a planning issue. We can address these issues now through appropriate coordination between the two agencies.

The Proposed RMP (Alternative E) closes the Salmon Fork ACEC to commercial timber sales, with an exception for salvage sales. Salvage sales allow for removal of wood after a fire or other surface disturbance. The timber in the subunit is not commercially valuable and there is no easy access to remove the timber, making interest in timber sales unlikely. Closing the subunit to all commercial timber and forest product sales, would prevent the villages from harvesting biomass from BLM-managed lands, reducing potential economic opportunities for local residents. Given the long life of the RMP, the need for future management flexibility, and the lack of interest in timber and forest products in the subunit, the BLM does not propose closing the entire Upper Black River Subunit to these uses. The BLM will, however, evaluate all proposals for environmental impacts under NEPA and for impacts to subsistence under Section 810 of ANILCA in consultation with tribes. We will mitigate impacts to the extent possible and the project may be modified to reduce impacts.

L.4.14. Lands and Realty

L.4.14.1. Land Tenure

Comment Number: EIRMP000000170-41, EIRMP000000170-42, EIRMP000000170-43, and EIRMP000000170-49

Organization: Alaska Department of Natural Resources

Commenter Type: state government

Summary

- Written concurrence from the State of Alaska is required under ANILCA Section 906(k) for activities the BLM is proposing in the RMP such as closures to mineral leasing and for designation of right-of-way avoidance areas on State-selected lands.

- Future transfer of state-selected lands may occur. The RMP should not close areas to fluid mineral leasing or designate them as right-of-way avoidance areas until final land title has been resolved.

Response

The BLM is not required to obtain written concurrence from the State of Alaska under section 906(k) of ANILCA for mineral leasing closures and for designation of right-of-way avoidance areas on State selected lands. The law states that State concurrence is required before the Secretary is authorized to make contracts and grant leases, licenses, rights-of-way, or easements. Planning level decisions regarding whether to recommend opening or closing an area to development activities are not the same as granting a right or interest under a contract, lease, license, right-of-way, or easement.

Until the BLM conveys selected lands to the State, the Secretary is free to regulate land use development activities on BLM-managed lands according to applicable laws. Closing BLM-managed lands selected by the State to fluid mineral leasing development or designating

right-of-way avoidance areas could impact the State's ability to assess the resource potential of State selected lands and to acquire access.

L.4.14.2. Recordable Disclaimers of Interest

Comment Number: EIRMP000000170-44

Organization: Alaska Department of Natural Resources

Commenter Type: state government

Summary

The ownership of 74 miles of navigable waters and the bed of the Salmon Fork of the Black River has been transferred to the State of Alaska, under a Recordable Disclaimer of Interest (RDI) F-93920, October 24, 2003, and is exempted from lease closures under federal planning. In general, the State asserts ownership of all navigable rivers in this subunit, and across the planning unit under the Submerged Lands Act, 43 U.S.C. 29.

Response

The BLM concurs. As per the RDI (AKFF-093920) issued in 2003, the United States has no interest in the lands described in the RDI, with the exception of those parts of the States application that were described as being "Suspended In-Part". Under the Submerged Lands Act and the Alaska Statehood Act "the State has "the right and power to manage, [and] administer" submerged lands below inland navigable water. BLM-managed lands outside and adjacent to lands below the inland navigable waterways managed by the State will be affected by the Approved Resource Management Plan and managed by the BLM accordingly.

L.4.14.3. R.S. 2477 Rights-of-Way

Comment Number: EIRMP000000094-1, EIRMP000000170B-25, EIRMP000000170B-43, EIRMP000000170B-6, EIRMP000000170B-7, and EIRMP000000200-1

Organization: Alaska Department of Natural Resources

Commenter Type: state government and individuals

Summary

- The RMP does not recognize and identify the State owned Revised Statute (R.S.) 2477 rights-of-way that exist throughout the planning area. The failure to recognize these routes jeopardizes access to private, State, and native lands. Proposed management actions in the RMP should not diminish the State's ability to secure further its rights to R.S. 2477 routes.
- While the BLM may have an internal policy to defer any processing of R.S. 2477 assertions except where there is a demonstrated and compelling need to make a determination, as noted in glossary definition in the RMP, the BLM does not have jurisdiction to defer. R.S. 2477 rights-of-way are a congressional grant and the State owns the right-of-way interest. Therefore, the BLM should conduct non-binding determinations of State claimed R.S. 2477 rights-of-way in the planning area, so that important access routes will not be affected by this plan. Managing the land in the planning area for actual on-the-ground conditions, and not via a document that

fails to consider that such routes exist, is important not just to the State, but also to people who live in and travel to the area.

- Consistent with other Alaska RMPs, the BLM should use the following language to describe R.S. 2477 routes in the textual portion of the plan. The limited definition helps to withstand minor policy changes, and associated divisions and managers within the State have vetted the language: "Under Revised Statute (R.S.) 2477, Congress granted a right-of-way for the construction of highways over unreserved public land. Under Alaska law, the grant could be accepted by a positive act either by the appropriate public authorities or by public use. "Highways" under state law include roads, trails, paths, and other common routes open to the public. Although R.S. 2477 was repealed in 1976, a savings clause preserved any existing R.S. 2477 right-of-way. The State of Alaska claims numerous rights-of-way across federal land under R.S. 2477, including rights-of-way identified in AS 19.30.400. The validity of all R.S. 2477 rights-of-way will be determined on a case-by-case basis and outside of this planning process".

Response

Until a binding determination on validity of a R.S. 2477 is made, the BLM will continue to provide for and manage access across BLM-managed lands in accordance with the Federal Lands Policy and Management Act of 1976 as well as relevant regulations and policies. The management actions proposed in this RMP in no way diminish the State's ability to make claims and secure binding determinations on the validity of a valid R.S. 2477 in a court of law.

R.S. 2477 rights are determined through a process that is entirely independent of the BLM's planning process. The BLM does not consider R.S. 2477 assertions or evidence when doing travel management planning. Travel management planning is founded on an independently determined purpose and need that is based on resource uses and associated access to public lands and waters. When a decision is made on R.S. 2477 assertions the BLM will adjust its travel routes accordingly.

The BLM will consider on the ground routes used by the public in more detail when we develop travel management plans. We will identify, map, and review travel routes within the planning area and use an open and public process to determine management objectives.

Section 1.10 Policy and Legislation uses the language suggested by the State in this comment.

L.4.14.4. Navigability

Comment Number: EIRMP000000096-1, EIRMP000000161-31, EIRMP000000170-49, and EIRMP000000408-15

Organization: Citizen's Advisory Commission on Federal Areas, Alaska Miners Association, and Alaska Department of Natural Resources

Commenter Type: state advisory committee, mining organization, and state government

Summary

- The Draft RMP states: "Until such time a [navigability] determination is made, the BLM presumes ownership of submerged lands." (p 13) The state acquired title to the beds of navigable waters in 1959. The BLM has made numerous determinations of navigability

during the ANCSA land transfer process. The BLM should rely on these and other decisions already made.

- The withdrawals under ANILCA and the Wild and Scenic Rivers Act apply only to the minerals in federal lands that are part of the system and constitute the bed or bank or are situated within one-half mile of the bank of a wild river. In the case of a navigable river, which includes some wild segments of the Fortymile River, the river bed belongs to the State of Alaska. Similarly, the river bed of a navigable segment of a river would not be subject to existing or future withdrawals under the authorities of ANILCA or the WSR Act, neither is State-owned submerged lands or uplands part of the WSR corridor.
- Some navigable waters have been transferred to State ownership. These State selections and transfers of navigable waters directly affect the planning for the proposed Upper Black River Subunit, and legal jurisdictions for the land management proposed.
- State of Alaska management of activities in or on the beds and banks of navigable rivers may not preclude protection of these rivers and watersheds, as is inferred in section 2.4.1.11 of the Draft EIS.

Response

The referenced statement applies to rivers where the BLM has not yet made a navigability determination. We revised the text in the Proposed RMP/Final EIS to clarify.

The BLM concurs that state-owned lands, including the bed of navigable segments of rivers would not be subject to existing or future federal withdrawals.

The RMP recognizes that some rivers in the Upper Black River Subunit have been transferred to the State under recordable disclaimers of interest and that this may limit management options (Sections 2.7.2.2.3.2, 2.7.2.3.3.2, and Appendix E).

The language referenced in this comment was removed from the Proposed RMP/Final EIS.

L.4.14.5. Land Use Authorizations

Comment Number: EIRMP000000152-5 and EIRMP000000170-45

Organization: Doyon, Limited and Alaska Department of Natural Resources

Commenter Type: Native Corporation and state government

Summary

Doyon, Limited disputes the BLM assertion in the Draft EIS that "few rights-of-way" are anticipated over the life of the plan, in part due to their remote location. The proposed Fortymile ACEC is not "remote" from Doyon landholdings or Doyon-selected lands. The Fortymile ACEC would occupy lands selected by Doyon under ANCSA and entirely surround lands that BLM has already conveyed to Doyon. The Draft EIS specifically recognizes that resource development is an important aspect of Doyon's mission. It recognizes that "[c]ontinued oil and gas exploration on Doyon, Limited, lands is likely" and that Doyon "is seeking mining exploration on its lands, especially in the Fortymile Subunit where placer gold claims are encouraged and available, and mineral materials sales would continue (Doyon 2009).

Determination of feasible access and resource transport pipeline routes is not a paper exercise. The BLM must consider numerous factors, and evaluate alternatives to meet both environmental protection and economic feasibility criteria. Proper road and pipeline route siting can significantly reduce negative impacts, and can result in little to no long-term effects. Ice road use can significantly reduce habitat and vegetation impacts. The BLM needs to plan for areas where it will consider and approve pipeline and access rights-of-way on a project-by-project basis.

Response

Chapter 4 Environmental Consequences discusses resource use assumptions for Lands and Realty. Here, the BLM recognizes that demand for land use authorizations, like rights-of-way, would fluctuate with economic growth and development but states that demand would generally be low. Our anticipation of few rights-of-way over the life of the plan is based on historical information regarding the number of land use applications received by the BLM within the planning area over time. NEPA only requires the analysis of activities that are reasonably foreseeable. Reasonably foreseeable actions are those for which there are approved decisions, funding, formal proposals, or which are highly probable, based on known opportunities or trends (BLM National Environmental Policy Handbook H-1790-1). Agencies are not required to engage in speculation about future activities.

Given uncertainties regarding final land ownership patterns and where specific site development or access projects will occur within the planning area, the BLM will continue to provide for and manage access across BLM-managed lands on a project specific basis in accordance with the FLPMA as well as relevant regulations (43 CFR 2800) and policies. We will consider impacts of future access in site-specific environmental analyses.

In the Proposed RMP (Alternative E), the Fortymile ACEC is reduced in size and surrounds fewer parcels of Doyon, Limited lands.

L.4.14.5.1. Long Term Camping

Comment Number: EIRMP000000197-1

Commenter Type: individual

Summary

- The BLM should allow temporary camp sites on BLM-managed lands within the Fortymile WSR corridor to support short-term suction dredge mining activities on state mining claims below the ordinary mean high water mark.

- The BLM should not allow long-term camping for commercial purposes in the “wild”, “scenic”, or “recreational” segments of the Fortymile River.

Response

The special rules for the Fortymile Wild and Scenic River Corridor require that a permit be issued for camping associated with commercial activities. The special rules state that "commercial use includes ... activities associated with the use of mechanized equipment for mining...." The BLM would have to change the current special rules before allowing short-term camping associated with suction dredging activities without a permit.

The BLM plans to consider issuing permits for long-term camping on BLM-managed lands as appropriate to reduce and mitigate impacts to WSR values associated with commercial suction dredge activities occurring along inland navigable waterways managed by the State of Alaska.

L.4.14.5.2. Rights-of-Way

Comment Number: EIRMP000000183-1

Organization: Fortymile Miners Association

Commenter Type: mining organization

Summary

The BLM has an excellent trail system in the White Mountains, but this is not the case in the Fortymile. It is very difficult to get help or approval from the BLM to fix an existing roadway. The permittee is asked to pay thousands of dollars permitting fees just to be able to fix the road so it isn't torn up and it isn't a huge eyesore. Eventually, people just throw their hands up and quit trying.

Response

The White Mountains is a congressionally designated National Recreation Area (NRA) and ANILCA directs the BLM to administer the area for public outdoor recreational use. As such, the BLM strives to fulfill that goal by maintaining a quality trail network for motorized and non-motorized recreational users of the White Mountains NRA, with a particular emphasis on winter use. The BLM does not have a single focused management directive for BLM-managed lands in the Fortymile region. Regardless of the management direction for these two areas; any road or trail use, construction, repair, and maintenance associated with commercial activities on any BLM-managed lands must be permitted in accordance with applicable laws and regulations. The BLM authorizes linear features such as trails and roads using the right-of-way regulations found in 43 CFR 2800. These regulations outline the procedures the BLM must follow when processing right-of-way applications including how cost recovery, rental, and monitoring fees are determined. The regulations also outline when applicants are exempt from paying fees and the process for requesting a fee waiver or reduction from the BLM State Director.

L.4.14.6. Transportation Corridors

Comment Number: EIRMP000000153-59

Organization: Alaska Wilderness League and cosigners

Commenter Type: environmental organization

Summary

The RMP should prohibit new road corridors because roads are not compatible with the designation and management priorities of the White Mountains NRA or Beaver Creek WSR.

Response

The Proposed RMP (Alternative E) does not identify any new roads or designated transportation corridors into the White Mountains NRA. The only potential for additional roads addressed in the RMP would be associated with leasing in Alternative D, which is not the Propose RMP. The BLM will address improvement to existing trails, routes and proposed designated trails, routes and access areas through the travel management planning process, which includes public scoping and comment. We will analyze any proposals for route construction, primitive or improved through the NEPA process and mitigate impacts to recreation and other resources such that they do not impact the resources for which the White Mountains NRA and Beaver Creek WSR are designated. Additionally, Title XI of ANILCA requires consideration of rights-of-way for Transportation or Utility Systems in wild and scenic rivers, the Steese National Conservation Area and the White Mountains NRA.

L.4.14.7. Right-of-Way Avoidance and Exclusion Areas

Comment Number: EIRMP000000152-6, EIRMP000000410-5, EIRMP000000410-8, and EIRMP000000453-9

Organization: Doyon, Limited, Gwichyaa Zhee Gwich'in tribal government, and Alaska Department of Natural Resources

Commenter Type: Native Corporation, tribe, and state government

Summary

- Where a right-of-way avoidance area is proposed, the RMP should be clear as to the implications of such a proposal and how, if at all, such areas and their implications differ from right-of-way exclusion areas.
- Designation of the Fortymile ACEC as a right-of-way avoidance area, as proposed in Alternative B, could make it more difficult for Doyon, Limited to obtain access to its lands. Effects of this decision could be substantial.
- Allowing transportation corridors in the ACEC and RCAs would be inconsistent with the management objectives of these conservation-oriented designations, and it would facilitate extractive development that threatens pristine lands and wild resources throughout the Upper Black River Subunit that are essential for sustaining Gwich'in culture, heritage, and subsistence way of life. The BLM should establish right-of-way avoidance areas throughout the entire subunit.

Response

The BLM added definitions of right-of-way avoidance and exclusion areas to the glossary. The Proposed RMP (Alternative E) does not include any right-of-way exclusion or avoidance areas.

We revised the analysis in section 4.3.2.2.3 to better reflect potential impacts of a right-of-way avoidance area. An avoidance area does not preclude rights-of-way. It just means that the BLM tries to find alternate sites.

Rights-of-way include more than roads. For example, we issue communication sites (remote radio transmitters) and remote weather monitoring stations under a right-of-way grant. Given the long life of the RMP, the need for management flexibility in the future, and Doyon, Limited, and State inholdings in the Upper Black River Subunit, we do not propose an avoidance area

in the Upper Black River Subunit. We will however, evaluate any proposed right-of-way for environmental impacts under NEPA and for impacts to subsistence under Section 810 of ANILCA in consultation with tribes. We will take a hard look at applications under its normal permitting process and consider subsistence resources, requiring mitigation to eliminate or reduce impacts to subsistence resources.

L.4.15. Minerals Management

L.4.15.1. Fluid Leasable Minerals

Comment Number: EIRMP000000156-1, EIRMP000000170-41, EIRMP000000170-42, and EIRMP000000170-43

Organization: Fairbanks Economic Development Corporation and Alaska Department of Natural Resources

Commenter Type: Business Organization and state government

Summary

- The Draft RMP does not explain the mechanisms by which the BLM will permit mineral leasing or if it will ultimately be permitted at all under alternatives B, C, and D.
- Future transfer of State-selected lands may occur; therefore, State-selected acreage should be withdrawn from fluid leasing closures until final land title has been resolved.
- The recommended closure to oil and gas leasing is too restrictive for large expanses of land in the Fortymile and Upper Black River subunits under Alternatives B and C. Particularly near state-selected and private lands near the Salmon Fork watershed and north of the Fortymile Wild and Scenic River to Eagle.

Response

Mineral leasing will be permitted under the Mineral Leasing Act of 1920 (as amended), following BLM regulations in 43 CFR 3000. Leasing would be considered on a case-by-case basis in areas the plan recommends open to leasable minerals if there is interest from industry and if there are no laws, public land orders, or segregations in place that would prohibit leasing. However, Congress has closed some of the lands to leasing through ANILCA. Additionally, public land orders issued under ANCSA 17(d)(1) close most of the lands in the planning area to the mineral leasing laws. Only the Secretary of the Interior or the Assistant Secretary for Lands and Minerals can modify these public land orders. If the BLM conveys lands to another entity the ANCSA withdrawals (public land orders) no longer apply. Applicable laws and regulations pertaining to leasing in the Leasable Mineral Occurrence and Development Potential Report are available online at http://www.blm.gov/ak/eirmp.

The BLM has segregated selected lands from mineral leasing until they are relinquished or the land is transferred. Therefore, these lands remain closed until final land title is established.

The BLM manages for the benefit of all resources. We recommend closures to lands based on scientific research or known resources that need extra protection from surface disturbing

activities. The Proposed RMP (Alternative E) recommends closing 4.8 million acres to leasable minerals (Maps 31, 38, and 43). These lands are currently closed by existing public land orders.

L.4.15.1.1. Best Available Information

Comment Number: EIRMP000000170-36, EIRMP000000170-38, EIRMP000000170-39, EIRMP000000170B-24, EIRMP000000410-17, EIRMP000000410-18, and EIRMP000000410-16

Organization: Alaska Department of Natural Resources and Gwichyaa Zhee Gwich'in tribal government

Commenter Type: state government and tribe

Summary

- The BLM should verify the location of the potential oil and gas basins on Map 96 of the Draft RMP with Alaska Department of Natural Resources (ADNR). According to an ADNR-published map dated April 25, 2002, there is a significant oil and gas basin in the north and east portions of the planning area that the BLM has not adequately represented on this map.

- The BLM has not adequately considered the leasable mineral potential in this planning process. The ADNR has identified specific basins and areas with elevated potential in the Upper Black River, Steese, White Mountains, and Fortymile Subunits. This includes U.S. Geological Survey (USGS) depth-mapping from gravity data in the Yukon Flats region (Till, et al., 2006), which identify sub-basins with elevated prospect potential for oil and gas in the Stevens Village and Beaver areas (BLM White Mountains Subunit); in the Birch Creek and Yukon area (BLM White Mountains and Steese Subunits); and, in the Crooked Creek area (BLM Steese Subunit). Geologic mapping and petroleum systems studies (Van Kooten, et al., 1997) show additional petroleum potential in the Kandik and Nation River basins of the Upper Black River and Fortymile Subunits.

- The BLM assumption that oil shale exploration and leasing are unlikely to occur, is based on the lack of information about known occurrences on BLM land at the present time. This should not preclude potential for future exploration and resource identification. It is important that the RMP accommodate responsible access to State, Native, and private lands, and does not preclude oil and gas exploration and development on these lands.

- The BLM dismisses the data showing widespread oil and gas development potential in the Upper Black River Subunit and elsewhere in the planning area as having insignificant impacts on subsistence because "there is no implication that these resources can be developed economically." This is an unreasonable assumption.

Response

Map 96 of the Draft RMP does not show the oil and gas basins. It displays development potential for leasable minerals. The Leasable Mineral Occurrence and Development Potential Report available online at www.blm.gov\ak\eirmp, provides information on the basins as well as their locations relative to the planning area boundaries (and subunits).

The BLM considered and included ADNR information when developing the Leasable Mineral Occurrence and Development Potential Report. We consulted ADNR during development of the mineral potential report.

The BLM assumption that oil shale exploration and leasing is unlikely to occur does not preclude future exploration and resource identification. Existing public land orders and segregations closing these lands to leasing are what preclude it. The Proposed RMP (Alternative E) recommends opening 1.7 million acres to mineral leasing. If the Secretary modifies the public land orders associated with these lands and there is interest from industry, exploration and leasing could occur. The Proposed RMP/Final EIS does not preclude access to State, Native, or private land, nor does it preclude oil and gas exploration or development on these lands.

Opening the Upper Black River Subunit for oil and gas development would not likely spark a lot of interest from industry. As discussed in section 3.3.4.1 the planning area contains portions of two known oil and gas basins. Both basins are considered frontier basins with little substantial data defining an exploitable resource on BLM-managed lands. The part of the Yukon Flats Basin with the most oil and gas potential is located on Yukon Flats National Wildlife Refuge. The USFWS considered and rejected a proposed land exchange with Doyon, Limited that would have allowed for oil and gas exploration on these lands. A small fraction of this basin is near the northern boundary of the White Mountains NRA. Limited seismic exploration and no exploratory drilling have left many questions as to the potential of this basin. The Kandik Basin has not had much exploration either with a total of one well within the basin that yielded no oil or gas shows. The most promising potential is located with the Yukon Charley-Rivers National Preserve (not BLM-managed) with exposures of oil-bearing outcrops. There is no current infrastructure in this area. It is likely that industry would focus their efforts in areas of greater potential and closer to existing infrastructure. All of this information is in the Leasable Mineral Occurrence and Development Potential Report available online at http://www.blm.gov/ak/eirmp.

The BLM did not conduct a Reasonably Foreseeable Development (RFD) Scenario for oil and gas leasing due to the uncertainty of the oil and gas resource and lack of infrastructure within high occurrence potential areas. We believe our assumption is reasonable based on available information.

L.4.15.1.2. Impact Analysis

Comment Number: EIRMP000000153C-27, EIRMP000000153C-33, EIRMP000000170-35, EIRMP000000170-40, EIRMP000000170-47, EIRMP000000170-48, and EIRMP000000312-5

Organization: Alaska Wilderness League and cosigners, and Alaska Department of Natural Resources

Commenter Type: environmental organization, state government, and individuals

Summary

- Restricting activities for access and development along non-contiguous State land and private parcels within the planning area will result in reduced access for exploration, development, and transportation of oil and gas resources on State and Native lands. Impact analysis in the Draft RMP regarding impacts common to all alternatives, notes that the decision to close oil and gas leasing "would have no effect due to the lack of these resources on BLM-managed

lands" (Chapter 2, page 208, Alternatives Table). Also discussion about oil and gas leasable resources is missing from Table 2.9.4 Summary of Impacts for the Upper Black River Subunit.

- In 2012, the State legislature enacted the "Middle Earth Tax Credit" to encourage oil and gas exploration in selected highly prospective areas outside the North Slope and Cook Inlet. This tax credit program runs through 2016 and applies to many areas within a 100 mile radius around Fairbanks, including a significant portion of the planning area. It is timely to include reference to the State incentive programs legislated to promote increased exploration and interest in oil and gas resources in the planning area.
- The BLM assumptions about predicted disturbances and negative impacts from oil and gas leasing have not been proven for well-managed lands having resource potential. The State maintains that these assumed outcomes are not the case when permittees use new technologies and effective protections.
- If fracking were to occur in the Kandik basin in the southern portion of the upper Black River that there would be contaminants in the water supply in Black River when it gets to Chalkyitsik.
- In the Draft RMP (p. 423) the BLM says no seismic exploration is expected during the life of this plan, but then goes on to say there may be seismic exploration in the Upper Black River.
- The BLM needs to include a fluid leasable mineral analysis in section 4.3.1.4.1 under Minerals Management.

Response

The Upper Black River Subunit is primarily low occurrence potential for oil and gas based on data used in the BLM Mineral Potential and Occurrence Report. The high potential areas within this subunit are located primarily within the Yukon Charley Rivers National Preserve and on private land, not on BLM-managed lands. The Proposed RMP/Final EIS does not restrict access to State or Native corporation lands. Impacts to leasing in the Upper Black River Subunit are included in Table 2.9.1 Impacts Common to All Subunits.

The Middle Earth Tax Credit does not apply to federal lands and would not directly increase exploration potential on BLM-managed lands.

The BLM stands by the assumptions in the Proposed RMP/Final EIS. The statement about "well-managed lands" with resource potential needs some clarification and a specific example. Even with new technologies, the planning area is still remote and very expensive to explore. The two basins in this RMP have no proven Alaskan resources, with the Kandik Basin showing only a 42 percent probability that it contained at least one accumulation of technically recoverable oil or gas. The three exploration wells drilled in or near the Kandik on U.S. soil contained no oil or gas shows. The Yukon Flats Basin appears to have more potential with the Tertiary Sandstone play containing an 81 percent probability of at least one accumulation of technically recoverable oil or gas. However, the most productive portion of the basin lies within the Yukon Flats National Wildlife Refuge, with the BLM-managed lands on the periphery of the basin. Additionally, neither the Draft or Final EIS analyzes impacts from oil and gas leasing as our assumption is that no leasing would occur.

The BLM does not foresee development of leasable minerals on BLM-managed lands within the Kandik Basin during the life of this plan. Additionally, the RMP does not directly approve such activity. Additional permitting would be required. If the BLM considered permitting this

type of activity in the future, we would address the impacts of fracking in a separate impact analysis, which would include public input. If our decision were to allow leasing we would develop appropriate stipulations to mitigate potential impacts to water quality and other resources. Additionally the Proposed RMP (Alternative E) recommends closing lands in the Kandik basin to mineral leasing.

The document says, "Since it is assumed that no leasing, exploration drilling, or development will occur during the life of this plan, there would be no effects to cultural or paleontological resources at this time under any of the alternatives in any subunit. Seismic exploration could occur on high potential lands…"

Seismic exploration is different from exploration drilling. Exploration drilling cannot occur without a lease, and since it is assumed no leasing would occur, primarily due to restrictions from the ANCSA 17(d)(1) withdrawals, the only form of exploration that could occur on open lands is from seismic exploration.

The Proposed RMP/Final EIS addresses effects from leasable minerals to fish and aquatic species in sections 4.4.1.2, 4.5.1.2, 4.6.1.2, and 4.7.1.2.

L.4.15.1.3. Fluid Mineral Leasing Stipulations

Comment Number: EIRMP000000153C-13

Organization: Alaska Wilderness League and cosigners

Commenter Type: environmental organization

Summary

Within the leasing stipulations, the BLM fails to describe what it means by sufficient snow cover or the allowable types of vehicles or machinery used for exploration.

Response

The BLM will only authorize use of low ground pressure vehicles for exploration, similar to what is used in other parts of the state for winter oil and gas exploration activities. Sufficient snow cover is typically 6 inches with 12 inches of frost. SOP Soils-8 addresses winter overland moves.

L.4.15.2. Solid Leasable Minerals

Comment Number: EIRMP000000139-5, EIRMP000000139-7, EIRMP000000410-19, and EIRMP000000410-33

Organization: Northern Environmental Center and Gwichyaa Zhee Gwich'in tribal government

Commenter Type: environmental organization and tribe

Summary

- Will the BLM open any of the planning area to coal mining or oil shale leasing? None of the maps shows oil shale potential.

- Deferral of coal leasing does not preclude the potential for significant impacts on subsistence to occur at some time during the 20-year planning period, even if they may not occur immediately after the revocation of the withdrawals.

- With respect to oil shale, potassium, sodium, phosphate, and gilsonite, the BLM asserts there are "no known occurrences ... of commercial quantity on BLM lands, thus no exploration or development is anticipated" and "these decisions would have no effect" on subsistence or any other environmental impacts. The absence of "known occurrences" merely reflects a lack of data. It does not demonstrate that such resources do not exist, that their value is too low to justify the cost of accessing them, or that their development would have no impacts on subsistence.

Response

The RMP would not open any lands to coal leasing under any alternative. Depending on the alternative, some lands would be open to coal resource inventory and exploration, and oil shale leasing (section 2.6.3.5.2 Solid Leasable Minerals). There are no known occurrences of oil shale on BLM-managed lands in the planning area, thus there is nothing to display on the maps.

The RMP defers any decisions on opening lands to coal leasing. Coal leasing is deferred because the coal screening process has not been completed. A RMP amendment would be needed before coal leasing could occur. Therefore there would be no effect from this RMP. If in the future, there was interest from industry, and the BLM wanted to consider coal leasing, the coal screening process outlined in 43 CFR 3420.1-4 would be done to determine if the lands are suitable for coal leasing. Then the RMP would need to be amended to allow coal leasing. This amendment would be subject to the planning and decision process laid out in BLM's Land Use Planning Handbook, including analysis of impacts (EA or EIS), section 810 evaluation, public involvement, and opportunity for protest.

Since the BLM is deferring the decision on coal leasing to a future planning effort, the analysis of impacts associated with the decision is also deferred. NEPA only requires the analysis of activities that are reasonably foreseeable. Since an RMP amendment would be required before coal leasing could occur, it is not a reasonably foreseeable activity under the RMP.

The requirement for analysis of impacts under the NEPA is that agencies will make a good faith effort to explain effects that are not known, but are reasonably foreseeable. Reasonably foreseeable actions are those for which there are approved decisions, funding, formal proposals, or which are highly probable, based on known opportunities or trends (BLM National Environmental Policy Handbook H-1790-1). Agencies are not required to engage in speculation about future activities. Because there are no known occurrences of these types of minerals in the planning area, it would be speculative for the BLM to discuss impacts from development of these resources in the EIS.

L.4.15.3. Locatable Minerals

Comment Number: EIRMP000000091-1

Commenter Type: individual

Summary

The BLM owns a vast resource of active alluvial and alluvial bench placer deposits in the Fortymile district that were unnecessarily put into wild and scenic river designation. These restrictions should be lifted and individuals and companies should be allowed to commercially mine and recreationally mine these deposits.

Response

Lifting the wild and scenic designation on the Fortymile River is outside of the scope of the RMP. Alternative D analyzes the impacts of opening the scenic and recreational sections of the Fortymile Wild and Scenic River to mineral entry. The Proposed RMP (Alternative E) recommends keeping the Fortymile river corridor closed to new mining claims. Additionally, public land orders issued under ANCSA 17(d)(1) apply to the lands referenced in the comment. These public land orders can only be modified by the Secretary of the Interior or Assistant Secretary for Lands and Minerals.

L.4.15.3.1. Locatable Mineral Potential

Comment Number: EIRMP000000023-4, EIRMP000000023-6, EIRMP000000044-2, EIRMP000000075-3, EIRMP000000075-4, EIRMP000000077-1, EIRMP000000085-3, EIRMP000000094-16, EIRMP000000136-2, EIRMP000000094-18, EIRMP000000082-1, EIRMP000000084-1, EIRMP000000089-3, EIRMP000000023-5, EIRMP000000075-5, EIRMP000000132-1, EIRMP000000085-2, and EIRMP000000170B-1

Organization: Alaska Department of Natural Resources, Alaska Miners Association,

Commenter Type: state government, mining organization, individuals

Summary

- The approach taken by the BLM to catalogue the mineral resources of the planning area was insufficient. Recent reports and data resulting from high quality geoscience and exploration were not even cited or used. Geology and mineral potential do not stop at national borders and the recent discoveries of great new mineral deposits in the Yukon Territories were not factored into the BLM plan. The significance of Rare Earth Elements and Critical and Strategic Minerals to national security is not recognized. Additionally, the BLM study for mineral potential is based on gold and rare earth elements. However, significant discoveries and prospects of other minerals should be considered. For example Full Metal Zinc is exploring part of a zinc-lead-silver district in the Fortymile area and have significant discovery on Doyon land. Many under explored prospects of this type extend onto BLM lands such as in the Black River area. Vanadium, which is on the government critical and strategic minerals list, exhibit the highest assay values in the world (maybe with the exception of Madagascar) in a shale unit which is found on Doyon and BLM lands.

- Much currently available geoscience data were not considered and the USGS, America's experts, were not consulted during development of the Draft RMP. The RMP did not consider open mineral terranes, price fluctuations of commodities, nor current or historic mineral resource data and hypothesis. The Mineral Terranes of Alaska (1982) identified extensive granitic and otherwise mineral favorable terranes for uranium and associated metals including Rare Earths and otherwise strategic elements including tungsten. Although only a small part of any mineral terrane would actually contain an economic prospect, the much larger area

needs to remain open for appraisal. The BLM should work in house and with USGS to further define the mineral terranes.

- The USGS has more recent regional geologic map compilations and readily available files of all sediment, rock, concentrate, and soil geochemical sampling from the region. These and newer geologic references should have been used wherever applicable.
- In Alaska, many exploration projects are conducted by Canadian companies. Publicly-traded Canadian exploration companies are required to prepare Technical Reports for exploration projects in accordance with the requirements of National Instrument 43-101 ("NI 43-101 reports"). These reports provide the best contemporary information on the mineralization of individual prospects as well as the regional trends in which the prospects occur. Any professional assessment of the mineral resources and mineral potential of must include data from the NI 43-101 Reports from that area.

Response

Currently available data was considered during development of the Draft RMP and the Locatable Mineral Occurrence and Development Report which is available on line at: www.blm.gov\ak\eirmp. The most complete, up to date, and planning area wide dataset regarding mineral occurrences and development potential is the USGS's Alaska Resource Data Files (ARDF) database. Substantial weight was given to the ARDFs since they provide current and standardized information across subunit boundaries. All ARDFs, and Alaska Mineral Information System (AMIS) sites are based on historic mineral activity. Giving greater weight to documented mineral occurrences and both active and historical mining claims signify acknowledgement of actual mining activities. The 1982 Mineral Terranes maps were used, but were given a lower priority relative to ARDF locations and mining claim. Mineral terranes were also given a lower priority where they had limited access. Metal prices used were averaged over time. Prices did increase from the time of the 2009 analysis.

A complete geologic map is now available for the entire planning area and was considered during development of the Proposed RMP/Final EIS. Regarding regional geochemical sampling, the BLM assumes that the USGS will include significant sediment, rock, concentrate, and soil geochemical anomalies into the ARDF database.

NI 43-101 reports would be a good source for site specific mineral occurrences/deposits, but they are site specific. There is no easy means of searching for NI-43-101 reports geographically. It would be helpful if the commenter identified any specific mineral occurrences that were missed. Due to time and budget constraints the Alaska Resource Data File (ARDF) database was used for the basis of most of the mineral investigations. The ARDF database is the most current and standardized mineral dataset in Alaska. From the ARDF website: "The records in the database are generally for metallic mineral commodities only but also may include certain high value industrial minerals such as barite and rare earth elements." The Eastern Interior Mineral Occurrence and Development Potential Report does not cite every reference used in the ARDFs. The RMP relies on the ARDF to include the latest and most thorough literature review of each quadrangle. Individual sources, where cited, are included in the list of references for the mineral occurrence and potential report. Any bias in research would be created by reliance on the ARDFs. As for mineral potential trends crossing national borders, the trend in mineral occurrences and claim locations in Yukon Territory is carried across the border and through the planning area. If a rare earth mineral occurrence was significant enough to be an ARDF site it was recognized and given consideration. Full Metal Zinc's deposit and surrounding ARDF sites were identified

and assessed. These are included in the LWM High Mineral potential area. We are not aware of the High Vanadium assays in the Black River area, but we would like to find the reference where it is cited. The Eastern Interior Mineral Occurrence and Potential Development Report is available online at: www.blm.gov/ak/eirmp.

L.4.15.3.1.1. Mineral potential Black River

Comment Number: EIRMP000000149-6, EIRMP000000153C-30, EIRMP000000153C-47, EIRMP000000153C-49, EIRMP000000153E-34, EIRMP000000279-1, EIRMP000000141-11, EIRMP000000141-13, and EIRMP000000312-2

Organization: Alaska Wilderness League, Arctic Audubon, Black River Working Group, and Council of Athabascan tribal governments

Commenter Type: environmental organization, tribes, concern citizen's organization, and individuals

Summary

- The analysis states that under given alternatives 100 percent of the area may be open to mining, however little to no mining will occur in the Upper Black River subunit because of its remote nature, and therefore there will be no impact to subsistence. This logic is flawed. There is no evidence or cases or examples provided in this document that indicate an area opened 100 percent to mineral entry would not be explored or impacted.

- The Draft RMP says that there is very little likelihood of mining occurring in the Black River, but in the same paragraph it says that Doyon has made selections in that area based on mineral occurrences.

- There is no mention of the known distribution of mineral occurrences in the Upper Black River Subunit, information for which is available in the USGS OPEN-FILE REPORT 03-53, Alaska Resource Data File for Black River quadrangle. BLM's assumption of low or no mining potential is incorrect, and in fact there is high risk for serious environmental impact from mining as known occurrences may attract commercial development during the life of this plan. One known occurrence is an outcrop at the base of Pink Bluff about 50 feet from the south bank of the Salmon Fork of Black River, 0.2 mile downstream of the mouth of Runt Creek. Commercial development of this lead and zinc occurrence (within the proposed Salmon Fork ACEC and in close proximity to a potential Wild River designate) would be allowed in both Alternatives C and D. In order to protect fish habitat as well as the outstandingly remarkable values that qualify Salmon Fork for classification under the Wild and Scenic River Act, Alternative B which closes the entire subunit including the Salmon Fork ACEC to locatable minerals is our preferred alternative.

Response

With the relative lack of known mineral occurrences, no current mining claims, no historic mining claim locations, and no mining claims on any open adjacent State or Canadian lands, it is appropriate to assume there would be low interest in locatable minerals if withdrawals were lifted in the Upper Black River Subunit. There is little evidence that the BLM-managed lands in the Black River subunit ever attracted much locatable mineral exploration or development. Pre-withdrawal activity is one of the best indicators of future activity. There is no record of

mining claims on BLM-managed lands in the Black River Subunit before the withdrawals were put in place. The next best indication of future locatable mineral activity is the location of mining claims on adjacent state lands. There are no state mining claims on state lands in the area or any substantial activity across the Canadian border. The lack of historic activity or activity on open adjacent lands points toward there being limited future activity on BLM-managed lands if the withdrawals were lifted.

The passages the commenter identifies are contradictory and have been reworded in the Final EIS. It would be better stated that mineral potential may be a factor in land selections by both Native corporations and the State. Also, an area lacking any known mineral deposits, ARDF sites, or substantial mining claim activity is rightly assumed to have lower mineral potential. The lands were open and available for exploration and location into the early 1970s, but there is no evidence of claims being located or other mining activities at that time and there has been little significant minerals related activity on the open lands surrounding the lands since.

The BLM is unaware of any economically viable mineral occurrences in the Upper Black River area. There are a handful of ARDF sites but none of them were specified as having high mineral potential or containing reserves and no significant surface disturbing developments are anticipated during the life of this plan. The ARDF mineral occurrence locations are available in the Eastern Interior Mineral Occurrence and Development Potential Report which can be downloaded from the Eastern Interior RMP website. The referenced mineral occurrence, an isolated gossaneous zone 2 feet wide by 60 feet long in the middle of the Upper Black River Subunit does not have significant mineral development potential and we would not foresee a mining operation developing within the life of this plan. This base metal occurrence is too far from established transportation to be considered to have substantial development potential.

L.4.15.3.1.2. Nick Property

Comment Number: EIRMP000000094-17

Organization: Alaska Miners Association

Commenter Type: mining organization

Summary

The Black River area has geology directly comparable to that of the adjacent Yukon, which contains deposit types and elements not referred to in the Draft RMP. For example, the Nick property (Yukon Minfile #106D092) contains Nickel, Zinc and Platinum Group element mineralization in shales and sedimentary rocks in a geologic formation that extends into Alaska. Similarly, belts of regionally elevated chromium values occur in the Yukon derived from Paleozoic sedimentary basin rocks which extend into Alaska but have not yet been prospected here. The Draft RMP does not acknowledge these belts.

Response

The Nick property is about 200 miles from the Black River area and there is no evidence of exploration or development of any similar occurrences near or in the subunit; neither on surrounding state and native corporation lands nor on adjacent lands in Canada. Any continuity with Canadian deposits would have to be based on documented mineral occurrences or at least mining claims within a reasonable distance from the border. The closest occurrences to the

Black River subunit is an isolated claim block about 17 miles east of the border that contains the Rusty Springs Prospect. That silver and base metal deposit has had limited activity in the last decade. This occurrence does not lend itself to an interpretation of higher mineral development potential within the Black River Subunit.

L.4.15.3.1.3. Mineral Potential Methodology

Comment Number: EIRMP000000094-17

Organization: Alaska Miners Association

Commenter Type: mining organization

Summary

The Alaska Mining Association supports the minerals provisions of Alternatives C and D for the Upper Black River Subunit, to the extent that they provide for all lands in this subunit to be open to access for prospecting, mineral exploration, claim location, and mine development. This is especially appropriate for the Upper Black River because this remote area has seen little exploration using modern exploration methods and technology. The mineral potential of this area remains largely unknown, although the area contains favorable geologic terranes for minerals. These terranes are clearly depicted in the Revised 1987 Mineral Terranes and Selected Mineral Occurrences in the Black River Region.

Response

The mineral potential of the entire planning are is normalized based on available information. The basis of the mineral potential provided in the USBM OFR 87-78 is not on par with other areas where substantially higher quality and quantity of minerals exist. The mineral locations provided in the referenced mineral terrane report are identified in the ARDF dataset. The descriptions provided in the ARDFs do not show that there is minerals industry interest or minerals of such a character to be considered medium potential.

There is little evidence that BLM-managed lands in the Black River subunit ever attracted much locatable mineral exploration or development. Pre-withdrawal activity is one of the best indicators of future activity. There is no record of mining claims on BLM-managed lands in the Upper Black River Subunit before the withdrawals were put in place in the 1970s. The next best indication of future locatable mineral activity is the location of mining claims on adjacent state lands. There are no state mining claims on state lands in the area or any substantial activity across the Canadian border. The lack of historic activity on BLM-managed lands or activity on open adjacent lands points toward there being limited future activity on BLM-managed lands if the withdrawals were lifted.

L.4.15.3.1.4. Tintina Gold Belt

Comment Number: EIRMP000000080-1, EIRMP000000124-2, and EIRMP000000136-3

Commenter Type: individuals

Summary

The planning area truncates a major mineralized belt known as the Tintina Gold Province with active mines to the west and easterly across the Canadian border. This trend continues through the planning area making it highly prospective for economic mineral deposits. The major difference between The Yukon Gold Rush and more Western Alaska Developments and the Eastern Interior is the availability of lands open for mineral exploration.

Response

It would not be unreasonable to declare the entire Tintina Gold Belt as having medium mineral development potential, but the BLM defined criteria of High Potential areas was having known minerals and industry interest. The criterion for Medium Potential was having known minerals or mining industry interest. High mineral potential areas (Map 88) extend from the Canadian Border toward Fairbanks and are outlined where mineral occurrences are located and past activities have taken place.

L.4.15.3.2. Impact Analysis

Comment Number: EIRMP000000153F-8 and EIRMP000000307-1

Organization: Alaska Wilderness League and cosigners

Commenter Type: environmental organization

Summary

The Draft RMP failed to address indirect or cumulative impacts of a mineral leasing program's new roads or other access routes for commercial mining. Although the RMP estimates that 20 miles of new roads could be constructed for placer mining, these are not shown nor are their effects evaluated; the BLM did not analyze the direct impacts of commercial development of rare earth elements or hardrock mining, including decreased water quality, loss of riparian habitat, stream degradation, fisheries impacts, or noise disturbance to wildlife and recreation.

Response

Both direct and indirect impacts of mining are analyzed in Chapter 4 of both the Draft RMP/EIS and the Proposed RMP/Final EIS and in Chapter 3 of the Supplement to the Draft RMP. For example, impacts from suction dredging and placer mining to fish and aquatic habitats are analyzed in sections 4.3.1.4, 4.4.1.2, 4.5.1.2, and 4.7.1.2 of the Draft RMP/EIS. The BLM does not anticipate any lode mining on BLM-managed lands over the life of the plan. Regarding leasable minerals, exploration would have to occur before there was any thought of development for oil and gas. Exploration is not limited to existing roads, as it can occur during the winter months without road construction. Development level activities are when existing infrastructure would be most useful. However, the BLM does not foresee any development of oil and gas resources over the life of the plan on BLM-managed lands. There is limited to no occurrence of leasable minerals (oil and gas or coal) in the Fortymile Subunit. Additionally, the RMP would not open the area to coal leasing. Impacts from seismic exploration are evaluated for the Steese and Upper Black River subunits. Impacts from hardrock mineral leasing for rare earth minerals was analyzed in the Supplement to the Draft RMP for the White Mountains. The Proposed RMP (Alternative E) does not recommend opening the White Mountains to hardrock mineral leasing.

L.4.15.3.3. Stream Buffers

Comment Number: EIRMP000000153-38, EIRMP000000153B-47, EIRMP000000153D-3, EIRMP000000153D-4, EIRMP000000163-49, EIRMP000000163-83, EIRMP000000163-87, EIRMP000000163B-137, EIRMP000000163B-62, EIRMP000000163B-7, EIRMP000000164-18, EIRMP000000164-22, EIRMP000000164-26, EIRMP000000164-28, EIRMP000000164-32, EIRMP000000164-34, EIRMP000000164-41, EIRMP000000164-45, EIRMP000000164-46, EIRMP000000164-47, and EIRMP000000164-65

Organization: Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: environmental organization and federal government

Summary

- The Draft RMP states that riparian stream buffers are effective at protecting aquatic habitat and fish resources. BLM Alaska has required the use of stream buffers on past mining authorizations and also included stream buffers as a method to protect aquatic habitat in the Kobuk-Seward Peninsula and Bay RMPs. Additionally, the Eastern Interior Draft RMP proposes the use of stream buffers to help protect fish and aquatic habitat from the impacts of timber harvest (ROP Forest-2) and to protect sensitive plant communities. Riparian stream buffers serve to minimize instream and riparian disturbance, reduce sediment loads and thus help maintain water quality and fish, aquatic and wildlife habitat. The BLM should consider the application of stream buffers for mining in the Final RMP as a viable mechanism to maintain riparian function and meet the desired conditions identified for fish and aquatic habitat.

- Stream buffers could be applied to lands currently withdrawn from mineral entry without being construed as a "taking" under the Mining Laws. The use of stream buffers would also allow for some mining to take place outside of the buffer thereby meeting BLM's requirement to manage for multiple-use.

- Given the long period of time necessary to rehabilitate stream environments to a level that would meet BLM's desired conditions for Fish and Aquatic Resources (best estimates suggest multiple decades) a buffer of 300 feet should be applied to all streams under all alternatives and compensatory mitigation should (43 CFR 3809.5- Mitigation) be applied in cases involving valid existing rights.

Response

Given the access rights associated with mining claims, stream buffers were not considered the best avenue for limiting the effects of placer mining. The alternatives in the Proposed RMP/Final EIS recommend mineral withdrawal of watersheds rather than buffers. Buffers may be applied on a voluntary basis on valid existing rights. Section 2.6.1 of the Proposed RMP/Final EIS discusses mitigation.

L.4.15.3.4. Management of Mining

Comment Number: EIRMP000000401-2, EIRMP000000223-1, EIRMP000000172-1, EIRMP000000166-1, and EIRMP000000166-2

Organization: Gwichyaa Zhee Gwich'in tribal government, Alaska Wilderness League and cosigners

Commenter Type: tribes and environmental organizations

Summary

If the Upper Black River Subunit was opened to mining, people could stake claims just to establish a hunting camp in the area. This would negatively impact subsistence users. These impacts should be analyzed in the EIS.

Response

Mining claims and the activities on them must be for the purpose of maintaining, prospecting, or developing a valuable mineral deposit. All activities that occur on the claim must be reasonably incidental to mining. Therefore, staking a mining claim to establish a hunting camp is not allowed by law or regulation. Since the BLM does not have the authority to approve illegal activities, it is not appropriate to analyze in the EIS.

L.4.15.3.5. Valid Existing Rights

Comment Number: EIRMP000000126-5

Organization: Fortymile Miners Association

Commenter Type: mining organization

Summary

Both current and proposed management plans contend "nothing in this act shall supersede valid existing rights. Establishing validity [of mining claims] is a 10+ year process. Consequently, the BLM does not recognize valid existing rights in practice as most small miners cannot wait 10 years to commence mining. The inconsistency between mandate and practice is an item of contention that must be resolved.

Response

Valid – existing – rights together refer to a possessory right to the valuable minerals located within a mining claim that was properly located and maintained. Mining claims have valid existing rights if a discovery is made on the claim before the date of a withdrawal and the claim continues to support a discovery. A 1983 Doyon, Limited IBLA decision states that until a discovery of a valuable mineral deposit is proven, an existing right is not yet valid. Until a patent is issued for a mining claim it is federal land and the BLM is obliged to manage it to prevent unnecessary or undue degradation by ensuring it contained a discovery at the time of withdrawal and still contains a discovery to this day.

L.4.15.4. Salable Minerals

Comment Number: EIRMP000000153E-46, EIRMP000000410-35, and EIRMP000000411-35

Organization: Alaska Wilderness League and cosigners, Gwichyaa Zhee Gwich'in tribal government, and Alaska Department of Natural Resources

Commenter Type: environmental organization, tribe, and state government

Summary

- No portion of the White Mountains ACEC should be open to salable minerals. This use is inconsistent with the definition of an ACEC as mineral development does not 'protect' or 'prevent' prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes as required management practice in an ACEC.

- The Upper Black River Subunit, or at a minimum, the ACECs and RCAs should be closed to salable mineral development because such sales are inconsistent with management objectives of these conservation-oriented designations. Furthermore, these activities would have serious adverse consequences for the pristine lands and wild resources throughout the Upper Black River Subunit that are essential for sustaining Gwich'in culture, heritage, and subsistence way of life.

Response

If the BLM received an application for a mineral material sale in the White Mountains we would analyze impacts from such a sale through the NEPA process. If this analysis determined the impacts were unacceptable, the proposal would be modified to reduce impacts to an acceptable level. We anticipate few if any material sale requests in the White Mountains NRA. The Proposed RMP (Alternative E) does not designate a White Mountains ACEC.

The Proposed RMP (Alternative E) opens the entire Upper Black River Subunit to salable minerals to provide for management flexibility although few, if any, sales are anticipated. Mineral sales are almost always located adjacent to roads and there are no roads in the Upper Black River Subunit. Nor is the BLM aware of any roads proposed for this area. Even in areas with roads, there are few mineral sales on BLM-managed lands as there are ample sand, gravel, and rock resources on State and private lands. We would evaluate any proposed sales for environmental impacts under NEPA and for impacts to subsistence under Section 810 of ANILCA in consultation with tribes. RCA and ACEC values would be considered during this analysis. If this analysis determined the impacts were unacceptable, we would modify the proposal to reduce impacts.

L.4.16. Withdrawals

Comment Number: EIRMP000000161-10, EIRMP000000161-8, EIRMP000000161-11, EIRMP000000161-33, and EIRMP000000161-9

Organization: Citizen's Advisory Commission on Federal Areas and Alaska Department of Natural Resources

Commenter Type: state advisory committee and state government

Summary

- More clarity on the issue of withdrawals is needed in the final RMP and record of decision. The BLM should consider including a separate appendix that address the issue of withdrawals, how existing withdrawals will be handled in the various alternatives, and whether new or additional withdrawals are proposed in one or more of the alternatives. The RMP should

clearly identify all existing Public Land Orders in the planning area, including justification for retaining or modifying the existing orders. The plan should stipulate a time frame for withdrawal revocation and an expiration date for withdrawals. In addition, the final RMP needs to clearly map all ANCSA 17(d)(1) withdrawals.

- Section 606 of ANILCA withdraws lands within 1/2 mile of the bed and banks of wild segments of the Fortymile and Birch Creek Wild and Scenic rivers. The RMP does not state which lands within the Wild and Scenic River corridors are not included in the ANILCA section 606 withdrawal. It is not clear if this proposed action to withdraw lands within the Fortymile and Birch Creek corridors represents the retention of the existing withdrawals or a new withdrawal. The final plan should specify the acreage figures for each of the proposed closure areas.

Response

The BLM has added more detailed information on withdrawals to the Proposed RMP/Final EIS. See section 3.3.8, Appendix G and Maps 90-93. Withdrawals under the authority of FLPMA must be renewed every twenty years. Maps of the ANCSA 17(d)(1) withdrawals are available on the BLM Alaska website at www.blm.gov/ak. Specific legal descriptions will be developed when the withdrawals are modified or revoked.

When the final river corridors were designated, they were protracted to the nearest quarter section. As a result, there are parts of the designated river corridors that are more than 1/2 mile from the bed and banks, and thus not covered by the section 606 withdrawals. Public Land Order (PLO) 5179 which withdrew lands within one mile of the beds and banks of the rivers would be retained until such time as a new FLPMA withdrawal that covers any pieces of the designated river corridors that are not withdrawn under section 606 can be enacted. Once this new FLPMA withdrawal is in place, PLO 5179 would be modified or revoked. The Proposed RMP/Final EIS was edited to better delineate specific acreages for closure areas.

L.4.16.1. Revoke ANCSA Withdrawals

Comment Number: EIRMP000000023-2, EIRMP000000044-7, EIRMP000000075-1, EIRMP000000088-1, EIRMP000000094-6, and EIRMP000000045-3

Organization: Alaska Miners Association, Jade North LCC, Fortymile Miners Association, and Citizen's Advisory Commission on Federal Areas, Alaska Department of Natural Resources

Commenter Type: individuals, Industry, mining organizations, state government, and state advisory committee

Summary

The ANCSA 17(d)(1) withdrawals were implemented to enable now-completed Alaska Native land selections or to study lands to be withdrawn from the public domain for conservation purposes. In the latter case, ANILCA established the conservation units. The purpose for these withdrawals no longer exists. Current federal mining claims total approximately 25,000 acres, so BLM-managed lands open to mineral development are a very insignificant (0.0039 percent) percentage of the planning area. In order to meet BLM's multiple use mandate under FLPMA, the RMP should recommend that the ANCSA 17(d)(1) withdrawals be revoked and all remaining lands be opened to mineral entry, claim location, and leasing.

The BLM's 2006 report to Congress recommends maintaining the ANCSA 17(d)(1) withdrawals for the Steese National Conservation Area and the White Mountains NRA "until their existing RMP 's are reviewed and updated to reflect current management objectives." Lifting the ANCSA 17(d)(1) as proposed in Alternative D will provide for a reasonable level of use and development of the resources in these areas while protecting the other values, including recreation and the other purpose for which the areas were designated.

Response

The BLM recognizes that the ANCSA 17(d)(1) withdrawals need modification. The Proposed RMP (Alternative E) recommends partial revocation of ANCSA 17(d)(1) withdrawals on approximately 1.7 million acres (26 percent of BLM-managed lands in the planning area) to open these lands to mineral entry. In areas of critical environmental concern where the RMP determined that additional resource protection is needed, the Proposed RMP (Alternative E) recommends retaining the ANCSA 17(d)(1) withdrawals until a new withdrawal can be put into place under FLPMA. Additionally, congressional withdrawals under ANILCA would remain in the White Mountains NRA, Steese National Conservation Area, and Birch Creek, Beaver Creek, and wild segments of the Fortymile Wild and Scenic River.

L.4.16.2. Retain ANCSA Withdrawals

Comment Number: EIRMP000000055-4, EIRMP000000153-21, EIRMP000000153-37, EIRMP000000153B-5, EIRMP000000164-48, EIRMP000000153F-1, EIRMP000000153F-12, EIRMP000000153F-19, and EIRMP000000254-2

Organization: Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: environmental organization, federal government, and individuals

Summary

All ANILCA, ANCSA(d)(1) and other withdrawals should remain in place for the White Mountains NRA, Steese National Conservation Area, Upper Black River area, and Fortymile Subunit, including the Fortymile WSR, to keep them closed to locatable mineral entry and mineral leasing. The BLM does not have adequate information to make sound decisions to alter permanently the future management of this region by allowing mining and mineral leasing. Other reasons cited for retaining closures to mining included: potential for severe adverse impacts to subsistence resources and water quality; incompatibility of mining with public outdoor recreation benefits and conservation values; and the importance of the Washington Creek area for subsistence and trapping area for Eagle residents.

Response

Under the Proposed RMP (Alternative E), the White Mountains NRA and Steese National Conservation Area would be closed to mining and mineral leasing. Additionally, this alternative recommends: Closing the Salmon Fork ACEC, Black River watershed and riparian conservation areas, 1,813,000 acres in the Upper Black River Subunit, to both mining and mineral leasing; and, closing 745,000 acres in the Fortymile Subunit, including the Fortymile WSR corridor in its entirety, to both new mining and mineral leasing. Mining could still occur on valid existing mining claims in closed areas. Retain the ANCSA withdrawals in areas ANILCA withdrawals do not cover until a new withdrawal could be enacted under FLPMA.

The Proposed RMP (Alternative E) would recommend removing ANCSA withdrawals in the Washington Creek area. However, until the Secretary of the Interior acts, this area would remain closed to mining.

L.4.16.3. Retain Withdrawals in White Mountains NRA

Comment Number: EIRMP000000153-63

Organization: Alaska Wilderness League and cosigners

Commenter Type: environmental organization

Summary

Existing mineral withdrawals should remain in place within the entire White Mountains NRA because if any mining, roads, and other development were allowed, this would greatly reduce public enjoyment. Current withdrawals include: PLO 5180, ANILCA Section 1312(b), the Wild and Scenic Rivers Act.

Response

Section 2.10.2.4.2.7 discusses withdrawal recommendations in the White Mountains. Withdrawals under section 1312(b) of ANILCA and the Wild and Scenic Rivers Act are congressional withdrawals and the BLM does not have the authority to remove them. The BLM would recommend removal of PLO 5180 to remove duplicate withdrawals and simplify the public land record. The White Mountains NRA and Beaver Creek would remain withdrawn from mineral entry and closed to mineral leasing.

L.4.16.4. Retain Withdrawals in Steese National Conservation Area

Comment Number: EIRMP000000153-40, EIRMP000000153D-13, EIRMP000000153D-31, and EIRMP000000161-7

Organization: Alaska Wilderness League and cosigners and Citizen's Advisory Commission on Federal Areas

Commenter Type: environmental organization and state advisory committee

Summary

- The Proposed RMP should retain the ANILCA withdrawal from mining in the Steese National Conservation Area because it is the only National Conservation Area in Alaska; the BLM should prioritize and protect existing uses such as hiking, birding, camping, horseback riding, skiing and responsible OHV use. Based on the information given regarding the downward trend of fish and aquatic species, new mineral entry should not be allowed in the Steese National Conservation Area. Mineral entry is not consistent with the protection of the resources and environmental quality of the National Conservation Area.
- Lifting the ANCSA 17(d)(1) withdrawals in the National Conservation Area will provide for a reasonable level of use and development of the resources in the Steese National Conservation Area while protecting the other values, including recreation and the other purpose for which the areas were designated.

Response

The Proposed RMP (Alternative E) recommends maintaining the ANILCA withdrawals for the Steese National Conservation Area. It also recommends to the Secretary that the ANCSA 17(d)(1) withdrawals (PLOs 5180 and 5179) be removed from the Steese National Conservation Area. These withdrawals are duplicative of the ANILCA withdrawal and thus not necessary. Additionally PLO 5180 does not close the National Conservation Area to location of metalliferous mining claims (such as gold), so its protective effect is limited. Removing the 17(d)(1) withdrawals would clean up the public land record by removing duplicative withdrawals. Lifting the 17(d)(1) withdrawals would not allow for new mining claims in the Steese National Conservation Area as it would remain withdrawn from mining by ANILCA.

L.4.16.5. Retain Withdrawals in Upper Black River

Comment Number: EIRMP000000153C-46, EIRMP000000215-1, EIRMP000000401-3, EIRMP000000402-2, and EIRMP000000402-3

Organization: Alaska Wilderness League and cosigners, Gwichyaa Zhee Gwich'in tribal government

Commenter Type: environmental organization and tribe

Summary

- Gwichyaa Zhee Gwich'in tribal government requests that the ANCSA 17(d)(1) withdrawals remain in place until the BLM: Completes cultural and biological studies (including the Salmon River and the Grayling Fork), proves there are no endangered species or rare plants, and completes an inventory of the fish populations. The use of fish, wildlife and other subsistence resources are the most prevalent uses in the Upper Black River Subunit, relied upon by nearly all residents, and protection of these resources was the highest concern during scoping meetings (Draft RMP/EIS p. 1165). By opening almost the entire area to mineral entry in the Alternative C the BLM is creating a conflict rather than resolving or being responsive to the concerns of the local communities.

- It is premature for the BLM to recommend revocation of the ANCSA withdrawals and opening lands to mineral development. The conveyance of State- and Native-selected lands and the purposes for which those entities use the lands they acquire will have a significant bearing on whether future mineral development is suitable and appropriate on the remaining adjacent BLM lands. An assumption that these lands will remain under BLM management is not a reasonable basis for moving forward with revocation of ANCSA withdrawals.

Response

The Proposed RMP (Alternative E) recommends that ANCSA withdrawals remain in place on 1,813,000 acres in the Salmon Fork ACEC, Black River watershed, and riparian conservation areas (including Grayling Fork) until new withdrawals could be enacted under FLPMA. Also, the Proposed RMP (Alternative E) recommends 547,000 acres be opened to mining. However, only the Secretary of the Interior or the Assistant Secretary for Lands and Minerals can open the area to new mining. Withdrawals would remain in place until the Secretary chose to take action. Additionally, the State selected some of these lands. Selected lands are segregated (closed to) the

mining laws. Selected lands would remain closed to mining and leasing until they are conveyed or the selections are dropped.

The BLM assumes that both Doyon, Limited, and the State selected lands primarily for economic development potential, including mineral values and access. Remaining Doyon selected lands in the Upper Black River Subunit (11,000 acres) constitute less than 1 percent of the BLM-managed lands in the subunit and are immediately adjacent to lands already owned by Doyon. The State has currently ranked State-selected lands in the subunit as very low priority for conveyance. The assumption that these lands will likely remain under long-term BLM management is not the basis for recommending revocation of withdrawals.

L.4.16.6. Authority to Retain ANCSA Withdrawals

Comment Number: EIRMP000000161-14 and EIRMP000000412-42

Organization: Citizen's Advisory Commission on Federal Areas and State of Alaska

Commenter Type: state advisory committee, state government

Summary

- The BLM should actively pursue implementation of recommendations made in the record of decision with regard to withdrawals by actively pursuing recommendations with the Secretary of the Interior. In addition, making the lifting of ANCSA (d)(1) withdrawals conditional upon securing new withdrawals for a completely different purpose, is inappropriate and legally questionable.
- ANILCA designated the Fortymile WSR and determined that, subject to valid existing rights, only the wild segments are withdrawn from mining and mineral leasing (Section 606(a)(2)). An administrative decision to retain ANCSA withdrawals that are contrary to ANILCA to enhance protection beyond that provided by both ANILCA and the WSR Act is legally questionable.

Response

For areas the records of decision recommends open to mining, the BLM will recommend that the Secretary of the Interior remove the ANCSA withdrawals. Implementation of the RMP will be contingent upon funding, staffing, and workload priorities. The BLM has determined that retaining ANCSA (d)(1) withdrawals until securing new withdrawals under FLPMA is legally sound.

Although ANILCA withdrew only the wild segments of the Fortymile WSR from mining and mineral leasing, it did not lift the (d)(1) withdrawal or prohibit the imposition of a new FLPMA withdrawal in the recreational and scenic segments. Under the Proposed RMP (Alternative E) the BLM has determined that protection of water quality and river values is warranted in those segments and such withdrawals are in accord with ANILCA and Secretarial withdrawal authorities.

L.4.16.7. Eagle Recreational Withdrawal

Comment Number: EIRMP_supp-0-12051-1, EIRMP000000110-1, EIRMP000000110-2, EIRMP_supp-0-12051-2, EIRMP000000333-7, and EIRMP000000334-4

Commenter Type: individuals

Summary

A few commenters supported retention of the Eagle Recreational withdrawal (PLO 3432). Reasons for retention include the presence of BLM staff in Eagle and a concern that if the BLM transfers these lands to the State of Alaska, they might be included in future state land sale programs. Potential impacts from conveyance included a negative impact on the quality of life for local residents and alteration of the historical nature of the area.

A few commenters gave limited support for modification of PLO 3432 (Eagle Recreation withdrawal) to allow for expansion of the existing gravel pit. Residents recognized a need for good quality gravel in Eagle, but commenters also voiced a desire for additional site-specific input on how the BLM would modify the withdrawal and reclamation standards for the gravel pit.

Response

The Proposed RMP (Alternative E) recommends retention of PLO 3432 with possible modification of the boundary to allow for expansion of the existing BLM gravel pit in Eagle. Local residents appeared supportive of this decision and the State did not indicate a strong interest in gaining title to these lands. The BLM will seek additional public input during the withdrawal modification process.

L.4.17. Recreation

L.4.17.1. Recreation Setting Character

Comment Number: EIDRMP_EM_000000018-1, EIRMP000000055-1, EIRMP000000055-5, EIRMP000000153E-3, EIRMP000000043-2, EIRMP000000153-60, EIRMP000000153-62, EIRMP000000153E-4, EIRMP000000153-46, EIRMP000000153E-1, and EIRMP000000153-60

Organization: Alaska Wilderness League and cosigners

Commenter Type: individuals and environmental organization

Summary

In the White Mountains NRA and Steese National Conservation Area, the RMP should not reduce the extent of areas classified for Primitive and Semi-Primitive recreation. The changes proposed in the Draft RMP reduce the primitive management areas. The Draft RMP does not provide an adequate range of alternatives for recreational management because none of the action alternatives proposes as much area classified as primitive and semi-primitive as under the current plans. These changes and those referenced in Appendix H do not contain any data on existing uses from surveys or other means of addressing these designations. The RMP does not clearly explain the recreation issues that the BLM is addressing through these changes.

Response

The recreational opportunity spectrum has expanded since development of the existing RMPs to include management for primitive forms of recreation in the Backcountry classification. The Backcountry classification provides for management of some motorized trails, but retains a less developed or more primitive recreational facilities. This management is similar to the current management described as primitive in the No Action Alternative (A). Adding a more robust

spectrum of recreational opportunities allows the BLM to be more responsive to the updated outcome based recreational studies for the affected areas. The data we used to develop and update the Recreation Setting Character matrix (formally known as Recreational Opportunity Spectrum) are directly related to the Benefits Based Management studies conducted by the University of Alaska Fairbanks (Fix 2007).

L.4.17.2. Special Recreation Management Areas

Comment Number: EIRMP000000170-31, EIRMP000000161-30, and EIRMP000000153F-15

Organization: Alaska Department of Natural Resources, Citizen's Advisory Commission on Federal Areas, and Alaska Wilderness League and cosigners

Commenter Type: state government, state advisory committee, and environmental organization

Summary

- Each proposed special recreation management area (SRMA) includes one or more ANILCA designated unit(s). These ANILCA units were created for various purposes, to provide for certain activities and to protect a range of resources. Recreation was certainly one of the purposes for which these units were created, but it is not the only purpose or, even in the case of the White Mountains NRA, the primary purpose. In addition, the three Wild and Scenic Rivers and the Steese National Conservation Area are components of BLM's National Conservation Lands (also known as the National Landscape Conservation System or NLCS). Adding another administrative designation on top of the existing statutory designations serves no real purpose and may actually detract from the ANILCA mandated purposes for these areas.
- The Fortymile SRMA in Alternative C is roughly one-third the size of the SRMA in Alternative B, reducing the SRMA, without justification by 543,000 acres.

Response

When considering the recreational opportunities and management options, the BLM needs to consider designation of SRMAs. This is first done by assessing the demand for recreation, levels of existing recreational use, and the unique recreational values of the area under consideration. The ANILCA designated areas do coincide with the SRMAs in the current RMPs as well as the Proposed RMP/Final EIS. The ANILCA designation does not meet the land use planning requirement for identifying recreation management areas. The BLM process requires development of recreation objectives and a step down plan to meet those objectives. These objectives should identify the necessary management actions and allowable uses for the recreation management area. We must also consider extensive recreation management areas (none are identified in this RMP) or other lands (undesignated), which do not apply any recreational focus or management objectives.

During the planning process, the BLM must consider a range of reasonable alternatives. The range in acreage for an administrative designation such as the Fortymile SRMA is both reasonable and consistent with this process.

L.4.17.3. Special Recreation Permitting

Comment Number: EIRMP000000333-2

Commenter Type: individual

Summary

The Seventy-mile River area [in the Fortymile Subunit] is incredibly important for guided mushing tours which are really low impact on the land.

Response

This area is not designated as an SRMA but this does not preclude the operation of commercial recreational opportunities. Recreational management in this area will be custodial in nature, however ROWs or other land use permits would be analyzed through the NEPA process to mitigate impacts to the resources in the area.

L.4.17.4. Trapping

Comment Number: EIRMP000000170-22

Organization: Alaska Department of Natural Resources

Commenter Type: state government

Summary

The RMP proposal to prohibit trapping and placement of bait or scents within one-quarter mile of developed sites, including trails, on all lands conflicts with decisions elsewhere in the RMP to allow trapping up to 25 feet from the trail. The one-quarter mile limit excessively restricts trapping and unnecessarily limits trapping opportunities on BLM-managed lands. Furthermore, the Board of Game is the appropriate venue for changes to trapping regulations, not a planning process.

Response

Language in the RMP regarding trapping and placement of bait within one-quarter mile of developed sites was revised to clarify. Trapping and placement of bait or scents restrictions will be consistently applied to a quarter mile or more from developed sites throughout the planning area, with an additional limitation to 25 feet or more off of the developed trails in the White Mountains NRA. This allows for safe passage of all users in all circumstances. The provision for the White Mountains takes into consideration the number of user-created snow trails off the established and well-traversed trail system, and safety issues related to those user-created trails. Trappers can access their trap lines without the use of snowmobiles; this creates fewer opportunities for users to mistake a trail to a trap for an established trail. The BLM can apply restrictions on the placement of traps or bait for the purposes of protecting the safety of public land users near developed recreational sites. These restrictions do not prevent public land users from trapping on public lands.

L.4.18. Travel Management

Comment Number: EIDRMP_EM_000000016-2, EIDRMP_mail_000000007-1, EIDRMP_mail_000000034-1, EIRMP000000161-19, EIRMP000000043-1, EIRMP000000153E-9, EIDRMP_EM_000000018-2, EIDRMP_PM_000000001-2, EIRMP000000153-44,

EIRMP000000161-24, EIRMP000000170B-20, EIDRMP_PM_000000014-1, EIDRMP_PM_000000014-2, EIDRMP-1-19611-1, EIRMP000000153F-13, EIRMP000000157-8, EIRMP000000161-23, EIRMP000000170-12, EIRMP000000170B-19, EIRMP_supp-0-12101-5, EIRMP000000171-1, EIRMP000000177-1, EIRMP000000178-1, EIRMP000000396-1, EIRMP000000344-2, EIRMP000000199-2, EIRMP000000198-3, EIRMP000000153E-37, EIRMP000000067-1, EIRMP000000046-2, EIRMP_supp-1-20962-2, EIDRMP-1-20765-2, EIDRMP_mail_000000027-1, and EIDRMP_EM_000000016-1

Organization: Citizen's Advisory Commission on Federal Areas, Alaska Wilderness League and cosigners, Alaska Department of Natural Resources, Eastern Interior Federal Subsistence Regional Advisory Council, Alaska Outdoor Council, and Alaska Outdoor Access Alliance

Commenter Type: state advisory committee, federal advisory committee state government, individuals, recreation access organization, and environmental organization

Summary

There were numerous comments on travel management from various viewpoints.

- The BLM needs to create travel management plans for all areas.
- The BLM does not currently have sufficient data to do travel management planning.
- Weight limits on off highway vehicles proposed in the RMP are too restrictive. Argos and other wider track machines do less damage than wheeled vehicles. There is no evidence to support that Argos or other larger tracked vehicles do more damage than ATVs.
- Current OHV restrictions are working, don't change them.
- The BLM needs to clarify RMP travel terminology and ensure travel maps are consistent.
- Some areas should remain non-motorized. BLM should put a greater emphasis on providing non-motorized trails.
- The BLM should expand the trail system if proposing to limit vehicles to designated trails.
- The BLM should make stronger efforts to maintain designated and marked trails, and prevent increases in unapproved and undesignated trails.
- There is a lot of access to the Fortymile Subunit off the Taylor Highway. The current levels allow for subsistence access; however travel management decisions should consider land ownership patterns to ensure that BLM decisions are consistent with adjacent lands.
- The BLM should delay any recreation management zones or recreational opportunity spectrum determinations until the travel management plan is done.
- Travel management routes need to take into consideration safety and suitable terrain. Some trails are cannot support use in all seasons and some trails lead to increased access in areas that cannot support a higher level of OHV use.
- Current travel routes are not sustainable and have heavy damage. Creating more may mean more damage if all the use is in concentrated on trails.

- Limiting ATV travel to existing or designated routes while allowing off trail game retrieval as proposed by the Draft RMP will not be easily enforceable, cause more user-created trails, and result in trail proliferation.
- Designated trails will hamper hunting access and concentrate hunters camping around trails resulting in conflicts between user groups and increased damage to existing trails.

Response

The BLM has determined that additional data is needed to complete a comprehensive travel management plan for the Fortymile, Steese, and White Mountains subunits including a determination of designated or existing trails. The RMP will designate areas as Open, Limited and Closed to motorized travel activities as part of the land use planning process (43 CFR 8340.0-5(f), (g) and (h). As part of the step down planning process, the BLM will develop comprehensive travel management plans to determine limitations in areas designated Limited. The BLM will implement interim travel limitations in the Proposed RMP (Alternative E) through the supplemental rule process. We will conduct a full public process including publishing a *Federal Register* Notice, holding hearings, and addressing any access issues under ANILCA Title VIII and IX. See section 2.5 ANILCA Access – Implementing Section 811 and 1110(a) of ANILCA.

The travel management planning process will address weight limitations, trail maintenance, terrain, location of trails, and other concerns. It will include a comprehensive look at both motorized and non-motorized recreation opportunities that fit with the recreation setting character matrix (formally known as the recreation opportunity spectrum). The BLM will determine access and use relative to each subunit in the travel management planning process described above including a determination of which trails will be maintained by the BLM.

The maps and language discrepancies have been resolved through technical corrections in the Proposed RMP/Final EIS. We have deferred the final determination of additional routes and/or travel management zones to the travel management planning process as indicated above.

L.4.18.1. Travel Management Black River Subunit

Comment Number: EIRMP000000153C-23, EIRMP000000153C-24, and EIRMP000000161-25

Organization: Alaska Wilderness League and cosigners, and Citizen's Advisory Commission on Federal Areas

Commenter Type: environmental organization and state advisory committee

Summary

Current OHV use in the Upper Black River Subunit is reported as low due to the remoteness of the area; and there are no reported negative impacts from OHV uses in this subunit. There is no need for the BLM to further restrict access this subunit applying OHV weight restrictions unless indicated. The BLM needs to clarify weight limitations for cross-country use in this subunit.

Response

The BLM has completed the proposed travel management plan for the Upper Black River Subunit concurrently with the Proposed RMP/Final EIS (Appendix B). The low level of use, the lack of established trails, and the need for subsistence access provided the rational for a Limited

designation with weight and width restrictions to mitigate impacts of OHVs on tundra soils. We have corrected the discrepancies in weight limitation in the Proposed RMP/Final EIS and the proposed travel management plan. We will conduct a full public process including publishing a *Federal Register* Notice, holding hearings and addressing any access issues under ANILCA Title VIII and IX when developing supplemental rules to implement the travel management plan. See section 2.5 ANILCA Access – Implementing Section 811 and 1110(a) of ANILCA.

L.4.18.2. ANCSA 17(b) Easements

Comment Number: EIDRMP_PM_000000019-1, EIRMP000000170B-3, EIRMP000000170B-4, EIRMP000000170B-41, EIRMP000000170B-42, and EIRMP000000170B-5

Organization: Alaska Department of Natural Resources

Commenter Type: state government and individual

Summary

- The BLM states that consideration of ANCSA 17(b) easements is not within the scope of the RMP because they involve decisions that are outside BLM's authority, or are not a required land use planning decision. This is an inaccurate statement as BLM has management authority for all 17(b) easements and is the 'official record' keeper for tracking and ensuring protections, regardless of agency jurisdiction. Not addressing the management of 17(b) easements in this planning process is further problematic because the plan identifies travel management zones, and is considering placing more restrictive land use designations over large areas, while not identifying or analyzing all travel routes within the planning area.

- The public would benefit if the plan provided accurate descriptions of easements and trails; inventorying the status and condition of all easements and trails, and; ensuring that easements are continuous and avoid environmentally sensitive areas. Identification would also reduce trespass issues and assist the public in gaining legal access to public use areas. The RMP should identify and map all trails, 17(b) easements, and R.S. 2477 rights-of-way and analyze potential impacts from the proposed planning decisions.

- How can the BLM assess and determine a travel management plan, or propose areas to restrict access and uses, when all of the travel routes are not known and identified? The actual on-the-ground and legal access requirements need to be assessed before land management changes are made. The BLM is the manager of 17(b) easements, and not knowing where they are located, or how people's use of them may be impacted from actions taken in the RMP, is problematic.

Response

Designation of 17(b) easements is beyond the scope of the RMP. Easement designation occurs as part of the land conveyance process. 17(b) easements will be considered as existing travel routes during travel management planning. The travel management plan does not determine the allowable uses in the easement. These uses are determined during conveyance. Easement management including record keeping and trespass is an ongoing administrative action, not a land use planning decision.

A complete inventory of 17(b) easements is beyond the scope of the RMP, but may be considered during travel management planning. Maps to the detail suggested by the commenter would be more appropriate in the travel management plan or some other publication designed to inform users of the location and limitations on easements.

The planning level decision in the RMP is to set a Limited OHV area designation. Specific limitations (implementation decisions) will be determined through travel management planning. That is the appropriate time to assess legal access requirements. 17(b) easements are displayed on Recreation and Travel Management maps.

L.4.18.3. OHV Use Related to Mining

Comment Number: EIRMP000000170B-5, EIRMP000000170B-4, EIRMP000000170-29, EIRMP000000161-24, EIRMP000000161-20, EIRMP000000126-1, EIRMP000000118-1, EIRMP000000096-5, and EIRMP000000096-4

Organization: Alaska Miners Association, Fortymile Miners Association, Alaska Department of Natural Resources, Citizen's Advisory Commission on Federal Areas,

Commenter Type: state government

Summary

In the section titled "Rationale," the BLM acknowledges that recreational off-road vehicle use is the leading cause of resource damage; however, throughout the Environmental Consequences analysis in Chapter 4, it is clearly implied that access for existing and future mining activities cause much of the impact. There is no data in the plan to support the conclusion that the already highly regulated use of off-road vehicles in support of prospecting or mineral exploration causes significant resource damage.

Response

The BLM is deferring travel management limitations to travel management plans in the Fortymile, Steese, and White Mountains subunits to allow for more detailed analysis of existing trails, soil condition and impacts associated with casual use. We handle access for mining operations through an authorization process which is subject to NEPA review, not through the planning process. We have reviewed and revised the impact analysis sections in the Final EIS as appropriate.

L.4.18.4. Motorboat Access

Comment Number: EIRMP000000161-26, EIRMP000000170B-23, EIRMP000000411-31, and EIRMP000000170B-2

Organization: Alaska Department of Natural Resources and Citizen's Advisory Commission on Federal Areas

Commenter Type: state government and state advisory committee

Summary

There are numerous State asserted navigable waterways in the planning area, and until the matter of navigability on individual rivers is determined, use on all rivers (hovercraft and airboats)

should remain consistent with state management. The use of hovercraft and airboats is allowed on State waterways. The RMP should allow for the use of motorboats per ANILCA Section 1110(a) on all rivers.

Response

Interim management in the Proposed RMP (Alternative E) does not restrict the use of motorboats, airboats, or hovercraft on any rivers. The BLM's process for implementing restrictions or closures is discussed in Section 2.5 of the Proposed RMP/Final EIS.

L.4.18.5. Victoria Creek Road

Comment Number: EIRMP000000152-8 and EIRMP000000163B-25

Organization: Doyon, Limited and U.S. Fish and Wildlife Service

Commenter Type: Native Corporation and federal government

Summary

The best option for access to Doyon-owned lands in Beaver and Birch Creek may be through Victoria Creek. The BLM should not to foreclose the possibility of such an access route in the Final RMP. The Final EIS should analyze the impacts of this route.

Response

The Proposed RMP/Final EIS does not foreclose the possibility of a road through Victoria Creek. The BLM will consider applications for rights-of-way when received. We will analyze the impacts of proposed rights-of-way through the NEPA process and make a decision to either grant or not grant a right-of-way. We do not consider a road through Victoria Creek to be reasonably foreseeable and thus it was not analyzed in the Final EIS (section 1.5.2 Issues Considered, But Not Analyzed Further).

L.4.19. Special Designations

Comment Number: EIRMP000000170-55

Organization: Alaska Department of Natural Resources

Commenter Type: state government

Summary

Designation of ACECs should not restrict access, transportation corridors, and temporary land uses when the protected wildlife activities do not occur in the geographic locations, i.e., where and during seasons when caribou calving and fish spawning do not occur.

Response

Designation of ACECs would not automatically restrict access and temporary land uses. When applications for such uses are received, the BLM will analyze the impacts of the proposed use on

the values of the ACEC through the NEPA process. We will consider seasonality and site-specific conditions during the application process.

L.4.19.1. Research Natural Areas (RNAs)

Comment Number: EIRMP000000153-42 and EIRMP000000153D-33

Organization: Alaska Wilderness League and cosigners

Commenter Type: environmental organization

Summary

The BLM should consider expanding the acreage for the Big Windy Hot Springs RNA because it is very small (160 acres) and extremely susceptible to disturbances outside of its boundaries. The BLM should consider adopting the boundary in the 1984 Steese Draft RMP for a 12,700-acre RNA.

Response

The BLM considered expanding the Big Windy Hot Springs RNA during development of the Draft RMP/EIS. The area analyzed included the 12,700 acres considered in Alternatives B and C of the 1984 Steese Proposed RMP. The BLM found no need to expand the RNA boundary. Proposed and existing management, RNA and National Conservation Area designations, and the additional protections afforded by its remote location are sufficient to protect the hot springs system. This analysis is included in Appendix C.

L.4.19.2. ACECs in the Black River Subunit

Several entities nominated a 1.5 million acre area in the Upper Black River for designation as an ACEC. The BLM evaluated the area for relevance and importance, and the need for special management. The result of this evaluation was the proposal for a 623,000-acre Salmon Fork ACEC.

L.4.19.2.1. Relevance and Importance Black River ACEC Nomination

Comment Number: EIRMP000000402-4, EIRMP000000401-1, EIRMP000000301-1, EIRMP000000296-2, EIRMP000000300-1, EIRMP000000296-7, EIRMP000000296-4, EIRMP000000296-3, EIRMP000000296-1, EIRMP000000292-1, EIRMP000000254-1, EIRMP000000158-1, EIRMP000000153C-38, EIRMP000000153-31, EIRMP000000141-16, EIRMP000000141-12, EIDRMP_mail_000000030-2, EIRMP000000055-3, EIRMP000000139-9, EIRMP000000141-18, EIRMP000000149-3, EIRMP000000153-25, EIRMP000000153-33, EIRMP000000153-6, EIRMP000000172-2, and EIRMP000000254-3

Organization: Northern Alaska Environmental Center, Council of Athabascan Tribal Governments, Gwichyaa Zhee Gwich'in tribal government, Alaska Wilderness League, Eastern Interior Federal Subsistence Regional advisory committee, and Black River Working Group

Commenter Type: individuals, environmental organization, concerned citizens organization, tribes, advisory committee

Summary

Numerous comments addressed the relevant and important values of the 1.5 million acre Upper Black River ACEC nomination. These included indigenous lands, whitefish, salmon, waterfowl, moose, caribou, timber, berries, and clean drinking water. Some commenters also noted that the area has significant historical and cultural value for the Dronjek Gwich'in as a traditional homeland and refuge during hard times. Participants at a community meeting hosted in Fort Yukon, noted the Upper Black River is an important nesting grounds for bird populations, black ducks in particular.

Comments took issue with the fact that the BLM reduced the original area nominated for ACEC designation, which took in nearly the entire upper watershed of the Black River, to a much smaller area (623,000 acres). According to commenters the smaller ACEC does not encompass all the special values in the area, including fisheries, wildlife, and cultural values and does not protect the headwaters of the Black River.

Response

The BLM recognizes the importance of the Upper Black River area to residents of the Yukon Flats. The BLM evaluated the 1.5 million acres nominated as the Upper Black River ACEC for its relevance and importance (43 CFR 1610.7-2). This evaluation, found that only the lands in the Salmon Fork drainage qualified as an ACEC. Public comment did not provide additional information sufficient to support expansion of the ACEC to the larger area. See Appendix C.

L.4.19.2.2. Special Management Salmon Fork ACEC

Comment Number: EIRMP000000164-53, EIRMP000000279-2, EIRMP000000411-24, and EIRMP000000411-30

Organization: U.S. Fish and Wildlife Service and Alaska Department of Natural Resources

Commenter Type: federal government, state government, and individual

Summary

- Opening the proposed Salmon Fork ACEC to mineral development would not meet BLM Land Use Planning Handbook H-1601-1 requirement to identify management practices and uses, including necessary constraints and mitigation measures with enough detail to minimize the need for subsequent ACEC management plans. In addition, H-1601-1 states that subject to valid existing rights, approval of proposed actions that could degrade the values of the special designation are to be avoided. It appears only alternative B meets the requirements listed in H-1601-1 and recognizes that opening the ACEC to mineral development would constitute a land use that would impair the values for which the ACEC was designated and thus should be avoided.

- The need for special management in the proposed Salmon Fork ACEC for is unclear. The Bald Eagle Protection Act of 1940 provides adequate conservation measures surrounding bald eagle nesting habitat. State law requires permits for activities such as stream crossings or instream work in resident and anadromous fish streams. Aerial surveys for salmon have been conducted of the Black River since 1960, and most flights have observed no salmon, or at most 200 chum salmon. For scale, total Yukon River drainage run size averages 870,000 fall chum salmon.

Response

In the Proposed RMP (Alternative E) the Salmon Fork ACEC is recommended to remain closed to mineral entry. The ANCSA 17(d)(1) withdrawals would be retained until such time as a new withdrawal under FLPMA could be put in place. In alternatives where the ACEC is recommended open to mining, resource values would be protected by implementing standard operating procedures and the mining regulations under 43 CFR 3809.

The Salmon Fork Black River (Salmon Fork) drainage meets the relevance and importance as an ACEC for fish because it contains high quality and diverse fishery resources. The Salmon Fork contains at least eight species of fish including Chinook salmon and a significant run of fall chum salmon. It contains critical spawning and rearing habitat for both anadromous and resident fish species. Aerial surveys performed by ADF&G and BLM estimates escapement of fall chum between 444 and 3,098. Aerial estimates of abundance are always lower than actual escapements even in optimal survey conditions (Barton 1984). Local residents claim coho and fall chum spawn in open water springs found on Kevinjik (slightly upstream of BLM lands)and Tetthaajik Creeks during the late fall. Sheefish use the Salmon Fork for summer feeding and Alt (1987) found evidence that suggests sheefish spawn in the Salmon Fork and there are only 5 known spawning locations in the entire Yukon River drainage. Alt accurately predicted sheefish spawning areas in the upper Nowitna River drainage which has since been documented. The Salmon Fork also contains a very healthy arctic grayling population.

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) prohibits anyone without a permit from "taking" bald eagles. However, it does not protect bald eagle habitat, other than nests. The special management for bald eagles includes protection of water quality and aquatic habitats.

L.4.19.2.3. Black River ACEC Evaluation

Comment Number: EIRMP000000153C-39, EIRMP000000153C-40, EIRMP000000163B-121, EIRMP000000163B-122, EIRMP000000163B-126, EIRMP000000163B-127, EIRMP000000163B-15, EIRMP000000164-62, EIRMP000000296-5, EIRMP000000410-22, EIRMP000000410-23, EIRMP000000410-25, EIRMP000000410-26, EIRMP000000410-27, and EIRMP000000410-30

Organization: Alaska Wilderness League and cosigners, Gwichyaa Zhee Gwich'in tribal government, and U.S. Fish and Wildlife Service

Commenter Type: environmental organization, federal government, tribes, and individuals

Summary

- The BLM did not take the impacts of climate change and projected impacts to the land, water and wildlife into consideration when evaluating the Black River ACEC nomination.
- The BLM states "little is known of wildlife resources in the area and so impacts are difficult to predict" (Section 4.6.1.7 page 756). The BLM does not have sufficient information about the Upper Black River subunit to deny an ACEC recommendation.
- Subsistence data is lacking for the Upper Black River region that was originally encompassed by the proposed Upper Black River ACEC. The BLM did not provide sufficient rationale for why the proposed Black River ACEC was dismissed when an analysis of cultural resources

and subsistence use was lacking. Data should be collected prior to dismissing this area for consideration as an ACEC (a culturally relevant area).

- A value of the Black River ACEC nomination that the BLM did not recognize was that it is important fish habitat for Chinook salmon which is on BLM "watch list."

- There was no evaluation of scenic values for the Black River ACEC nomination.

- Caribou and moose resource values justify addition of the rest of the proposed Black River drainage into the ACEC.

Response

Projected impacts of climate change were considered as part of the baseline affected environment in the planning area and as such were considered during evaluation of the Upper Black River ACEC nomination.

To designate an ACEC, the BLM must show that the area both meets the relevance and importance criteria (43 CFR 1610.7-2 and requires special management attention (BLM Manual 1613). If there is not enough information to determine relevance and importance, the area does not qualify as a potential ACEC.

An ACEC cannot be designated based on the absence of information. This area can be reconsidered for ACEC designation in future planning efforts as more data becomes available.

The Black River Chinook stock is not on BLM Watch List. Only the Beaver Creek Chinook Stock is a BLM watch species. Appendix C of both the Draft and Proposed RMP recognizes Chinook and other salmonids as a relevant and important value in the Salmon Fork and its tributaries. The Salmon Fork ACEC encompasses the known extent of anadromy on BLM-managed lands in the Upper Black River Subunit.

The BLM has evaluated the ACEC nominations for scenic values in the Proposed RMP/Final EIS. This information was added to Appendix C.

The BLM reevaluated the nominated Black River ACEC following receipt of these comments. Proponents suggested that caribou and moose resource values justify addition of the rest of the Black River drainage. There is not adequate information to conclude that these resources in the portion of the Black River drainage outside of the Salmon Fork met the importance criteria. A very small portion (0.3%) of documented Porcupine caribou general winter range occurs in the area. Although there is very little data about moose population, distribution, or movements in the area, the available information is insufficient to indicate that moose habitat meets the importance criteria. Although the area likely contributes to the regional moose population available for harvest, it is unlikely to support high densities of moose (relative to the regional moose density) except at the local scale (e.g., small rutting concentration areas). Available recent harvest survey data (for 2008-2010) indicates that about 5% of Fort Yukon moose harvest and 34% of Chalkyitsik moose harvest occurs in the harvest reporting subunits that encompassed upper Black River tributaries (only a portion of which is BLM land). This does not support a finding that the moose resource has “more than locally significant qualities”. Finally, neither caribou nor moose resources were determined to require special management.

L.4.19.3. ACECs in the Steese Subunit

Comment Number: EIRMP000000153-51, EIRMP000000153D-32, and EIRMP000000411-28

Organization: Alaska Wilderness League and cosigners and Alaska Department of Natural Resources

Commenter Type: environmental organization and state government

Summary

- Some comments voiced support for designation of the 927,000- acre Steese ACEC proposed in Alternative B, including managing the area as a right-of-way avoidance area and with limitations on OHV use.
- Other comments questioned the need for an ACEC designation as the proposed Steese ACEC is completely within the National Conservation Area, also a part of the BLM's National Conservation Lands, and the need for additional special management is unclear. Because the widespread resource (caribou calving and postcalving) for which the ACEC is being established is limited temporally to a short season, it is unclear why year-round permanent restrictions of any kind are necessary.

Response

The BLM does not recommend designation of the Steese ACEC in the Proposed RMP (Alternative E). Management of crucial caribou and Dall sheep habitat (section 2.8.2.4.7) will protect caribou and Dall sheep habitat (Map 67). Additionally, the entire Steese National Conservation Area will be closed to mineral entry, location, and leasing. Summer OHV use will be limited to trails/routes in crucial habitats, and in the designated migration corridor, OHV use will be limited so as not to affect caribou movements.

L.4.19.4. ACECs in the White Mountains Subunit

Comment Number: EIRMP000000153-58, EIRMP000000153E-43, and EIRMP000000411-27

Organization: Alaska Wilderness League and cosigners and Alaska Department of Natural Resources

Commenter Type: environmental organization and state government

Summary

Comments voiced support for designation of the White Mountains ACEC in the Final RMP to protect vital habitats for sheep and caribou.

Other comments questioned the need for an ACEC designation in the White Mountains given its status as a National Recreation Area. The benefits of an additive ACEC designation are unclear.

Response

The Proposed RMP (Alternative E) does not designate a White Mountains ACEC. Management of crucial caribou and Dall sheep habitat (section 2.10.2.4.1.6) will protect caribou and Dall sheep habitat (Map 67).

Section 403 of ANILCA establishes the White Mountains National Recreation Area. Section 1312 requires the area be managed to provide for public outdoor recreation use and enjoyment. Additional management emphasis is conservation of scenic, scientific, historic, fish and wildlife, and other values contributing to public enjoyment. ANILCA further states that in administering the recreation area, the Secretary may use such statutory authorities available for conservation and management of natural resources as deemed appropriate for recreation and preservation purposes.

L.4.19.5. ACECs in the Fortymile Subunit

L.4.19.5.1. Mosquito Flats ACEC

L.4.19.5.1.1. Relevance and Importance

Comment Number: EIDRMP_mail_000000020-1, EIDRMP_mail_000000021-1, EIRMP000000408-2, EIRMP000000408-4, EIRMP000000408-6, EIRMP000000431-1, EIRMP000000431-2, EIRMP000000431-5, EIRMP000000443-1, EIRMP000000443-3, EIRMP000000447-1, EIRMP000000447-1, EIRMP000000452-10, EIRMP000000452-11, EIRMP000000452-12, and EIRMP000000453-2

Organization: Alaska Department of Natural Resources, Citizen's Advisory Council on Federal Areas, Resource Development Council, Alaska Miners Association, Doyon, Limited Inc.

Commenter Type: individuals, state government, State advisory council, industry, mining association, Native corporation

Summary

- The BLM should consider designating the Mosquito Flats area as an ACEC because of the massive, contiguous and pristine wetlands found there that are so important to many types of wildlife (and those that depend of wildlife resources) from waterfowl to moose. The Mosquito flats are by far the largest area of contiguous wetlands in the surrounding area. Until 2005 it was almost completely pristine undisturbed wetlands. Since that time the area has been degraded by OHV use. It provides critical habitat for waterfowl both as a nesting area and as a resting area for mass amounts of birds migrating through in the spring and fall. It is the largest and most heavily used calving area for moose in all of the Game Management Unit 20E. These are just two of many reasons to protect this area of critical habitat. This area is extremely fragile and easily destroyed. It cannot sustain much if any mechanized travel without suffering significant damage.

- Mosquito Flats ACEC appears unnecessary to address the identified conservation concerns, given that other administrative tools already exist under both state and federal law to manage access and use within these areas. It is unclear why special management is required for these particular species and habitats. The BLM does not provide enough information to assess the values of the areas, the impacts of ACEC designation, or the need for special management.

Response

The BLM evaluated the Mosquito Flats and found that it meets the relevance and importance criteria (43 CFR 1610.7-2) and thus qualifies as a potential ACEC (Appendix C). Designation

of the area is included in the Proposed RMP (Alternative E). Appendix C provides rationale for ACEC designation. The impacts are analyzed in Chapter 4.

L.4.19.5.1.2. ACEC Management

Comment Number: EIRMP000000407-1, EIRMP000000408-3, EIRMP000000408-9, EIRMP000000408-10, EIRMP000000408-11, EIRMP000000454-2, and EIRMP000000455-5

Organization: Alaska Outdoor Council, Northern Alaska Environmental Center, individuals

Commenter Type: outdoor access organization, environmental organization, and individuals

Summary

- Ongoing and increasing OHV use is causing damage to the Mosquito Flats wetlands. OHVs are becoming ever more efficient and powerful, making them capable of going further and into more difficult terrain. The long term damage to tundra and wetlands may not be reversible.
- Winter motorized use in Mosquito Flats will not degrade or adversely impact aquatic or wetland habitat during periods of time when streams, groundwater, and terrestrial and plant organisms are frozen or have adequate snow cover. Therefore, the proposed restrictions on winter-motorized use are not justified.
- A specific reason for managing the Mosquito Flats ACEC as Visual Resource Management Class II is not provided. It is unclear how visual impacts relate to the ACECs, the purpose of which is aquatic and wetland habitat protection.
- The proposed Mosquito Flats ACEC would limit summer OHV use by requiring permits. Additional information related to the purpose and need for the proposed limits and how they would be implemented is needed.
- Other than a fearful outlook of the effects of climate change on the wildlife habitat no data has been provided that would show that current management under state regulations, regarding fish and game management as well as access, has caused any loss of sustainability of the natural resource within the ACEC.

Response

The BLM concurs that damage to soils and wetlands in the Mosquito Flat ACEC is of concern. Proposed management in the ACEC would limit summer use of OHVs to prevent such damage.

Winter motorized use would be allowed subject to weight and width limitations.

Relevance and importance evaluations for scenic value were reviewed for the Mosquito Flats ACEC. The area was found to have significant scenic values.

Final travel management decisions have been deferred to a travel management plan. Management prescriptions for the ACEC state no summer OHV travel. Any restrictions will be handled through a public process including publishing a *Federal Register* Notice, holding hearings and addressing any ANILCA access issues.

There is documented resource damage from repeated OHV use in the Mosquito Flats wetlands.

L.4.19.5.1.3. Size of ACEC

Comment Number: EIRMP000000407-3, EIRMP000000420-1, EIRMP000000425-1, EIRMP000000430-1, EIRMP000000439-2, EIRMP000000446-2, EIRMP000000451-1, and EIRMP000000455-4

Organization: Arctic Audubon and Northern Alaska Environmental Center

Commenter Type: individuals and environmental organizations

Summary

Several comments noted that the Mosquito Flats ACEC does not encompass all of the wetlands on BLM-managed lands and that valuable habitats associated with the relevant and important values for the area are excluded.

Response

The Mosquito Flats ACEC boundary was revised to encompass more of the wetlands and to exclude some uplands (Map 63).

L.4.19.5.2. Fortymile ACEC

L.4.19.5.2.1. Relevance and Importance

Comment Number: EIRMP000000408-6, EIRMP000000408-5, EIRMP000000408-4, EIRMP000000411-23, EIRMP000000431-1, EIRMP000000431-2, EIRMP000000431-5, EIRMP000000450-1, EIRMP000000450-4, EIRMP000000452-3, EIRMP000000452-4, EIRMP000000452-5, EIRMP000000452-6, and EIRMP000000457-4

Organization: Alaska Department of Natural Resources, Alaska Miners Association, Doyon, Limited, Citizen's Advisory Council on Federal Areas, Resource Development Council, and Congressional Delegation

Commenter Type: state government, mining organization, Native corporation, state advisory council, industry, and Congressional

Summary

- The Fortymile ACEC appears unnecessary to address the identified conservation concerns, given that other administrative tools exist under both state and federal law to manage access and use within these areas. It is unclear why special management is required for these particular species and habitats. Nor is it apparent why the ACEC needs to be so large. The ACEC does not meet the criteria for an ACEC. The BLM does not provide enough information to assess the values of the areas, the impacts of ACEC designation, or the need for special management.
- The EIS does not provide any indication that resource uses proposed to be restricted (mining and OHV use) are in any way contributing to the degradation of or threatening the existence of identified values.

Response

Based on BLM's evaluation of the area, Fortymile caribou calving habitat meets the criteria to be designated as an ACEC. Appendix C provides rationale for ACEC designation. The impacts of OHV, mining, and other activities on caribou and Dall sheep are analyzed in Chapter 4. See also the *Habitat Needs Assessment for the Fortymile Caribou Herd* (2000), which identifies the calving and postcalving habitats as the most sensitive habitats for the Fortymile herd, and recommends limiting activities in these areas.

Currently, mining and OHV use is very minimal within the proposed Fortymile ACEC. It would therefore be difficult to show that these activities are currently contributing to the degradation of or threatening the existence of identified values. The RMP prescribes management for 20 or more years into the future and seeks to prevent degradation of habitat.

L.4.19.5.2.2. ACEC Management

Comment Number: EIRMP000000152-4, EIRMP000000152-5, EIRMP000000408-8, EIRMP000000439-1, EIRMP000000443-2, EIRMP000000446-1, EIRMP000000453-3, EIRMP000000453-4, EIRMP000000455, EIRMP000000455-3, EIRMP000000408-14, EIRMP000000426-1, EIRMP000000426-3, EIRMP000000450-3, EIRMP000000452-14, EIRMP000000452-7, and EIRMP000000452-8

Organization: Doyon, Limited and Alaska Department of Natural Resources, Northern Alaska Environmental Center, Pew Trust, Alaska Wilderness League, Cook Inlet Regional Corporation, Resource Development Council and Alaska Miners Association

Commenter Type: Native Corporation, state government, industry, mining organization and environmental organizations

Summary

- The Fortymile ACEC would occupy lands selected by Doyon, Limited under ANCSA and entirely surround lands that have been conveyed to Doyon. Additionally, the ACEC encompasses State land and State-selected lands. The BLM's stated intent to retain the ACEC in federal land status is fundamentally inconsistent with the fact that substantial areas of the ACEC are in the process of conveyance or are high priority Native- and State-selected lands that will likely be conveyed. Designation of the ACEC could limit access to and use of Doyon or State lands, depriving Doyon and the State of the ability to realize the economic and historic and cultural values of its lands and resources.

- Designation of the Fortymile ACEC would limit selection opportunities for the Cook Inlet Regional Corporation and deprive it of potentially valuable conveyance acreage owed under ANCSA.

- The adoption of ACECs, without the consideration of existing and future travel routes and needs, will make access in the area difficult, given the complexity of this plan, it’s practically impossible to foresee the on-the-ground consequences. Because travel management has not been fully realized, it is unclear how adjacent landowners will be impacted or how access will be obtained. In fact, in many places it looks like access to non-BLM-managed lands would essentially be blocked if these ACECs were adopted.

- Climate change will negatively affect caribou habitat in the Fortymile, making these areas even more critical for preservation in the future. Stronger management should be applied

including: ceasing further conveyances of selected lands within the ACEC, maintaining existing withdrawals from mining and limiting OHV use.

Response

Decisions in the Proposed RMP/Final EIS to retain ACEC lands in federal ownership would not affect the conveyance process, the State's entitlement under the Statehood Act, or Doyon's entitlement under ANCSA. Nor would it prevent Cook Inlet Regional Corporation from selecting lands in the ACEC. These processes are ongoing administrative actions and take precedence over decisions in the RMP.

Decisions in the RMP to retain lands would prevent these lands from being disposed of through FLPMA sale or exchange after conveyances are completed. Designation of the ACEC would not prevent access to inholdings. Regardless of designation or non-designation, applications for access across BLM lands would be evaluated through the NEPA process and appropriate terms and conditions to mitigate impacts to resources would be applied to the permit.

The BLM has determined that there is not enough travel route and trail information to complete comprehensive travel management plans concurrent with the RMP. We have deferred the travel management plans until after the Record of Decision. This will allow time to conduct a full inventory of motorized and non-motorized travel routes. In cases where access is needed for conveyed lands, the BLM will allow access consistent with section 1323 of ANILCA and FLPMA.

The selection and conveyance process is ongoing and not discretionary. The BLM does not have the authority to stop conveying lands. Various levels of management in the ACEC were considered in the Final EIS alternatives.

L.4.19.5.2.3. ACEC Size

Comment Number: EIRMP000000407-5

Commenter Type: individual

Summary

The proposed Fortymile ACEC only protects about 1/3 of the most important calving habitat. Reproduction is the key to restoring this caribou herd and caribou have an affinity to their calving grounds.

Response

In the Proposed RMP (Alternative E), the outer geographic extent of the Fortymile ACEC is based on a polygon which includes more than 50 percent of the calving locations of Fortymile Caribou from 1992-2008. Outside of the ACEC, management of crucial caribou and Dall sheep habitat (section 2.7.2.4.1.6 Wildlife) will protect caribou habitat without an ACEC designation (Map 103). The BLM is only one of several land managers responsible for management of Fortymile Caribou Herd habitat (others include Doyon Limited, National Park Service, and the State of Alaska), and can only affect management on a portion of this habitat.

L.4.19.5.2.4. Effects of Designation on Economy

Comment Number: EIRMP000000457-2

Commenter Type: Congressional Delegation

Summary

Closing the Fortymile ACEC to mineral entry and location would harm Alaska's economy. The Fortymile mining region is one of the more productive in the state and continues to produce gold with 81 separate companies or individuals involved in mining on state and federal lands. The proposed closure will prevent any future assessments or development of new minerals. This action also comes at a time when the State of Alaska's government is facing a $3.5 billion budget deficit, and when unemployment in Alaska is at 6.3 percent. It is accordingly unacceptable to allow a significant opportunity for increased mineral extraction to be curtailed. That is especially the case since mining taxes and mineral rents and royalties are the State's third-leading source of revenue.

Response

Although the Proposed RMP (Alternative E) recommends closing the Fortymile ACEC (362,000 acres) to new mineral entry; it also recommends opening 1,132,000 acres outside of the ACEC that is currently withdrawn. BLM-managed lands in the Fortymile Subunit are withdrawn from mineral entry and location by public land orders issued by the Secretary of the Interior in the early 1970s. Additionally, any lands selected by the State or Native corporations are segregated from mineral entry until the land is either conveyed or the selection relinquished. Approximately 80 percent of the proposed Fortymile ACEC is selected and these selections are expected to remain in place for many years to come. If the higher potential lands are conveyed, they will be available for exploration and development under state mining claims or through the Native corporations. Mineral assessments could occur under a land use permit on selected lands.

There are no royalties on federal mining claims. Nor are there rents or taxes to the State from federal claims.

The BLM estimates that mineral potential on BLM-managed lands within the ACECs is generally low to medium. The State and Native corporations focused their selections on lands with higher mineral potential, thus the higher potential areas have been conveyed out of federal ownership or are likely to be conveyed. Even if all current obstacles to staking of new mining claims were removed, e.g., the Secretary revoked the existing withdrawals and all selected lands were relinquished, the BLM does not anticipate much interest in minerals on BLM-managed lands in these ACECs.

L.4.19.6. OHV Use in ACECs

Comment Number: EIRMP000000411-25, EIRMP000000411-26, EIRMP000000411-28, EIRMP000000411-29, EIRMP000000417-1, EIRMP000000418-1, EIRMP000000420-2, EIRMP000000420-4, EIRMP000000424-1, EIRMP000000449-1, and EIRMP000000453-10

Organization: Alaska Department of Natural Resources and Doyon, Limited

Commenter Type: Native corporation, state government, and individuals

Summary

- The State does not support limiting winter snowmachine travel in the Fortymile, Steese, or Mosquito Flats ACECs because resources of concern are either absent (calving caribou) or will be protected by snow and frozen ground (wetlands).

- BLM already has the authority to limit OHV use to protect resources; an ACEC designation is not necessary to accomplish this.
- The Mitchell Ranch trail is a long established access trail used for fall hunting for caribou and moose in Game Management Unit 20E. The area is used long after moose calving season.
- Rather than banning summer use of ATVs in Mosquito Flats, consider a weight limit. This would limit impacts, but still allow recreational use. The ACEC is a large area to entirely close to summer OHV use.
- A historic R.S. 2477 route runs through the proposed Mosquito Flats ACEC. The BLM has not addressed how designation of the ACEC would affect access through the area.

Response

All alternatives in the Final EIS allow for winter snowmachine use on all lands with reasonable limitations on weight and width. Snowmachines are defined in the glossary.

An ACEC designation may not be necessary to limit OHV use to protect resources. However, limitations on OHV use can be a part of the special management identified for protection of important or relevant values of an ACEC.

The Mitchell Ranch trail is north of the proposed Mosquito Flats ACEC and would not be affected by ACEC designation.

The Mosquito Flats ACEC is set aside to protect critical wetland habitat. There has been documented damage of repeated OHV use in the wetlands. The fragile wetland environment and soil structure cannot recover from repeated OHV use even with minimal weight limitations. Travel will be allowed in winter when impacts on the wetland soils are not an issue. All upland trails outside the ACEC will be open to use.

The Proposed RMP (Alternative E) outlines management prescriptions for ACECs; however the BLM will go through a comprehensive travel management planning process after the Record of Decision. This process will identify existing routes including R.S. 2477 routes and offer public comment period for uses. A determination of restrictions for this route will be made at that time.

L.4.19.7. National Conservation Lands Policy

Comment Number: EIRMP000000153B-4

Organization: Alaska Wilderness League

Commenter Type: environmental organization

Summary

BLM Instruction Memorandum 2009-215 specifically addresses direct conflicts between the enabling legislation for a unit of the National Conservation Lands (also known as National Landscape Conservation System or NLCS) and BLM's broader "multiple use" mandate, then the legislation takes precedence. This Instruction Memorandum clearly affirms that not all uses must be accommodated within the Steese National Conservation Area and other NLCS units; BLM's priority is protecting the highlighted resources.

Response

The BLM concurs that Instruction Memorandum 2009-215 specifically directs that the enabling legislation for National Conservation Lands units takes precedence if there is a conflict. Section 401 of ANILCA established the Steese National Conservation Area for protection of lands within a framework of multiple use and sustained yield and for the maintenance of environmental quality. Special values to be considered include Birch Creek and caribou range. Section 402(b) allows, where consistent with the land use plan, mineral development pursuant to the Mineral Leasing Act, the Materials Act, and the United States Mining Law. The proposed RMP/Final EIS identifies caribou and Birch Creek as the special values for the Steese National Conservation Area and the alternatives protect these values while allowing for a variable range of multiple use.

L.4.19.8. National Natural Landmarks Program

Comment Number: EIDRMP_EM_000000018-3, EIRMP000000153-43, and EIRMP000000153D-18

Organization: Alaska Wilderness League

Commenter Type: environmental organization

Summary

The BLM's efforts to reconsider the Mount Prindle and White Mountains spine area for inclusion in the National Natural Landmarks Program are inadequate and incomplete. The BLM needs to conduct another review of Mount Prindle because this area still retains the values for which it was nominated in the late 1970s. This planning process is the place where such designations should be considered.

Response

Designation of national natural landmarks is not a required BLM planning decision thus it was not addressed in the RMP. The areas of concern are within the White Mountains National Recreation Area and some are also designated as research natural areas. An additional layer of special designation is unnecessary and will not add any additional protections. The process for identifying and designating national natural landmarks can be found on the National Park Service web site online at: http://www.nps.gov.

L.4.19.9. Wild and Scenic Rivers

L.4.19.9.1. Suitability Determinations

Comment Number: EIRMP000000153C-42, EIRMP000000153D-17, EIRMP000000410-36, EIRMP000000410-37, EIRMP000000410-6, EDIRMP_mail_000000037-12, EIDRMP_mail_000000031-2, EIRMP000000402-1, and EIRMP000000170-15

Organization: Chalkyitsik Village Council, Alaska Department of Natural Resources, Alaska Wilderness League and cosigners and Gwichyaa Zhee Gwich'in tribal government

Commenter Type: state government, environmental organization, individuals and tribe

Summary

- The BLM received statements both in support of and in opposition to recommending the Salmon Fork (52 miles) as suitable for designation as a wild and scenic river.
- The Gwichyaa Zhee Gwich'in tribal government requested that the Upper Black, Kandik, Salmon, Grayling and Wood Rivers all be designated as wild and scenic rivers.
- The BLM lacks information about wetlands, rivers, riparian habitats, fish and wildlife in the Upper Black River subunit, yet they determined that only the Salmon Fork had outstandingly remarkable values that would make it eligible for consideration under the Wild and Scenic Rivers Act. Other rivers in the subunit have outstandingly remarkable values and the BLM must conduct the necessary surveys and evaluations before eliminating these rivers from consideration as eligible.
- The Draft RMP provides only weak justifications for its non-suitability determinations for wild and scenic rivers in alternatives B–D. Accordingly, the BLM should recommend designation of the Salmon Fork as "wild" under the Wild and Scenic rivers Act in the Agency Preferred Alternative.
- The rationale cited for not including Big Windy Creek as suitable for designation under the Wild and Scenic rivers Act in alternatives other than B was lack of interest by federal, public, state, tribal, local, or others. This is an inaccurate statement. The Wilderness League and other groups are interested in seeing a "wild" designation for Big Windy Creek.

Response

Within the Upper Black River Subunit, the BLM evaluated twelve rivers (Appendix E, Table E.1) for eligibility including the Black, Little Black, Kandik, and Grayling Fork following the process outlined in BLM Manual 6400 - Wild and Scenic Rivers only the Salmon Fork was found to be eligible. During the eligibility determination process, no outstandingly remarkable values were identified for the Wood River so it was not carried forward in the eligibility process. The Wood River was re-evaluated during development of the Proposed RMP/Final EIS, but was not found to be eligible as no outstandingly remarkable values are known. The determination that a river contains outstanding values is a professional judgment on the part of an interdisciplinary team (BLM Manual 6400 Wild and Scenic Rivers) and does not require new surveys. The BLM did not receive any additional specific information supporting the presence of outstandingly remarkable values on any other rivers in the Upper Black River Subunit during the public comment period.

The Salmon Fork was considered suitable for designation in Alternative B. Congressional designation of rivers as wild and scenic will not occur unless there is widespread support within Alaska for such designation. Since this widespread support does not exist in Alaska, the BLM did not recommend any rivers as suitable in the Alternative C of the Draft RMP or Alternative E of the Proposed RMP.

The BLM does not consider the Salmon Fork as suitable for designation under the Wild and Scenic Rivers Act in the Proposed RMP (Alternative E) although, it is eligible by virtue of being free-flowing and having outstandingly remarkable wildlife values. This will not foreclose the option for the river to be considered for designation in the future. The suitability findings for the Salmon Fork found in Appendix E.1.3 were revised to indicate tribal and environmental group support for designation. The BLM determined: there is not broad public and congressional

support for designation; the Salmon Fork is within a proposed ACEC and RCA these designations along with management in the Proposed RMP (Alternative E) are sufficient to protect the outstandingly remarkable river values; and no values would be foreclosed or diminished if the area is not designated as a WSR. Additionally, the Salmon Fork is navigable and as such the bed of the river is owned by the State of Alaska. There is no support from the State or the Alaska congressional delegation for designation of the Salmon Fork as a wild and scenic river. Without such support, designation by congress is highly unlikely. The Salmon Fork was considered suitable in Alternative B so that impacts of designation could be analyzed in the EIS.

The BLM determined that there is not broad public support for designation of Big Windy Creek as a wild and scenic river (Appendix E.1.3). Without broad support from a wide range of entities there is no likelihood of designation by congress. The BLM received numerous comments opposed to designation of any additional rivers as wild and scenic. Big Windy Creek is within the Steese National Conservation Area and in all alternatives, would remain closed to mineral entry, and have a suite of management decisions that would protect the outstandingly remarkable values; no values would be foreclosed or diminished if the area is not designated as a WSR.

L.4.19.9.2. Management of Suitable Rivers

Comment Number: EIRMP000000412-26

Organization: ANILCA Program

Commenter Type: state government

Comment

The Wild and Scenic Rivers Act only provides federal agencies with authority to protect rivers found suitable under a congressionally-directed study pursuant to Section 5(a) of the Act. Since the study conducted in this planning process was not congressionally authorized, the BLM does not have the authority under the Wild and Scenic Rivers Act to protect outstandingly remarkable values (ORVs) associated with non-designated rivers as is implied by proposed management decisions in section 2.6.4.1.

Response

Under section 5(d)(1) of the Wild and Scenic Rivers Act, federal agencies are directed to identify all potential national wild, scenic and recreation river areas when planning for the use and development of water and related land resources, i.e., in the development of resource management plans, and make specific studies and investigations to determine which rivers should be added. Identifying ORVs associated with the river is part of that process. BLM has broad discretionary authority through the FLPMA land use planning process and NEPA to minimize impacts to such river values and avoid decisions or actions that might lead to a determination of ineligibility or nonsuitability.

L.4.19.9.3. Outstandingly Remarkable Values Birch Creek, Beaver Creek, and Fortymile WSRs

Comment Number: EIRMP000000153E-7, EIRMP000000153D-16, and EIRMP000000153F-20

Organization: Alaska Wilderness League and cosigners

Commenter Type: environmental organization

Summary

- The wild and scenic river review provided no documentation regarding what tribal consultation was done on Beaver Creek outstandingly remarkable values (ORVs).
- The BLM should reconsider their conclusions on ORVs for Birch Creek. Specifically, wildlife should be included as an ORV. Wildlife was noted as a contributing factor to the recreation ORV. Without the wildlife the recreation ORV would be impacted.
- ORVs should be identified for the Fortymile WSR.

Response

Chapter 5 of this document summarizes tribal consultation done on the RMP. The wild and scenic river inventory and proposed outstandingly remarkable values for Beaver Creek was included in the Draft RMP for public input (Appendix E). The tribes did not give the BLM any information regarding outstanding remarkable values on Beaver Creek during consultation or review of the Draft RMP.

Birch Creek was found to have an outstandingly remarkable recreation value based on its unique opportunities for multi-day primitive floating and camping experiences. Although the wildlife contributes, the recreation ORV stands on its own merits. Additionally, the Proposed RMP/Final EIS includes management decisions that will protect wildlife values in the Steese National Conservation Area and Birch Creek.

Outstandingly remarkable values were identified for the Fortymile wild and scenic river. These are listed in Appendix E, section E.2.3, Table 2.8, and section 2.4.3.

L.4.19.9.4. Eligibility Determinations and Navigable Rivers

Comment Number: EIRMP000000170-15

Organization: Alaska Department of Natural Resources

Commenter Type: state government

Summary

The State of Alaska objects to including navigable State-owned rivers (such as the Salmon Fork of the Black River) in any aspect of the wild and scenic river study, including the eligibility phase, without State support.

Response

Where the BLM manages the uplands on State-owned navigable rivers within the planning area, management planning efforts must identify a realistic range of alternatives for all BLM-managed lands. This includes identifying eligible waterways for inclusion to the Wild and Scenic Rivers System and making a determination of suitable rivers to be forwarded to Congress for inclusion in the Wild and Scenic Rivers System, pursuant to section 5(d)(1) of the Wild and Scenic Rivers Act, wherein federal agencies are directed to identify all potential national wild, scenic and recreation river areas when planning for the use and development of water and related land resources. The

range of alternatives must include an alternative where some rivers are identified for inclusion and an alternative where no rivers are included. Under the process outlined in BLM Manual 6400 - Wild and Scenic Rivers, the State's willingness and capacity to participate in the preservation and management of a river in the Wild and Scenic Rivers System are among several factors considered by BLM in evaluating suitability for possible inclusion in the System.

L.4.19.9.5. Impact analysis Wild and Scenic Rivers

Comment Number: EIDRMP_mail_000000027-2 and EIRMP000000153E-5

Organization: Alaska Wilderness League and cosigners

Commenter Type: individuals and environmental organization

Summary

The BLM needs to fully integrate various resource management decisions and assessment of impacts ranging from sedimentation from trail crossings of tributary streams to mineral leasing to increased conflicts between users in Wild and Scenic River corridors.

Response

The RMP integrates various resource management decisions. This document amends the Beaver Creek River Management Plan (1983), the Birch Creek River Management Plan (1983) and the Fortymile River Management Plan (1983) by identifying Outstandingly Remarkable Values associated with each river system. These step-down plans will be updated after completion of the RMP to address site specific issues. Specific impacts to Wild and Scenic River values will be addressed through the NEPA process on a project specific basis and must be compatible with these existing plans.

L.4.19.9.6. Amendments to River Management Plans

Comment Number: EIRMP000000153E-6 and EIRMP000000139-12

Organization: Alaska Wilderness League and cosigners

Commenter Type: environmental organization

Summary

Because the RMP will amend the existing Beaver Creek River Management Plan (BLM and USFWS 1983), the BLM should explain the differences in goals and objectives, management prescriptions and impacts from the changes in the final RMP. Cooperation with the USFWS on the amended river management plan is necessary because it manages the downstream reach of Beaver Creek within Yukon Flats NWR.

Response

This document amends the Beaver Creek River Management Plan (1983), the Birch Creek River Management Plan (1983) and the Fortymile River Management Plan (1983) only by identifying ORVs associated with each river system which were not previously identified. The BLM consulted with the Yukon Flats Refuge Manager on proposed ORVs for Beaver Creek. River

management plans will be updated after completion of the RMP and will include cooperation with the USFWS. The RODs will outline in more detail any amendments to the river management plans resulting from decisions in the ROD.

L.4.19.9.7. Relationship to ANILCA

Comment Number: EIRMP000000161-17 and EIRMP000000170-14

Organization: Alaska Department of Natural Resources and Citizen's Advisory Commission on Federal Areas

Commenter Type: state government and state advisory committee

Summary

By definition, a wild and scenic river is a conservation system unit and any study of rivers within the Eastern Interior Planning Area for possible designation is a violation of Section 1326(b) of ANILCA. As such, any wild and scenic river suitability/eligibility review and possible recommendation for designation violates both the letter and the intent of ANILCA and should not be included in the final RMP under any alternative.

Response

Pursuant to section 5(d)(1) of the Wild and Scenic Rivers Act, the BLM is required to consider potential new national wild, scenic and recreation river areas during the resource management plan development process. Section 1326(b) of ANILCA does not preclude the BLM from doing so because resource management plans are not "single purpose" studies.

L.4.20. Subsistence

Comment Number: EIRMP000000153C-49, EIRMP000000213-5, EIRMP000000220-2, and EIRMP000000153C-43

Organization: Alaska Wilderness League and cosigners

Commenter Type: environmental organization and individuals

Summary

Subsistence is not adequately defined and the use of the term does not reflect the depth of community and identity. The plan doesn't provide evidence to support that no impacts are expected. Contradictions appear in the plan; in one section the plan states that there are no impacts to subsistence in the Upper Black River (P. 1165 - 1173, Appendix J ANILCA Section 810 Analysis), but in another section potential impacts are listed (P. 744, 4.6.4.4 Subsistence Upper Black River Subunit Summary).

Response

The depth of the cultural and traditional relationship with resources, often referred to as subsistence-based lifestyle, is discussed in Section 3.2.3. A definition of subsistence is found in Section 3.5.2.3.2. Subsistence, by this definition, is a key set of attitudes that encompass lifestyle,

culture and heritage. In Section 3.5.3., subsistence is defined as a traditional way of life and central to customs and traditions of many cultures in Alaska.

The commenter points out possible contradictions between conclusions in the following sections and an appendix to the Draft RMP/EIS. Potential impacts to subsistence uses and resources in the Upper Black River Subunit are listed in the summary section of all alternatives in the Chapter 4, Affected Environment, 4.6.4.4., Subsistence Upper Black River Subunit. Analysis of these potential impacts follows in Section 4.6.4.4.2 through 4.6.4.4.5 and potential impacts are evaluated by each alternative. The findings for these potential impacts range from no to minimal impacts that is, no significant impacts, and are described by alternative and management decision. The rationale for the findings is also described. Appendix J. ANILCA Section 810 Analysis, J.2.3. Evaluation and Finding for the Upper Black River Subunit incorporates by reference, the impact analysis in the Draft RMP/EIS. The findings for the Upper Black River Subunit of no significant restriction to subsistence resources or uses for each alternative in Appendix J are consistent with the analysis in 4.6.4.4.2 through 4.6.4.4.5.

L.4.20.1. Section 810 analysis

Comment Number: EIRMP000000126-4, EIRMP000000402-5, EIRMP000000334-1, EIRMP000000320-2, EIRMP000000320-2, EIRMP000000312-1, EIRMP000000223-1, EIRMP000000153E-30, EIRMP000000153D-30, EIRMP000000153D-29, EIRMP000000153D-28, EIRMP000000153D-27, EIRMP000000153D-26, EIRMP000000153D-25, EIRMP000000153C-54, EIRMP000000153C-53, EIRMP000000153C-52, EIRMP000000153C-51, EIRMP000000153C-48, and EIRMP000000149-6

Organization: Alaska Wilderness League and cosigners, Gwichyaa Zhee Gwich'in tribal government, Fortymile Miners Association, and Council of Athabascan Tribal Governments

Commenter Type: environmental organization, tribes, mining organizations, and individuals,

Summary

- Literature cited in ANILCA Section 810 Analysis concerning impacts from mining in the Steese National Conservation Area is not pertinent to justify further restrictions on mining as it was conducted before 3809 regulations were in place.

- In Appendix J, Upper Black River Subunit analysis of impacts to subsistence from mineral entry is incomplete and fails to determine the true impacts. Analysis must assume mining will occur and clarify development potential. Priority habitat areas and access routes must be identified. Impacts to fish are not evaluated. Protective mechanisms to prohibit mineral entry need to be explained. Required Operating Procedures and Stipulations are not sufficient without buffers for protection and discretionary language weakens them. Information used for Analysis for the Steese National Conservation Area Subunit must be updated as information used is old. Subsistence use maps for Circle are missing. Downstream impacts, including drinking water quality needs to be evaluated.

- BLM's findings in the Section 810 analysis are not consistent with the analysis sections of the Draft EIS. Impact analysis cites impacts to fish, water, and habitat, but the Section 810 analysis finds no impacts to subsistence.

- Gwichyaa Zhee Gwich'in tribal government requests that the BLM reconsider the Section 810 finding for the Upper Black River Subunit.

- BLM's rationale concerning mineral development in the Upper Black River Subunit is undermined by the agency's statement that "[s]hould the amount of oil and gas exploration, anticipated area of potential locatable mineral development, or other land uses expand, this [Section 810] finding may need to be revised to take into account impacts to the subsistence resources and uses that are not mitigated through this plan." Here, BLM expresses an awareness that significant adverse impacts on subsistence could occur if it turns out that the level of mining and oil and gas development exceeds its artificially low expectations. However, the BLM's suggestion that the solution would simply be to revise its no significant impact finding later is inappropriate.

Response

The ANILCA Section 810 Analysis (Appendix J) is a tool to evaluate the impacts of a proposed land use action on subsistence resources and activities. The analysis is not a tool to justify a particular land use action. Analysis of mining alternatives is in Chapter 4.

Analysis in this document is based on the assumptions in the reasonably foreseeable development scenario that locatable mineral potential in the Upper Black River is low (Map 87, Section 4.2.1). The scenario, which was developed by mining geologists, includes the number of anticipated mineral activities for this subunit and projects zero suction dredging, exploration, small-scale or large-scale placer mining operations. The lack of mining activity during the late 1800s and early to mid-1900s in the area further supports the scenario conclusion that no mineral potential exists. See L.4.15.3.2.1.

The Section 810 findings are whether or not there would be significant restrictions on subsistence use. Impacts to water, fish, and habitat do not necessarily lead to a significant restriction.

The BLM considered all comments and reviewed and revised the Section 810 Analysis as appropriate. The finding was still no significant impact in the Upper Black River Subunit.

Analysis in this document is based on the assumptions in the reasonably foreseeable development scenario that leasable mineral development potential in the Upper Black River is low. NEPA only requires the analysis of activities that are reasonably foreseeable. Future federal actions, such as mineral leasing, are subject to future NEPA analysis, government-to-government consultation, and Section 810 analysis and findings.

L.4.20.2. Incomplete and Unavailable Information Subsistence

Comment Number: EIRMP000000045-1, EIRMP000000045-2, EIRMP000000045-4, EIRMP000000153C-50, EIRMP000000153D-21, EIRMP000000153D-22, EIRMP000000153D-23, EIRMP000000153D-24, EIRMP000000153F-6, EIRMP000000166-3, EIRMP000000166-4, EIRMP000000166-5, EIRMP000000166-9, EIRMP000000170-18, EIRMP000000170-19, EIRMP000000170-20, EIRMP000000213-1, EIRMP000000213-7, EIRMP000000214-2, EIRMP000000242-1, EIRMP000000242-2, EIRMP000000274-2, EIRMP000000276-1, and EIRMP000000287-1

Organization: Alaska Wilderness League and cosigners, Tribal Government of Fort Yukon, and Alaska Department of Natural Resources

Commenter Type: individuals, environmental organization, tribe, and state government

- Important subsistence use areas for the Eagle area are missing from the maps. Subsistence use maps have no data for Birch Creek or Circle.
- Description and analysis of potential impacts to subsistence are not provided for Alternative C and D.
- Wildlife goals and decisions in the RMP do not include species other than moose and caribou.
- Under the No Action Alternative, the BLM indicates (Page 101 of the Draft RMP) that subsistence would be managed project by project within the Steese National Conservation Area. Wildlife and fish and aquatic habitats experience cumulative impacts as well as site specific projects. This is approach to subsistence management disregards the full impacts of altered and fragmented habitats on subsistence species.
- The BLM failed to include an evaluation of impacts to subsistence resources in the action alternatives for the Steese Subunit. Nor did the BLM assess impacts to subsistence fisheries for the Fortymile Subunit.
- The subsistence use data for the Upper Black River Subunit are limited in scope and date. Data on the effects of the alternatives on salmon and other populations is lacking.
- The Section 810 analysis fails to analyze the effects of access restrictions on subsistence users.
- Subsistence harvest data collected by the Council of Athabascan Tribal Governments and references on subsistence use in the Upper Black River Subunit are missing from Chapter 3 and impacts on subsistence from mining and oil and gas development are not adequately addressed.
- Impacts on subsistence hunting and gathering from loss of permafrost due to climate change was not addressed.
- Whitefish are an important subsistence resource in the Black River and need to be protected.
- The BLM failed to include an evaluation of impacts to subsistence resources in the action alternatives for the Steese Subunit.

Response

Eagle subsistence use area information provided during the comment period has been added to Chapter 3 of the Final EIS. Use areas for Eagle, Circle, and Birch Creek are discussed in section 3.5.3.3.1. These use areas were not included on the maps because shape file data did not exist for these villages. No additional use areas for Circle and Birch Creek were identified through public scoping or comment periods. Use areas are discussed in Chapter 3.5.3.3.1 based on available published information.

Assumptions for analysis are included in the Proposed RMP/Final EIS (section 4.2.1.3.3). The development potential for leasable minerals was also used in analysis of impacts (Chapter 3 section 3.3.4.1.1). Using USGS data, the development potential is described and concludes that there is little to no oil and gas development potential on BLM-managed lands in the Upper Black River Subunit. Less than two sections of BLM-managed lands in the planning area have high leasable mineral potential (near Circle). The rest of BLM-managed lands have low or no leasable mineral potential based. High leasable mineral potential areas are located in the

Yukon Flats NWR. Potential impacts from leasable minerals to subsistence uses and resources are discussed further in the section 4.6.4.4.

The goals for subsistence are inclusive of all subsistence resources. The goal highlighted in this comment does not exclude other species, but includes moose and caribou as examples of being among the important subsistence resources.

Section 2.6.1.4. Subsistence describes management under Alternative A in the Steese Subunit. Project-specific basis means a request for permit for a land use action. Each of those applications is analyzed for impacts to subsistence including how the proposed action in conjunction with past, present and reasonably foreseeable future actions impacts the resources (cumulative effects). Additionally, an ANILCA Title VIII Section 810 Evaluation and Finding is conducted for each proposed action.

Impacts to subsistence resources in the Steese Subunit are listed by alternative in Table 2.28 and discussed by alternative in sections 4.5.4.4 Subsistence Steese Subunit. Impacts to fish resources are analyzed in depth in section 4.4.1.2. Fish and Aquatic Species Fortymile Subunit and water resources in section 4.4.1.4 Soil and Water Resources Fortymile Subunit. Further impacts are discussed section 4.4.4.4.

An RMP is developed using existing data and new projects to gather data are not required. However, the BLM conducted two aerial salmon spawning surveys and on seven-day fish inventory survey within the Black River Drainage, including the Salmon Fork, during the planning process. Available data on subsistence use and areas are limited. The BLM depends on supplementing existing data through public input at scoping and comment meetings and through the open scoping and comment periods. Using this data, we have updated Map 98 and have included the information in the Final EIS. Two reports on annual harvest of land mammals have been published since release of the Draft RMP/EIS, but no new data on use areas is available. In the Proposed RMP (Alternative E), the Salmon Fork ACEC and Riparian Conservation Areas throughout the Upper Black River Subunit will protect Chinook salmon spawning areas and other areas important for fish. These areas are closed to locatable and leasable minerals, as is the Black River watershed. Impacts to fish and aquatic resources that are common to all alternatives are described in Section 4.3.1.4.1 of the draft RMP and impacts specific to the Upper Black River Subunit can be found in Section 4.6.1.2.

Impacts to subsistence users as a result of access restrictions are analyzed in the Section 810 Analysis for the Proposed RMP/Final EIS, Appendix J.

Two reports on subsistence harvest data collected by Council of Athabascan Tribal Governments have been published since the Draft RMP was published. The information is included in the analysis of the Proposed RMP/Final EIS. Many thesis, journals, articles, and books about the Black River were consulted for development of the Draft RMP but were not cited at the time. The references were reviewed, including any references identified through public comment, for the Final EIS and incorporated where information contributed to the analysis of impacts.

Climate change and permafrost degradation associated with warming climate is discussed in sections 4.3.1.6.1 and 4.3.1.6.2. The effects of melting permafrost are highly variable and depend on the characteristics of the site. Surface hydrology can change, increased erosion may occur, and lakes may initially expand as permafrost degrades, followed by lake drainage. Impacts of climate change on wildlife and wildlife habitat are analyzed in section 4.3.1.12.6. Further discussion of impacts from climate change to subsistence resources is in Appendix J.

Whitefish are recognized in both the Draft and Proposed RMPs as a priority fish species in the Eastern Interior Planning area with priority status for subsistence (Section 2.6.2.3 Table 2.2) and as a stable food source for residence in the Upper Black River Subunit (Appendix J Section J.2.3 Evaluation and Finding for Upper Black River Subunit). Further, the Salmon Fork ACEC offers protection to whitefish, including an important sheefish spawning area (Appendix C.3).

L.4.20.3. Incomplete and Unavailable Information Black River Subunit

Comment Number: EIRMP000000213-3, EIRMP000000149-5, EIRMP000000153-31, EIRMP000000213-2, EIRMP000000293-2, and EIRMP000000312-4

Organization: Alaska Wilderness League and cosigners, Council of Athabascan Tribal Governments

Commenter Type: individuals, environmental organization, and tribes

Summary

Literature cited for subsistence in the Upper Black River Subunit is dated. More data are available on subsistence resource use and areas than was included in the Draft RMP/EIS.

Response

During scoping meetings, the public indicated that new data on subsistence use of land mammals had been collected. The data were not available to the BLM because reports had not been published. Analysis therefore was conducted using existing published or available data. Two technical papers on subsistence harvest of land mammals have been published since the analysis was written (Van Lanen et al 2012 and Stevens and Maracle 2012). Data in these papers supports the analysis that the whole of the subunit is important to subsistence use and further supports data cited for areas of higher use. No new information on use of fisheries resources in the subunit has become available.

Information identified through the comment periods has been reviewed to assure that it was included in the Draft RMP/EIS or if there is new information that would change the analysis. Many of the documents identified by comment authors were used and cited in Chapters 3 and 4 of the Draft RMP/EIS. Clarification or addition of information on subsistence use areas will be included on maps and in document text as appropriate in the Proposed RMP/Final EIS. The importance of the Upper Black River area, including the Salmon Fork, as important to subsistence uses by Chalkyitsik and Fort Yukon is emphasized in Chapter 3, especially in Section 3.5.3.3.1. Subsistence Use Areas, in Appendix J.2.3 of the Draft RMP/EIS. Additionally, the importance of the Chinook salmon spawning area in the Salmon Fork and the contributions to Chinook populations in the Yukon River drainage is a major driver for designation of the Salmon Fork ACEC. Comments have been used to analyze importance and relevance criteria for expansion of the Salmon Fork ACEC to include the Grayling and Wood River, and prescribing additional protections for the area.

L.4.20.4. Goals and Objectives

Comment Number: EIRMP000000170-23

Organization: Alaska Department of Natural Resources

Commenter Type: state government

Summary

The goals for subsistence need to be reworded because the BLM does not have the authority to regulate subsistence harvest.

Response

The goal was reworded as follows: Effectively manage subsistence resources and uses or effectively provide for a subsistence priority.

L.4.21. Traditional Ecological Knowledge

Comment Number: EIRMP000000148-3, EIRMP000000148-4, EIRMP000000149-4, EIRMP000000151-1, EIRMP000000153-19, EIRMP000000153-20, EIRMP000000153-27, EIRMP000000153-35, EIRMP000000153-39, EIRMP000000158-4, EIRMP000000166-4, EIRMP000000206-1, EIRMP000000209-4, EIRMP000000211-1, EIRMP000000212-2, EIRMP000000220-5, EIRMP000000227-1, EIRMP000000296-6, EIRMP000000300-1, EIRMP000000301-2, EIRMP000000372-1, EIRMP000000382-1, EIRMP000000410-28, and EIRMP000000410-31

Organization: Alaska Wilderness League and cosigners, Chalkyitsik Village Council, and Gwichyaa Zhee Gwich'in tribal government

Commenter Type: individuals, environmental organization, and tribe

Summary

- The RMP/EIS lacks inclusion of Traditional Ecological Knowledge.
- Management decisions through the planning process should be deferred until more biological data and Traditional Ecological Knowledge are available for the Upper Black River Subunit.
- The BLM should manage areas in the Upper Black River for traditional and current uses in support of local people and their subsistence use of the area.

Response

Local and traditional knowledge was gathered during scoping meetings and included in the analysis of impacts in the Draft RMP/EIS. Knowledge shared during the public comment period on the Draft RMP/EIS, at Section 810 hearings, and during government-to-government consultation was and resulted in updates to impact analysis in the Proposed RMP/Final EIS.

Although there are data gaps, enough information is available to make a reasoned choice among alternatives. The Upper Black River Subunit is included in this Proposed RMP/Final EIS. No decisions will be made until the record of decision is published.

The BLM appreciates the concerns of local residents and considered these concerns in development of the Proposed RMP/Final EIS. The BLM through FLPMA manages for multiple uses. Traditional and current uses are considered part of the multiple uses we manage. Protection of resources is considered in all land use actions. Where land use actions have impacts, measures to mitigate them are implemented through the NEPA process. If it is determined through the

ANILCA Section 810 evaluation and finding process that impacts may significantly restrict subsistence uses or resources even after mitigation is applied, the law requires disclosure of those findings through an ANILCA Section 810 public hearing. Tribes and local residents will have the opportunity to provide input during this process. The BLM will continue to consult with tribes on any permitted activities in the Upper Black River Subunit.

The BLM recognizes the importance of the Upper Black River area to residents of Yukon Flats. The Proposed RMP (Alternative E) designates the Salmon Fork drainage (623,000 acres) as an ACEC. Like Alternative B, it identifies 28 watersheds (624,000 acres) in the Salmon Fork, Black, Little Black, Kandik, and Grayling Fork as riparian conservation areas (Map 11). Altogether, the Proposed RMP (Alternative E) recommends closing 1.8 million acres (77 percent of the subunit) in the ACEC, Black River watershed, and riparian conservation areas to mining claims and mineral leasing.

L.4.22. Economics

Comment Number: EIRMP000000153C-36, EIRMP000000153C-55, EIRMP000000153E-35, EIRMP000000153F-11, EIRMP000000163B-48, and EIRMP000000348-1

Organization: Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: federal government, environmental organization and individual

Summary

- The social and economic analysis for the Upper Black River assumes there will be no locatable mineral mining or oil and gas leasing, thus no associated economic effects. This conclusion is flawed as the BLM does not know or try to describe the current socio-economic reality in the Upper Black River Subunit.

- The BLM should conduct a more thorough analysis of the socio-economic impacts by applying a broad view of socio-economic facts, both beneficial and harmful, from various alternatives and ensure that the Proposed RMP/Final EIS relies on such an analysis.

- Jobs in the mining industry will not benefit the local residents of the Yukon Flats who prefer to live off the land. Mining would not improve the economy for the people in the Fort Yukon area because they are not going to be hired. There's lots of construction going on right now in that area and the local people are not being hired. There's airport construction, clinic construction… these construction jobs are not being filled by local people, they're not even being filled by Alaskans.

- The BLM did not address the negative economic consequences that could result from degradation of the primitive and semi-primitive recreational experiences that exist today, and that are increasingly sought after by the independent and guided tourists, photographers, and artists.

- The BLM should consider additional analysis of how increased recreation use could add income for the local village through guiding (hunting, wilderness, and eco-tourism).

Response

Chapter 3 of the Draft EIS, Supplemental EIS, and Final EIS characterize existing social conditions and economic facts. Presentations in section 3.5.2 of the Final EIS describe conditions as they exist today to the extent necessary for impact and decision making at the land use plan level. Alternatives A through E are analyzed as four separate geographic subunits to emphasize differences and provide more specificity in Chapter 4. This analysis is adequate for identification of effects and decision making, both where effects have been quantified as well as where effects involve non-market values which cannot be quantified. See sections 4.3.3 for impacts common to all subunits, and sections 4.4.4, 4.5.4, 4.6.4, and 4.7.4 for effects on economics, environmental justice, social conditions, and subsistence.

The BLM recognizes the concerns of local residents who practice a subsistence lifestyle. The Final EIS analyzes the impacts of mining to subsistence resources and water in chapter 4.

Various sources cited in Chapter 4 (McDowell, State of Alaska) show the economic effect of job creation by mining. The BLM RFD shows the number of jobs resulting from new mining activity. These are seasonal, and may therefore foreclose summer subsistence activities and replace them with cash income. There is also significant non-resident participation, up to 29 percent, in the mining industry, reported by McDowell in The Economic Impacts of Alaska's Mining Industry (2012). Therefore, for those willing, a limited number of jobs will become available.

The BLM did not place a value on or weight on the type of recreation use in areas where mining was potentially expanded. The most that can be said is that under each alternative restrictive management preserves semi-primitive use versus less restrictive management favoring more modern use. In these subunits, Alternative B favors semi-primitive use over modern such as OHV use. Alternatives C and E best meet the goal of providing for multiple recreation use, while sustaining the recreation-resource base and other sensitive resource values of the region. Alternative B emphasizes less motorized recreation use in a more primitive setting, while Alternative D offers more motorized recreation use and includes the most acreage for cross-country OHV travel, followed by Alternative A. It is possible only to describe the economic benefit accruing to one form of recreation in terms of its direction. Thus, Alternative B may benefit guides (and economics) providing semi-primitive experiences, but will do so at the expense of other types of recreational experience. The BLM expects that villages or villagers may be able to sell goods as well as services to recreationists and particularly guides if they are willing to do so. However, the effects would be low. This is discussed in section 4.3.3.1.1.

L.4.22.1. Analysis of Economic Impacts

Comment Number: EIRMP000000092-7

Commenter Type: individual

Summary

The Social and Economic discussion for the White Mountains in Alternative D only estimates the direct cost of mining goods and employees and does not consider the indirect costs of the services and related industries that support mining operations that may occur. The statement that the mining operations in the White Mountains NRA would account for about $3 million underestimates the benefits by $2 to $2.5 million when considering the money spent in Fairbanks supporting mining in the White Mountains NRA. The costs for exploration are also underestimated by about 50 percent from actual dollars spent on this activity in 2012 when including the service industry supporting mineral exploration.

Response

The BLM used IMPLAN multipliers for gold and silver mining in the Final EIS. The employment multiplier is 2.10 and the payroll multiplier is 1.93. See McDowell, *The Economic Impact of Alaska's Mining Industry*, January, 2012. These multipliers give the effect of indirect and induced employment. IMPLAN is the most widely accepted regional economic analysis software for predicting economic impacts.

L.4.22.2. Nonmarket Values

Comment Number: EIRMP000000153B-13 and EIRMP000000153C-37

Organization: Alaska Wilderness League and cosigners

Commenter Type: environmental organization

Summary

The BLM has defined “wilderness characteristics” to include naturalness and providing opportunities for solitude or primitive recreation. In making decisions about managing lands with wilderness characteristics the BLM should recognize the wide range of values associated with these lands including economic benefits. The recreation opportunities provided by wilderness quality lands also yield direct economic benefits to local communities. According to the USFWS in 2006 State residents and non-residents spent $3.4 billion on wildlife recreation in Alaska. (USFWS 2011, National Survey of Hunting, Fishing and Wildlife-associated Recreation -http://www.census.gov/prod/2013pubs/fhw11-ak.pdf).

Response

The point is made in this comment that wilderness characteristics have values not described as economic. For example an economic value resulting from outdoor recreation in Alaska (not wilderness.) Studies such as Colt (2001) referenced in the Draft EIS show that ecosystems support jobs, particularly commercial fishing, but also include jobs in tourism, sport fishing and hunting, land and resource management, resident recreation, and subsistence. Colt also calculated a willingness to pay for sport as well as subsistence activities in Alaska's wilderness. The economic benefit of wilderness characteristics has not been quantified where it occurs in the planning area. However, it is well known that certain character of land is deemed valuable by both those using the land as well as others who value the existence of the land or its character.

L.4.23. Planning Process

Comment Number: EIRMP000000038-3

Commenter Type: individual

Summary

The Fortymile Subunit should be removed from consideration in the Eastern Interior RMP and should continue to be managed under the 1980 Framework Management Plan. If the BLM needs to comply with FLPMA, they can do so by modifying the current 1980 plan to reflect changes, not by writing a complete new RMP.

Response

BLM land use plans developed before 1985 are known as management framework plans. Plans developed after 1985 are RMPs and these are defined in the BLM's planning regulations at 43 CFR Part 1600. The Fortymile Management Framework Plan is considered in the No Action Alternative. Retaining the management framework plan does not meet the BLM's purpose and need for the RMP. Replacing the management framework plan with a RMP is consistent with BLM policy and regulation.

L.4.23.1. Public Outreach

Comment Number: EIRMP000000026-3, EIRMP000000139-2, EIRMP000000153B-7, EIRMP000000153B-8, EIRMP000000153B-9, EIRMP000000157-7, EIRMP000000180-1, EIRMP000000320-5, EIRMP000000196-1, EIRMP000000412-2, EIRMP000000412-1, and EIRMP000000139-2

Organization: Northern Environmental Center, Alaska Wilderness League, Eastern Interior Federal Subsistence Regional Advisory Council, Alaska Department of Natural Resources

Commenter Type: individuals, environmental organizations, state government, and advisory committee

Summary

- The BLM should evaluate its public outreach effort and institute measures that will improve communication and resource management planning education for communities, including improving the project website.
- The BLM should provide another public comment period because a new alternative is added in the Proposed RMP/Final EIS. The public has not had a chance to comment on the Proposed RMP/Final EIS.

Response

The BLM appreciates the difficulty in providing effective public outreach and is striving to improve in this area. The BLM appreciates these constructive comments on the website and is working to improve the content.

The Proposed RMP (Alternative E) is a minor variation of the alternatives analyzed in the Draft RMP/EIS and is qualitatively within the spectrum of alternatives analyzed in the Draft. Additional public comment is not required.

L.4.23.2. Size and Complexity of Document

Comment Number: EIRMP000000038-1, EIRMP000000148-1, EIRMP000000149-2, EIRMP000000153B-6, EIRMP000000153E-38, EIRMP000000161-1, EIRMP000000161-2, EIRMP000000161-3, EIRMP000000161-4, EIRMP000000170-2, EIRMP000000196-2, EIRMP000000320-1, and EIRMP000000320-7

Organization: Chalkyitsik Village Council, Council of Athabascan Tribal Governments, Citizen's Advisory Commission on Federal Areas, Alaska Department of Natural Resources, and Alaska Wilderness League

Commenter Type: individuals, environmental organizations, state government, and state advisory committee

Summary

- The four subunits would be better served by each having their own RMP. This format would define alternatives that are sound and informative, allowing local residents to gain a better understanding of this RMP and to provide recommendations. The Upper Black River Subunit should be removed because the BLM does not have enough information to make decisions for this area.

- The plan is too large and complicated. For many members of the public the task of reviewing such a large and complex plan was daunting and even insurmountable.

- The White Mountains NRA plan is in the context of a total of 10 other plans and regulations that will be superseded, amended or may require new regulations across 6.5 million acres (Section 1.7). This is an overwhelming magnitude of management changes from current conditions and complex new policies.

- Including ANILCA designated units such as Birch Creek, Beaver Creek and Fortymile WSRs, the Steese National Conservation Area and the White Mountains NRA in the same RMP with several millions of acres of undesignated BLM lands leads to inadequate recognition of key management provisions applicable to these ANILCA designated areas.

Response

Given the time and expense required to develop and approve a resource management plan, the BLM chose not to do a separate RMP/EIS for each subunit. We attempted to facilitate public comment by summarizing information by subunit. Removing the Upper Black River Subunit would not meet the purpose and need.

The BLM recognizes that the Draft RMP was long and complicated. We attempted to facilitate public comment by providing subunit summaries and posters displaying major management decisions. We also provided an 11 month public comment period.

Changes to travel management will be addressed in step down travel management plans, allowing for more public participation in development of supplemental rules for both motorized and non-motorized activities and trails. Five of the referenced documents in section 1.7 address supplemental rules.

The BLM addressed this issue by breaking the planning area into four subunits. Undesignated lands were minimal in the White Mountains and Steese subunits, allowing analysis and planning to focus on key management provisions of the referenced areas. The Fortymile WSR was considered in conjunction with undesignated BLM lands in the Fortymile Subunit. The management provisions for the Fortymile WSR were a key consideration during the planning process.

L.4.23.3. Purpose and Need

Comment Number: EIRMP000000164-2, EIRMP000000156-2, EIRMP000000153E-8, EIRMP000000153E-36, EIRMP000000153C-8, EIRMP000000058-1, and EIRMP000000141-4

Organization: Alaska Wilderness League and cosigners, U.S. Fish and Wildlife Service, Fairbanks Economic Development Corporation, Alaska Backcountry Hunters and Anglers

Commenter Type: environmental organization, Outdoor Recreation Organization, Business Organization, and federal government

Summary

- The alternatives in the RMP do not adequately address the purpose and need because they fail to resolve conflicts between resources and Alternative C does not implement additional protections for fish and wildlife populations and habitat, in order to comply with international treaties and sustain subsistence resources and subsistence opportunities.
- Section 1.7 Relationships to BLM Policies, Plans, and Programs fails to explain why changes in regulations pertaining to off-road vehicle use in may be required as a result of the RMP.

Response

The BLM believes that range of alternatives meets the purpose and need of creating a plan that allows for multiple use on some lands while protecting natural resources. Alternative C provides additional protections for fish and wildlife populations and their habitat. For example, Alternative C would designate three ACECs for fish and wildlife and implement many new standard operating procedures to reduce impacts to animals and habitat.

If the revised RMP results in changes to current limitations on use off-highway vehicles or other activities the BLM will publish new special rules in the *Federal Register* to implement these changes. Section 1.7 was revised to explain the relationship between the RMP and special rules for off-road vehicle use.

L.4.23.4. Goals and Decisions

Comment Number: EIRMP000000164-3, EIRMP000000164-4, and EIRMP000000164-6

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

The action alternatives presented in the Draft RMP/EIS include components within alternatives which are not fully complementary. This restricts the plans ability to meet the goals or desired conditions. For example, desired future conditions for aquatic habitats include" ... stream channels conditions are stable and consistent with the surrounding landform and watershed." This plan has not demonstrated that reclamation practices can achieve this outcome; therefore, opening areas to mining is not complementary to meeting this desired future condition for aquatic habitats.

Response

These are desired future conditions, meaning that the BLM will strive to achieve these conditions. BLM-managed lands are open to multiple use and it is inevitable that some surface disturbing activities will occur on some lands over the life of the plan. Management decisions may prioritize other activities over protection of aquatic habitat based on site specific analysis of proposed

projects. This does not mean that we should strive for a lower level of aquatic habitat condition in the RMP objectives.

L.4.23.5. Monitoring Plan

Comment Number: EIRMP000000153B-37 and EIRMP000000164-13

Organization: Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: environmental organization and federal government

Summary

A detailed monitoring approach is required under the BLM's planning regulations (43 CFR 1610.4-9) including establishing intervals and standards, as appropriate, for monitoring and evaluation of the plan.

Response

A monitoring plan will be developed as part of the ROD. The BLM will evaluate the RMP every five years after signature of the ROD to determine if there is sufficient cause to warrant amendment or revision of the plan.

L.4.23.6. Comparison of Impacts

Comment Number: EIRMP000000139-1
Organization: Northern Environmental Center

Commenter Type: environmental organization

Summary

The RMP does not reflect the scale of the changes that will occur. This could be partially fixed by providing map(s) and table(s) with the combined acreage for all non-renewable resource uses e.g., all areas where mineral resource classifications, allocations, etc. exist today and how they would change in each alternative. The impacts are obscured by use of jargon, e.g., leasable minerals, locatable minerals, salable minerals, throughout the RMP.

Response

Summary tables of the alternatives are provided for each subunit in sections 2.7.3, 2.8.3, 2.9.3, and 2.10.3. Additional text was added to these tables and in the minerals sections of chapter 2 to help define the various types of minerals. Terms are defined in the glossary. An additional summary table is provided listing total land allocations for the entire planning area in section 2.2.6.

L.4.23.7. Incomplete and Unavailable Information

Comment Number: EIRMP000000151-2, EIRMP000000153-29, EIRMP000000153B-52, EIRMP000000153B-53, EIRMP000000153B-56, EIRMP000000153C-29, EIRMP000000153C-31, and EIRMP000000153E-23

Organization: Tanana Chiefs Conference and Alaska Wilderness League and cosigners

Commenter Type: tribal organization and environmental organization

Summary

In the Draft EIS/RMP, the BLM acknowledges the lack of information about wildlife, culture, fish, mineral potential, and trail systems and yet conclusions are drawn regarding impacts to these resources. The BLM must determine if the information is "important," "significant," or "essential," for the agency to make a reasoned decision (40 CFR 1502.22). This determination is not in the RMP. In fact, all of this information is essential, important, and significant to determine impacts to resources in the planning area and for the BLM to make a reasoned choice among the alternatives.

The BLM states the drainages in the Upper Black River Subunit do not have high mineral potential but their assessment is due to lack of data (Draft RMP/EIS p. 760). In Alternative C, the BLM recommends locatable entry in the entire area and goes on to state, "…no mining is anticipated during the life of the plan due to the low mineral potential and lack of access." The BLM cannot proceed without necessary missing information without addressing it. The information on mineral potential is necessary to making a reasoned choice among the alternatives, but the BLM has not determined whether it can obtain that information. The information is further necessary because the BLM relies upon the conclusion that no impacts are anticipated due to low mineral potential. The BLM cannot state on the one hand that there will be no impacts and on the other hand say they do not have sufficient information to assess the mineral potential.

Response

Section 4.2.3 of the Proposed RMP/Final EIS addresses incomplete or unavailable information. Although there are data gaps, enough information is available to make a reasoned choice among alternatives. The BLM has deferred some decisions, such as Travel Management planning, to an activity level plan allowing for collection of more data. The BLM routinely collects additional data through monitoring and inventory and will consider new data collected after approval of the RMP during the NEPA analysis and approval process conducted on each request for a permit.

The BLM determined that new mining claims are not reasonably foreseeable in the Upper Black River Subunit based on the Locatable Mineral Potential and Development Report. This report considered ARDF data, known mineral deposits, and mineral terranes, as well as access and infrastructure. There is little evidence that BLM-managed lands in the Upper Black River ever attracted much locatable mineral exploration or development. Pre-withdrawal activity is one of the best indicators of future activity. There is no record of mining claims on BLM-managed lands in the Upper Black River Subunit before the withdrawals were put in place. The next best indication of future locatable mineral activity is the location of mining claims on adjacent state lands. There are neither state mining claims on state lands in the area nor any substantial activity across the Canadian border. This lack of historic activity or activity on open adjacent lands points toward there being limited future activity on BLM-managed lands if the withdrawals were lifted. The statement referenced in this comment (p. 760) was poorly worded in the Draft EIS and was revised in the Final EIS (section 4.6.2.1.4).

Section 4.2.3 of the Final EIS was revised to clarify that the available information is sufficient to make a reasoned choice among alternatives. The BLM has determined that the Mineral Occurrence and Development Potential Reports provide sufficient information to make a reasoned choice among alternatives and additional study is not essential.

L.4.23.8. Objectives

Comment Number: EIRMP000000164-12, EIRMP000000164-8, and EIRMP000000163B-98

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

Section 2.4.1 [Resources] is lacking measurable objectives and time frame in many resource sections. The BLM Land Use Planning Handbook (H-1601-1) states that "land use plans must identify desired outcomes expressed in terms of specific goals and objectives" and "objectives are usually quantifiable and measurable and may have established timeframes." The alternatives should be reviewed and edited to ensure that components within alternatives are complementary and that measurable objectives be formulated for all resources as a means of evaluating progress toward achieving the goals

Response

As stated in the Planning Handbook, objectives are usually quantifiable and measurable, and may have established time frames. The handbook recognizes that it may not always be appropriate to set objectives to this level in a RMP. Given the general nature of planning decisions, the long time frame that the RMP will apply, existing data gaps, and the large planning area is it difficult to create quantifiable and measurable objectives for all resources. During development of the Proposed RMP/Final EIS, the BLM reviewed these sections to determine if more measurable objectives could be developed.

L.4.23.9. New alternatives Recommended by Public

Comment Number: EIRMP000000164-63 and EIRMP000000198-1

Organization: U.S. Fish and Wildlife Service and Alaska Outdoor Council

Commenter Type: federal government and recreation access organization

Summary

- The BLM should consider an alternative that prevents mining in watersheds that flow onto National Wildlife Refuge lands. The Fish and Wildlife Service is very concerned about the potential impacts on water quality from proposed mining activities in the White Mountains, Steese, and Upper Black River subunits and specifically the Beaver Creek, Birch Creek, Preacher Creek and Black River watersheds. We recommend creation of a new alternative that bridges the gap in acres proposed open to locatable mineral entry between Alternatives B and C, and which would provide increased protection of resources in the Black River and Preacher Creek watersheds.

- There is no alternative that addresses increased access. All the action alternatives increase limitations on access. Access is decreasing across the state and many Alaskans actively use the planning area for mining, hunting, and recreating.

Response

The Draft RMP considered an alternative (B) that closed all watersheds in the White Mountains, Upper Black River, and Steese National Conservation Area. The No Action Alternative (A) closes all lands in the planning area to mining. The Proposed RMP (Alternative E) closes the Steese National Conservation Area and many of the watersheds in the Upper Black River Subunit to mining and mineral leasing. The Proposed RMP (Alternative E) falls between Alternative B and C relative to mineral closures.

The Proposed RMP (Alternative E) would set OHV designations as limited, but defer more specific travel management decisions to step down travel management plans in the White Mountains, Steese, and Fortymile subunits. This will allow for additional public participation in the development of specific limitations on motorized vehicles. The commenter is correct in that the action alternatives generally restrict motorized use more than the No Action Alternative. However, since there are currently no OHV designations in the Black River and Fortymile subunits and cross-country motorized travel, subject to weight limits, is allowed in much of the Steese and White Mountains, this is not unreasonable. The alternatives in the White Mountains provide for use of UTVs on some trails. This type of use is currently not allowed. Additionally, the Proposed RMP (Alternative E) removes some existing restrictions on motorboat and snowmachine use.

L.4.23.10. Tribal Consultation

Comment Number: EIRMP000000130-1, EIRMP000000131-1, EIRMP000000131-2, EIRMP000000141-1, EIRMP000000148-2, EIRMP000000148-6, EIRMP000000149-1, EIRMP000000151-5, EIRMP000000153B-40, EIRMP000000165-3, EIRMP000000166-7, EIRMP000000213-4, EIRMP000000293-1, EIRMP000000294-2, EIRMP000000149-7, and EIRMP000000296-10

Organization: Black River Working Group, Chalkyitsik Village Council, Tanana Chiefs Conference, Tribal Government of Fort Yukon, and Council of Athabascan Tribal Governments

Commenter Type: individual, tribe, tribal organization, and concerned citizen’s organization

Summary

- Many comments expressed concern that the level of government-to-government consultation on the RMP was not sufficient and did not meet the requirements of 13175, "Consultation and Coordination with Indian Tribal Governments" (July 30, 201 0) and Department of the Interior Order 3317, "Department of the Interior Policy on Consultation with Indian Tribes" (December 1, 2011).

- Some tribal members expressed concern that the BLM tells the tribe what the plan is, rather giving the tribes an opportunity for leadership and joint decision-making.

- Comment expresses concern about pending state legislation that could affect the level of consultation with tribes for activities on State lands. The BLM must include this information in the RMP, citing policy changes within the State of Alaska regarding resource management, within the cumulative impacts section of the RMP to fully understand the scope of cumulative impacts that Yukon Flats residents could be facing.

Response

The BLM invited tribes to consult on the RMP; developed Memorandums of Understanding with the Gwichyaa Zhee Gwich'in tribal government and the Chalkyitsik Village Council; and met multiple times with both these tribal governments. Tribal consultation is a learning process for both the BLM and the tribes, and requires two-way communication.

The BLM is responsible for management of the public lands and as such must be the final decision maker. However, we welcome input from the tribes. There may be options for cooperation in implementation of the RMP.

The BLM has a requirement to consult with the tribes and will do so for activities occurring on federal land. The recommendations in the RMP to open lands to mineral entry apply only to BLM-managed lands. State lands in the Upper Black River Subunit are already open to development as allowed under state laws. The RMP will not change this. Section 4.2.4 outlines the scope and time frame for the cumulative effects analysis and also identifies activities considered in the cumulative analysis. These include past and present land use activities, reasonably foreseeable future land uses, and projected regional changes due to climate change. The analysis includes activities occurring or projected to occur on state lands.

L.4.23.11. Cooperation and Consistency

Comment Number: EIRMP000000153B-39, EIRMP000000153B-41, EIRMP000000154-1, EIRMP000000410-32, EIRMP000000164-15, EIRMP000000163B-61, EIRMP000000163B-63, EIRMP000000164-11, and EIRMP000000164-74

Organization: Alaska Wilderness League, Fairbanks North Star Borough, U.S. Fish and Wildlife Service, and Gwichyaa Zhee Gwich'in tribal government

Commenter Type: environmental organization, Local government, federal government, and tribe

Summary

- The BLM should work in concert with the USFWS to maximize management that takes into account values managed by both agencies, and include this commitment in the RMP in relation to lands with wilderness characteristics, Recreation Management Areas, ACECs, and wildlife corridors.

- An explanation of the relationship between the BLM Draft RMP/EIS and associated State land use plans or proposals would help the reader to understand the connectivity between land management strategies and regional projects of statewide significance such as: Alaska Stand Alone Gas Pipeline, Alaska Gas line Development Corporation-Alaska Pipeline Project, Alaska Interior Energy Plan, Dunbar Siding to Livengood Railroad Extension Route, Alaska Railroad Corporation-Alaska Canada Rail Link Rails to Resources to Ports, and Timber Planning on State Lands.

- It was not clear if the RMP analyzed whether the proposed alternatives would be consistent with the management purposes on adjacent refuge lands (43 CFR 1610.3-1 and 1610.3-2).

- Expansion of the Salmon Fork ACEC to include the entire area nominated by Chalkyitsik Village would ensure consistency with management of surrounding lands including: Yukon Charley Rivers National Preserve in the U.S. and, the Ni'iinlii Njik Habitat Protection Area, the Ni'iinlii Njik Ecological Reserve, and the Ni'iinlii Njik Wilderness Preserve in Yukon

Territory. The entire watershed of the Salmon Fork of the Black River on the Canadian side is designated a Chinook Salmon Conservation Unit, CK-77, established to delineate units of salmon diversity that are important to people, provide the basis of current and future salmon production, and protect stocks that have unique adaptations that are genetically encoded and are geographically isolated.

- Preacher Creek and Rock Creek in the Steese National Conservation Area represent boundaries between Yukon Flats NWR and BLM management units and are under shared ownership. Opening these rivers to mining will result in incompatible land management policies within a single reach of river. Therefore, Rock Creek should remain closed to locatable and leasable minerals because mineral extraction is incompatible with the Refuge purposes and mandates.

- Because there are possible inconsistencies between the proposed alternatives in the Draft RMP/EIS and Service land use plans and policy, the Service recommends that the BLM provide discussion in the environmental consequences section of the " ... possible conflicts between the proposed action and the objectives of federal land use plans ... and policies ... for the area concerned" as required by 40 CFR 1502.16 (CEQ). Examples where there is a lack of consistency in proposed management and unresolved resource conflicts include continuing downward trend in fisheries, loss of migratory bird habitat on 1,600- 8,300 stream miles proposed open to mining, continued water quality degradation stemming from non-point erosion related to 1,600 to 8,300 miles of streams proposed open to mining; adverse impacts to subsistence resources (e.g., Salmon Fork and Beaver Creek - salmon), continuing downward trend of riparian resources which relates to migratory bird and wildlife habitat, fish, water quality, and subsistence); and adverse impacts to critical caribou and Dall sheep habitat - all of which are trust resources for the Yukon Flats NWR.

Response

Section 1.9 of the Proposed RMP (Alternative E) discusses the relationship between the RMP and plans formulated by federal, state, local, and tribal governments. Proposals for activities that are reasonably foreseeable on state and private lands were also considered in the cumulative impact analysis. These activities are listed in section 4.2.4.

Land use plans must be consistent with state and local plans to the maximum extent consistent with federal law. Where there are competing resource uses and values in the same area, Section 103(c) of FLPMA (43 U.S.C. 1702(c)) requires that the BLM manage the public lands and their various resource values so that they are utilized in the combination that will best meet multiple use and sustained yield mandates. Consistency means that the proposed plan does not conflict with officially approved plans, programs, and policies of tribes, other federal agencies, and state and local governments (to the extent practical with federal law, regulation, and policy).

The designation of the watershed of the Salmon Fork of the Black River on the U.S. side as the Salmon Fork ACEC as proposed in the RMP, is consistent with land management of the remainder of the watershed in Canada as a Chinook Salmon Conservation Unit.

The Proposed RMP (Alternative E) retains congressional closures of the Steese National Conservation Area (including Preacher Creek and Rock Creek) to new mineral entry and mineral leasing.

The USFWS concerns were considered during development of the Proposed RMP/Final EIS and proposed management decisions were adjusted. It should be noted that riparian and aquatic

habitats would not be "lost" on every acre recommended open to mining as only a small segment of these areas would actually have active mines. Mining is heavily dependent upon the price of commodities, the location of economically minable deposits, and access. Section 4.2.1.3 discusses what is reasonably foreseeable. Additionally there is a large body of federal regulations requiring restoration and reclamation of mined areas. Most state lands and Native corporation lands adjacent and upstream of the refuges are open to mining.

L.4.23.12. Cumulative Effects

Comment Number: EIRMP000000220-3, EIRMP000000220-4, EIRMP000000153E-14, EIRMP000000163-53, EIRMP000000163-54, EIRMP000000163-57, EIRMP000000163-73, EIRMP000000163B-112, EIRMP000000163B-116, EIRMP000000163B-115, and EIRMP000000166-8

Organization: Alaska Wilderness League, U.S. Fish and Wildlife Service, Gwichyaa Zhee Gwich'in tribal Government

Commenter Type: environmental organization, individuals, federal government, tribe

Summary

Several comments expressed concern about the adequacy of the analysis of cumulative effects:

- Cumulative effects of shifts in ecological patterns that are documented through climate change in the region.
- Cumulative effects of past, present, and future mining across the Eastern Interior, and an evaluation of BLM's ongoing management practices and effectiveness of mitigation measures and permit conditions to maintain water quality in Birch Creek and Fortymile WSR where mining takes place today. This is essential in order to evaluate the cumulative effects of the Alternative D's proposed mineral leasing program in the White Mountains NRA.
- Cumulative effects to fish and aquatic resources, including the effects of invasive species on fish and effects of mining.
- Cumulative effects on wildlife, including quantification of impacts to caribou and other wildlife.
- Cumulative effects to resources in the Upper Black River Subunit from fracking on the Eagle Plains within the Canadian Porcupine drainage.

Response

The RMP addresses cumulative effects for all alternatives and resources in Chapter 4 in both the Draft and Final EIS. Section 4.3.1.1.2 specifically addresses climate change. Additional baseline information on climate was added to section 3.2.1 Air and Atmospheric values.

The Proposed RMP (Alternative E) would not allow mining in the White Mountains NRA. Section 3.2.10 Water Quality outlines current water quality conditions in Birch Creek and the Fortymile WSR.

Cumulative effects of mining on fish and aquatic species is discussed in section 4.3.1.4.2. Since Alaska has relatively few non-native invasive species compared to other states; the BLM

reviewed the best available science to determine the range of effects to aquatic and fisheries resources (see Section 4.3.1.4).

Cumulative effects on wildlife are discussed in sections 4.3.1.12.7, 4.4.1.7.6, 4.5.1.7.6, 4.6.1.7.7, and 4.17.1.7.7. The BLM looked at ways to improve quantification of cumulative impacts in the Final EIS, however cumulative impacts are difficult to quantify due to lack of information on future development, lack of ability to predict impacts due this and due to climate change. Suggested metrics for quantifying impacts to caribou are not possible to calculate with available information. In the Proposed RMP (Alternative E), considerably less area is open to locatable and leasable minerals than in Alternative C, reducing potential for direct, indirect, and cumulative impacts to caribou.

Analysis of cumulative impacts considers the impacts of the proposed action when combined with past, present, or reasonably foreseeable future action (40 CFR 1508.7). In that context, reasonably foreseeable future actions are those for which there is an existing decision, a formal proposal or application or highly probable, based on a known opportunity. The reasonably foreseeable future action meeting those criteria is also within the geographic scope and time frame of the analysis. Eagle Plains is located approximately 117 miles southwest of Old Crow and 195 miles east of Chalkyitsik and considered outside the geographic scope of the RMP planning area. Northern Cross (Yukon) Limited is conducting exploration for oil and gas potential on Eagle Plains in Yukon, Canada. The next phase of exploration work is currently being reviewed by the Yukon government. Oil and gas development in Eagle Plains is not reasonably foreseeable because at this stage development is speculative and no formal proposal or application to develop oil and gas has been submitted to the Yukon government.

L.4.23.13. Range of Alternatives

Comment Number: EIRMP000000040-5, EIRMP000000040-6, EIRMP000000141-17, EIRMP000000141-3, EIRMP000000153-1, EIRMP000000153-3, EIRMP000000153-5, EIRMP000000153B-1, EIRMP000000153B-2, EIRMP000000040-2, EIRMP000000040-7, EIRMP000000153-4, EIRMP000000153B-3, EIRMP000000154-3, and EIRMP000000400-1

Organization: Alaska Wilderness League and cosigners, Black River Working Group, and Fairbanks North Star Borough

Commenter Type: individuals, environmental organization, concerned citizen organization, and local government

Summary

- The range of alternatives is not sufficiently broad and does not include a conservation alternative that improves existing management to enhance and more effectively protect the qualities of the four subunits.

- The range of alternatives in the Upper Black River Subunit is narrow in scope and skewed toward a pro-development scenario. Alternative C does not provide a “moderate level of protection, use, and enhancement of resources and services" as described in Chapter 2.

- This plan covers four units of the BLM’s National Conservation Lands (also known as National Landscape Conservation System or NLCS) and a National Recreation Area established

by ANILCA. The plan presents an unbalanced management approach favoring resource development that affords inadequate protection for these treasured lands.

- The BLM must ensure that those areas designated for specific uses, such as the White Mountains NRA; Beaver Creek, Birch Creek, and Fortymile WSR; and Steese National Conservation Area, are protected from uses that would conflict with the purposes for which they were designated, particularly mineral development. The alternatives do not reflect this.

- The range of alternatives in the Fortymile Subunit is too narrow, opening 70 percent of the subunit to new leasing and mining claims in Alternative C. Opening up significant areas in the Fortymile subunit does not represent responsible multiple use.

Response

The range of alternatives considered is sufficiently broad, going from zero to 100 percent for many land uses. In general Alternative B is more conservation oriented than the No Action Alternative in many areas. For example, establishing areas of critical environmental concern, standard operating procedures, and off-highway vehicle designations in areas where they currently do not exist.

The availability of lands for mineral entry in the Upper Black River Subunit ranges from 0 to 100 percent, which represents the fullest possible range. The Proposed RMP (Alternative E) falls between Alternative B and C relative to mineral entry. Given that mineral potential in the Upper Black River Subunit is low, access is non-existent, and Alternative C closed the Salmon Fork ACEC to mineral leasing (which has higher potential than locatable minerals) and identified more riparian conservation areas, it is reasonable to assume that Alternative C would provide a moderate level of protection.

The Proposed RMP/Final EIS ensures that the Steese National Conservation Area, White Mountains NRA, and the three wild and scenic rivers are managed in a manner that does not conflict with the purposes for which they were designated. The alternatives reflect this in many ways such as development of standard operating procedures, protective management for caribou and Dall sheep habitats, and limitations on motorized use. The referenced areas would be closed to mineral leasing in the Proposed RMP (Alternative E). The BLM has closely scrutinized the potential opening of the White Mountains NRA through a supplement to the Draft RMP/EIS (Appendix M). Based on this analysis, the Proposed RMP (Alternative E) would keep the NRA closed to both mining and mineral leasing.

Alternatives in the Fortymile Subunit relative to lands open to mineral leasing and mining claims ranges from 0 percent in the No Action Alternative to 91 percent in Alternative D. This represents a reasonable range. Multiple use includes mining and mineral leasing. These uses are heavily regulated and monitored to ensure responsible use.

L.4.23.14. Alternatives and Planning Requirements

Comment Number: EIRMP000000094-8, EIRMP000000094-2, EIRMP000000094-8, EIRMP000000094-9, EIRMP000000153C-31, EIRMP000000136-1, EIRMP000000163B-65, and EIRMP000000163B-66

Organization: Alaska Miners Association, Borell Consulting Services LLC , and U.S. Fish and Wildlife Service

Commenter Type: individuals, industry, federal government, and mining organization

Summary

- The Draft EIS does not review the full range of alternatives required by NEPA because it does not include an alternative that would open all currently closed lands to mineral entry (or leasing where required by statute). Even closing 26 percent of the planning area to prospecting, mineral exploration, claim location, and mine development is too restrictive for lands that have high mineral potential and are not withdrawn from multiple use by statute. Additionally, opening 0 to 54 percent of the Steese National Conservation Area as proposed in the Draft RMP is too narrow of an alternative for this highly mineralized area.

- The RMP does not include a full range of alternatives. No alternative is presented that would 1) remove all stale/obsolete mineral closures, 2) open all lands to mineral entry (or leasing where required by law), 3) provide access to all lands, and 4) reject any added special use or restricted-use designations. To not include such an alternative violates the NEPA process and does not follow the BLM's multiple use mandate under FLPMA.

- It is not clear that the BLM has actually resolved planning issues. The BLM should reevaluate each of the action alternatives and rewrite them so the conflicts between resources are resolved.

- The BLM fails to provide a mix of resource protection, use and development in each alternative because it did not consider the use of stream buffers in areas proposed to be open to mining in any alternative.

Response

NEPA requires the consideration of a range of reasonable alternatives. The Final EIS meets this requirement. Opening 100 percent of the planning area to mineral entry and leasing is not possible, given that approximately 2.3 million acres are withdrawn from location and closed to leasing by ANILCA. Special values for the Steese National Conservation Area include caribou range and Birch Creek. Alternative D would protect the most sensitive caribou habitats and Birch Creek while allowing multiple use to occur on 54 percent of the area. Alternative D proposes opening 100 percent of the Upper Black River subunit and all of the Fortymile Subunit outside of the wild segments of the Fortymile Wild and Scenic River which are withdrawn by statute.

The RMP includes a range of reasonable alternatives as required by NEPA. 1) Alternative D recommends revocation of all 17(d)(1) withdrawals while maintaining most of the ANILCA withdrawals. New withdrawals would be proposed in a few small areas; 2) Congress closed the White Mountains NRA and lands along wild and scenic rivers to mining and the BLM has no discretion to remove these withdrawals. There are no lands where the BLM is required by law to allow mineral leasing. Mineral leasing is discretionary; 3) all alternatives allow for access to public lands through rights-of-way, easements, 2920 permit, or other type of permit such as a mining plan of operations. Casual users can access public lands consistent with reasonable restrictions such as season of use or weight limits; 4) the BLM is required to consider ACECs and to evaluate rivers for eligibility and suitability for addition to the Wild and Scenic Rivers system during the planning process. To not do so would constitute a failure to consider a range of reasonable alternatives.

It is not possible to totally resolve all issues given BLM's multiple use and sustained yield mandate and the vast array of federal laws and policies that apply to public land. The alternatives

in the Draft EIS were reviewed during development of Proposed RMP/Final EIS. The Proposed RMP (Alternative E) represents the mix and variety of actions that the BLM believes best resolves issues and management concerns in consideration of all values, programs, laws, and policies.

The alternatives in the Proposed RMP/Final EIS provide a mix of resource protection, use, and development. See Chapter 2. The use of stream buffers is not a required element of a RMP.

L.4.24. Standard Operating Procedures

Comment Number: EIRMP000000133-4, EIRMP000000153B-43, EIRMP000000153B-44, EIRMP000000153B-48, EIRMP000000153C-16, EIRMP000000163-76, EIRMP000000163B-111, EIRMP000000163B-83, EIRMP000000163B-96, EIRMP000000164-64, EIRMP000000163-21, and EIRMP000000164-72

Organization: Alaska Mining Association, Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: mining organization, environmental organization, and federal government

Summary

The BLM has developed Standard Operating Procedures (SOPs) and Fluid Mineral Leasing Stipulations to reduce impacts resources. Commenters had several concerns with proposed SOPs including:

- Level of discretion in the SOPs and the ability of the Authorized Officer to make modifications or exceptions on a project specific basis.
- Possible under estimation impacts because of the discretion allowed in the SOPs.
- Lack of stated criteria whereby a SOP or leasing stipulation could be modified, waived, or excepted.
- Too many SOPs. This is a large burden for an independent Alaskan Mining Corporation or out of State junior mining corporations.
- Redundant language.
- Lacking a list of regulations and/or laws that are more stringent than SOPs.

Response

The purpose of the SOPs is to reduce impacts and enhance reclamation, not to prohibit all activities on BLM-managed lands. By their nature, some authorized activities will cause permanent damage to resources. If potential negative impacts can be mitigated, then there is no rationale for denying the activity.

These SOPs will apply over a six million acre area and be applied for more than 20 years. Every possible circumstance cannot be foreseen. Flexibility in the SOPs allows the agency to adapt to changing environmental conditions over the life of the plan and to allow the use of improved technologies. If an SOP is not adequate to reduce impacts and there is an alternative method that is more protective, the Authorized Officer has flexibility allow the alternative method. The applicant may also propose some other method of achieving the same result as the SOP.

The assumption for analysis of impacts in section 4.2.1.1 was that the SOPs or equivalent alternative will be implemented.

As stated in section A.1.2, SOPs may be modified through site specific analysis of subsequent authorizations, but must still meet the goals and objectives of the RMP. Modifications to SOPs may be appropriate if other measures are taken to protect resources that would result in the same or reduced impact. Criteria for granting exceptions, modifications, or waivers for leasing stipulations is in regulation at 43 CFR 3101.1-4 as discussed in section A.1.3 of the RMP. Project specific monitoring will be used to measure success of the SOPs. Specific metrics are more appropriately developed at the site specific level when project location and design are known.

The BLM has reviewed all the SOPs and consolidated them where possible.

It would be too lengthy to list all the regulations and laws that are more stringent than the SOPs.

L.4.24.1. Bonding

Comment Number: EIRMP000000092-8

Commenter Type: individual

Summary

Appendix A, Standard Operating Procedures has no mention required bonding. By regulation there is a $1,000 bond required for prospecting permits. Hardrock leases require a $5,000 bond as a minimum. These bonds do not include the bonding for reclamation of any and all disturbances caused by on the ground activities.

Response

The commenter is correct, but the effect of these bonds on the decision to apply for an exploration permit or hardrock lease would be minimal. As stated in section A.1 the SOPs generally do not restate requirements that already exist in regulation. Since bonding procedures are outlined in regulation, they are not restated in the SOPs. Additionally it is a moot point since hardrock leasing in the White Mountains was not included in the Proposed RMP (Alternative E).

L.4.24.2. Suction Dredging

Comment Number: EIRMP000000153B-45, EIRMP000000163-38, EIRMP000000163B-132, and EIRMP000000163B-138

Organization: Alaska Wilderness League and U.S. Fish and Wildlife Service

Commenter Type: environmental organization and federal government

Summary

Regarding Hardrock Mineral Leasing in the White Mountains, time periods for in water work should be stated, water quality standards should be met during such work, and these requirements should be added as a SOP. Reviewers recommend creating SOPs for suction dredging and related activities (e.g., use of motorized equipment to remove instream obstacle hazards).

Response

No additional SOPs are necessary for the White Mountains. The Proposed RMP (Alternative E) does not open the White Mountains NRA to mineral leasing. Additionally the NRA is closed to staking of new mining claims by ANILCA and there are no existing mining claims. State and federal water quality standards apply to all BLM-authorized activities.

L.4.24.3. Wetlands and Riparian Habitat

Comment Number: EIRMP000000163B-117 and EIRMP000000163B-144

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

Commenters recommend the BLM formulate a SOP that specifically addresses restoration of floodplain function and beneficial values including connectivity and roughness values (vegetation and substrate). Roughness plays a distinct role in dissipation of water velocity and stream energy, which prevents erosion and settles out sediment.

In areas open to mining or other non-discretionary land uses, the BLM should develop a SOP that specifically addresses how the BLM will restore wetland function and natural beneficial values of wetlands per Departmental Manual 520 and the U.S. Water Resources Council guidelines for Floodplain Management.

Response

SOPs for floodplains, wetlands and riparian habitat have been updated in the Proposed RMP (Alternative E), section A.4.

Procedures for implementing Executive Order 11988, Floodplain Management are set forth as an 8-step decision-making process outlined in Part II of the 1978 Water Resources Council Guidelines. When an action is proposed in a floodplain, the 8-step procedural process will be addressed and integrated in developing land use authorizations.

Procedures for implementing Executive Order 11990, Protection of Wetlands, are outlined in the Proposed RMP/Final EIS section 2.6.2.10.

Standards for reclamation of stream channel and wetland/floodplain areas are included in the 3809 regulations.

L.4.24.4. Mining Claims

Comment Number: EIRMP000000163-59

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

There should be an SOP requiring use of solid markers on all mining claims to prevent death to birds and other wildlife that may become trapped in hollow markers

Response

The BLM is notifying all claimants of dangers to wildlife of open pipe claim markers. An SOP Wild-11 was added to the Proposed RMP (Alternative E): To prevent the entrapment of small animals, particularly birds, all hollow pipes or tubes that are 2-10" in diameter will be filled or capped prior to installation (unless fixed horizontally).

L.4.24.5. Fish Passage

Comment Number: EIRMP000000163-69

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

There should be a SOP for maintaining fish passage in all fish bearing streams.

Response

Standard operating procedures Water-5 and SOP FA-2 address fish passage. See section A.4.

L.4.24.6. Bay RMP

Comment Number: EIRMP0000163B-143, EIRMP000000164-24, and EIRMP000000164-73

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

The BLM should consider adopting the Required Operating Procedures found in the Approved Bay RMP and ROD to better protect water, riparian, floodplains, wildlife, fish and aquatic and subsistence resources.

Response

SOPs for floodplains, wetlands and riparian habitat have been reviewed and updated in the Proposed RMP (Alternative E), section A.4.

L.4.24.7. Stream Channel Design

Comment Number: EIRMP000000164-69

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

The following mitigation measures should be included in the SOPs for fish and aquatic species: 1) reclamation actions should include an engineered channel design (using certified engineer) and streambank erosion measures, 2) use site specific information to inform stream channel design.

Response

Current requirements within the Proposed RMP/Final EIS for rehabilitation of fish habitat include three objectives which address the concerns in the comment. These objectives include requirements for stream channel design, streambank stability, and instream habitat complexity. See section 2.6.2.3. Assumptions for analysis in section 4.2.1.2 include the following: "Reconstructed stream channels will be designed by an individual(s) trained and qualified for the task and the channel will be built as designed."

L.4.24.8. Sediment Transport

Comment Number: EIRMP000000164-51

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

In addition to the collection and application of flow data into the channel design, sediment supply and sediment transport competence and capacity must be considered in the design. At minimum SOPs addressing stream reclamation should require that the operator conduct sediment transport capacity and competency analyses and provide the methods and basis for the analyses.

Response

While additional data on sediment supply and sediment transport competency is often needed for natural channel design it is not always required. In cases where a stream reach has a moderate to high sediment supply from the upper watershed, this information may be needed. The 43 CFR 3809.401 regulations allow for the BLM to request additional baseline information if it is necessary to ensure prevention of unnecessary or undue degradation.

L.4.24.9. Revegetation Standards

Comment Number: EIRMP000000163B-142, EIRMP000000164-30, EIRMP000000164-31, and EIRMP000000164-54

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

SOPs which address revegetation are inadequate to prevent downward trend in riparian habitat and water quality. The Draft RMP appears to rely on natural revegetation, which is inadequate. Comments suggest incorporating required operating procedure Veg-1c from the Approved Bay RMP.

Response

The BLM modified decisions in section 2.6.2.8 Vegetative Communities to reflect that natural revegetation will be relied upon (vs. active revegetation) only where it will be effective: "Utilize and encourage natural revegetation of disturbed sites as the generally preferred method of revegetation (in situations where this is adequate to prevent erosion and will result in rapid establishment of plant cover). In some circumstances, however some combination of seeding, planting, and transplanting of adult plants or vegetation mats, or fertilizing may be necessary." We reviewed all SOPs and incorporated some elements of required operating procedure Veg-1 from the Bay RMP into the SOPs.

L.4.24.10. Wildlife

Comment Number: EIDRMP_PM_000000001-1, EIRMP000000153C-26, EIRMP000000163-14, EIRMP000000163-40, EIRMP000000163B-119, EIRMP000000163B-99, EIRMP000000164-56, EIRMP000000164-7, EIRMP000000170B-17, and EIRMP000000170B-18

Organization: U.S. Fish and Wildlife Service, Alaska Department of Natural Resources, Alaska Wilderness League

Commenter Type: individuals, federal government, state government, and environmental organization

Summary

Commenters recommend various modifications to wildlife SOPs including:

- SOP Wild-6: Modify the SOP to prohibit domestic sheep, goats and camelids in Dall sheep habitat including casual use; define Dall sheep habitat where this restriction would apply; follow guidelines developed by Alaska Chapter of The Wildlife Society.
- SOP Wild-2: Modify to include BLM wildlife corridor guidance.
- SOP Wild-3: Clarify that compliance with Migratory Bird Treaty Act is also BLM's responsibility; revise vegetation clearing window to match USFWS advisory; describe provisions of MOU with USFWS; strengthen SOPs addressing the protection of migratory birds to be more effective.
- SOP Wild-7: Modify to apply to both mineral exploration and production activities to reduce impacts caribou and sheep.
- SOP Wild-8: Clarify that this SOP applies only to BLM-managed lands and specify which lands it applies to.
- SOP Wild-1: Modify to allow roads next to pipelines to improve inspection and reduce risk of spills.

Response

SOP Wild-6 was removed and replaced with a decision in section 2.6.2.13 prohibiting domestic sheep, goats and camelids in or near Dall sheep habitat. Habitats/areas closed will be identified

in during development of supplemental rules. This decision is consistent with the guidelines of the Alaska Chapter of The Wildlife Society.

SOP Wild-2: Wildlife corridor guidance, is not specifically referred to in most wildlife decisions, but will be addressed, where applicable, in implementing wildlife decisions.

SOP Wild-3: The BLM has an MOU with USFWS for conservation of migratory birds (BLM MOU WO-230-2010-04) which includes three pertinent BLM action items. 1) the BLM will "Address the conservation of migratory bird habitat and populations when developing, amending, or revising management plans for BLM lands... [consulting] the current USFWS Species of Concern lists...", 2) consider special designations such as Important Bird Areas, and 3) "At the project level, evaluate the effects of the BLM's actions on migratory birds during the NEPA process. . .and identify where take reasonably attributable to agency actions may have a measurable negative effect on migratory bird populations, focusing first on species of concern, priority habitats, and key risk factors... [and] implement approaches lessening such take." In this RMP, a list of Bird Species of Conservation Concern is compiled (Table 3.17), and decisions and SOPs specify protection measures. SOP Wild-3 specifically addresses vegetation clearing and evaluation of effects at the project level.

SOP Wild-7 was designed to apply to exploration. It would not apply to production because it would not be feasible.

None of the SOPs apply to non-BLM lands.

Roads near pipelines could be allowed under SOP Wild-1, if justified.

L.4.24.11. Fish

Comment Number: EIRMP000000163-22, EIRMP000000163-23, EIRMP000000163-24, EIRMP000000163-25, EIRMP000000163-33, EIRMP000000163-34, EIRMP000000163-35, EIRMP000000163-36, EIRMP000000163-37, EIRMP000000163-64, EIRMP000000163-65, EIRMP000000163-66, EIRMP000000163B-6, EIRMP000000164-49, EIRMP000000164-50, EIRMP000000164-66, EIRMP000000164-70, and EIRMP000000164-71

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

The Fish SOPs need to be better defined and revised to better protect fish and aquatic habitats. For example, SOP FA-1, SOP FA-5, SOP FA-6, and SOP FA-7.

Response

The BLM has reviewed and revised the Fish and Aquatic SOPs based on public comments. See Appendix A.4 Standard Operating Procedures Considered in the Proposed RMP.

L.4.24.12. Water Resources

Comment Number: EIRMP000000163-70, EIRMP000000163B-118, EIRMP000000163B-139, EIRMP000000163B-140, and EIRMP000000163B-141

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

The Water SOPs need to be better defined and revised. For example:

- SOP Water-4: The BLM is proposing reconstructing a stream to its pre-disturbance condition be the reclamation standard for mining operations (section 2.4.1.3 Draft RMP). Although a high standard of reclamation is desirable, the environmental effects analysis should reflect realistically achievable reclamation outcomes, clearly address the potential negative impacts to aquatic resources, and provide a timeframe for restoring streams to proper riparian function. Best management practices (BMPs) identified in the ADF&G technical report (Mclean 1997) are useful recommendations.

- SOP Water-1: Define the dimensions of an appropriately sized bypass channel.

- SOP Water-6: Provide time frame for restoring proper functioning hydrologic regime.

- SOPs Water-9 and 10: Revise to prohibit crossings in salmon spawning areas.

Response

SOP Water-4 was dropped because this objective is achieved through SOP FA-6. The BLM considers rehabilitation of fisheries habitat to pre-disturbance condition as a realistically achievable reclamation outcome where careful planning and detailed design of placer mine reclamation are completed prior to and after stream disturbance. The BLM Alaska recently issued Information Memorandum AK-2015-004 which outlines measurable Performable Standards for determining when reclamation on post-mined streams and the rehabilitation of fish habitat will be approved as well as outlining the types of detailed hydraulic and channel information now required for mine plans to be considered complete. For operations that adhere to the new policies and guidance in AK-2015-004, the BLM believes reconstructing a stream to its pre-disturbance condition is a reasonable reclamation standard for mining operations.

Potential negative impacts to aquatic resources from placer mine activities are now clearly addressed in section 4.3.1.4. Fish and Aquatic Species Summary of Effects.

The BLM agrees that BMPs for reclamation of temporary stream diversions offered in Mclean 1997 are useful recommendations. As an example, we would generally include in an approved mining plan a requirement for reclamation of stream diversions similar to the BMP in Mclean 1997 page 10, first paragraph under subheading Reclamation of Temporary Stream Diversions; *Final reclamation of temporary stream diversions must conform to the overall final mine site reclamation plan, but should include provisions for backfilling and contouring the diversion channel*.

SOP Water-1: The actual design of a temporary diversion channel involves the interaction of hydrology, hydraulic engineering, and geotechnical engineering. This interaction can be complex, and miners may be well advised to seek engineering assistance (Mclean, 1997). Design discharge for a site specific by-pass channel should be tailored to site conditions and capabilities and can be estimated using a variety of methods including:

- Log Pearson Type II analysis as defined in Water Resources Council Bulletin 17B, 198 1, "Guidelines for Determining Flood Flow Frequencies" can be used for all routine designs where sufficient stream gauging records exist.
- USGS Regional Regression Equations for Alaska.
- U.S. Army Corps of Engineers modelling program HEC-HMS can be calibrated with rainfall and runoff data.

Where significant uncertainties exist, the by-pass channel design should be able to at least accommodate a bankfull flood event. Temporary by-pass channels are generally constructed to protect water quality of the stream and protect aquatic and fishery resources from excess sedimentation associated with active mining operations.

SOP Water-6: Time frames for restoring specific placer-mine sites to proper functioning hydrologic regime and/or proper functioning riparian areas vary considerably depending on a number of factors including but not limited to biotic and abiotic site conditions, watershed and site specific channel geomorphic characteristics, and local use impacts. For context, the time required to re-establish riparian function would generally be expected to extend into decades for areas with severe disturbance of large aerial extent and less than a decade for areas with minimal disturbance to the stream channel and/or riparian areas.

SOPs Water-9 and 10: Stream crossings in salmon habitat are addressed in SOP FA-1.

L.4.24.13. Soil Resources

Comment Number: EIRMP000000163-67

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

SOP Soils-2 requires placing stockpiled soil and overburden to spread over mine tailings. However, there is no discussion about large tailings piles that could be devoid of finer materials needed to support plant growth. There may be a need to mix fines from another source into the spoils before they are placed and grades/contoured and then covered with stockpiled materials. Also, consideration needs to be given to the depth of the final location of the spoils and the ability for vegetation to reach the water table. Piles that are too high for roots to reach water have been a large reason for failure of reclamation sites.

Response

The BLM recognizes historic placer-mine operations often left waste rock, including large tailings piles devoid of organics and fine sediments, in many Interior Alaska drainages. Efforts to reclaim these areas are ongoing through the Abandoned Mine Lands program.

Current placer-mine operations must meet all applicable performance standards of Section 3809.420, including the following reclamation performance standards:

(i) At the earliest feasible time, the operator shall reclaim the area disturbed, except to the extent necessary to preserve evidence of mineralization, by taking reasonable measures to prevent or control on-site and off-site damage of the federal lands.

(ii) Reclamation shall include, but shall not be limited to:
(A) Saving of topsoil for final application after reshaping of disturbed areas have been completed;
(B) Measures to control erosion, landslides, and water runoff;
(C) Measures to isolate, remove, or control toxic materials;
(D) Reshaping the area disturbed, application of the topsoil, and revegetation of disturbed areas, where reasonably practicable; and
(E) Rehabilitation of fisheries and wildlife habitat.

L.4.24.14. Forestry Resources

Comment Number: EIRMP000000163-68

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

SOP Forestry-2: For forestry operations, Dean and Magoun (2000) recommend a minimal buffer of 100-feet along anadromous or high-value resident fish streams and 50-feet along tributaries to anadromous streams.

Response

SOP Forestry-2 requires that a buffer be considered for every permitted action to protect resource values at risk. Buffer width is better determined on a site specific basis.

L.4.24.15. Hazardous Materials

Comment Number: EIRMP000000038-2

Commenter Type: individual

Summary

SOP Hazmat-10 requires preparation of a Spill Prevention, Control, and Countermeasure Plan (SPCC) for all sites which have the potential to store 1,320 gallons or more of POLs. 40 CFR 112 gives the EPA administration over SPCCs. Requiring an SPCC is outside of BLM's authority.

Response

SOP Hazmat 10 has been consolidated into SOP Hazmat 5. In accordance with 43 CFR 3809.401(b)(2)(vi) a Spill Contingency Plan is required as part of a mining plan of operations. In accordance with 43 CFR 3809.420(a)(6) all operations must be conducted in a manner that complies with all pertinent federal and state laws.

L.4.24.16. Effectiveness of Standard Operating Procedures

Comment Number: EIRMP000000164-67

Organization: Alaska Wilderness League and U.S. Fish and Wildlife Service

Commenter Type: environmental organization and federal government

Summary

It is not clear how the BLM has analyzed the effectiveness of current and proposed SOPs in protecting aquatic and fish habitat from the effects of mining.

Response

Analysis assumes full implementation of the SOPs. Individual sections of the analysis discuss specific SOPs. Therefore impacts discussed in Chapter 4 are impacts remaining after implementation of the SOPs and indicate effectiveness of SOPs.

L.4.25. Mitigation

Comment Number: EIRMP000000164-33 and EIRMP000000163B-129

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

In areas with valid existing claims, compensatory mitigation (possibly the restoration of old mining claims) is a viable mechanism for avoiding the continuation of a downward trend in aquatic resource condition and should be considered in the RMP.

Response

As stated in section 2.6.1 of the Proposed RMP/Final EIS, compensatory mitigation may be applied to activities whose impacts the agency cannot adequately avoid, minimize, rectify, reduce, or eliminate. The BLM supports Compensatory Mitigation actions taken to offset unavoidable adverse impacts to wetlands, streams and other aquatic resources authorized by Clean Water Act section 404 permits and other U.S. Army Corps of Engineers (Corps) permits, and is actively pursuing mitigation policies and practices that more effectively avoid, minimize, and compensate for the impact of development on Department-managed lands and resources. See Clement et al., (2014) for additional information.

L.4.26. Supplement to the Draft RMP for White Mountains

The BLM published a Supplement to the Eastern Interior Draft RMP/EIS to consider the impacts of leasing of locatable minerals in the White Mountains under Alternative D of the Draft RMP. The following comments were submitted on the Supplemental EIS.

L.4.26.1. Range of Alternatives

Comment Number: EIRMP000000023-1, EIRMP000000044-1, EIRMP000000044-6, EIRMP000000094-10, EIRMP000000123-1, EIRMP000000133-1, EIRMP000000145-1, EIRMP000000170B-33, EIRMP000000170B-34, EIRMP000000170B-39, EIRMP000000094-3, 170B-33, EIRMP000000094-4, EIRMP000000094-15, and EIRMP000000170B-35

Organization: Alaska Department of Natural Resources, Resource Development Council, and Alaska Miners Association

Commenter Type: individuals, Business Organization, state government, and mining organization

Summary

- The range of alternatives for leasing of hardrock minerals in the White Mountains NRA is too narrow. The Draft RMP/EIS only considered one alternative and that alternative would only open 16 percent of the area. The Proposed RMP should include rationale for significantly reducing the recommended acreage for mineral leasing from the 44 percent recommended in the 1986 RMP to 16 percent. The potential for mining in the larger area, which the U.S. Bureau of Mines mapped as favorable for mineral discoveries, should be considered in the RMP. By limiting the size of the area available for access, mineral exploration and development, the BLM arbitrarily restricts the possibility of discovering an economic REE deposit.

- In the case of rare earth elements, there is no provision in the RMP to develop and mine a deposit. No company would risk their capital on terms like this. The RMP should state that the BLM may issue competitive leases for lode deposits and describe the types of leases applicable to hardrock mining of load deposits.

- It is unlikely that Roy Creek is the only mineral occurrence or prospect in the White Mountains, because Roy Creek lies within a geologic trend that extends from Livengood to Circle Hot Springs. There are likely more REE prospects within this trend; however, by limiting the size of the area available for access, mineral exploration and development, the BLM arbitrarily restricts the possibility of discovering an economic REE deposit.

- The RMP provides no opportunity to prospect for, lease, explore for or develop any minerals other than REE and placer gold, despite the fact that there may be related economic minerals associated with them. Placer gold deposits are often associated with a lode source; likewise REE minerals are often combined with other metals in complex occurrences; however, there is no provision in the Plan for developing that lode source or the other metals in a polymetallic REE deposit. It appears that in the 11,000 acres available for leasing, the only minerals that could be developed are four of the seventeen rare earth elements identified in the supplement.

- Management direction would be improved if the EIS evaluated economic effects of exploration and leasing for potential lode deposits of gold and other minerals.

Response

The BLM reduced the acreage from the 1986 decision to avoid conflicts with other resource decisions in the RMP, including recreation and wildlife management. Through the RMP, the BLM has chosen to emphasize recreation over mineral leasing. ANILCA directs the BLM to manage the White Mountains for public recreation as one of the primary uses. Given the current levels of recreational use and the public cabins and trail system that have been developed since the last RMP was approved, the BLM believes that considering leasing on 16 percent of the NRA is a reasonable alternative. The proposal in Alternative D was limited to Roy Creek to avoid conflicts with other resource decisions in the RMP

If adopted and implemented, Alternative D would open the area for both exploration and leasing as stated in section 2.10.2.3.2.4. Given the high capitalization cost associated with opening a rare earth mine, it is not reasonably foreseeable that development would occur during the life

of the RMP. Therefore, the BLM did not analyze impacts associated with lease development in the Supplemental EIS. If the area is opened for leasing and industry requests a lease sale, the BLM would analyze the impacts of leasing and make a decision to allow or not allow a lease sale at that time.

Alternative D of the Proposed RMP/Final EIS would allow for leasing for all locatable minerals in areas opened to leasing, but known potential for these areas are four rare earth minerals and placer gold.

The analysis of economic effects is limited by the proposed action. Since the proposed action did not include lode leasing for gold, the economic effects are not considered.

L.4.26.2. Alternatives Considered but Not Analyzed in Detail

Comment Number: EIRMP000000164-55

Organization: U.S. Fish and Wildlife Service

Commenter Type: federal government

Summary

In its analysis of the proposed hardrock mineral leasing in the White Mountains NRA in the Supplement to the Draft RMP, the BLM has clearly shown that mineral leasing would not be compatible with the purposes for which the NRA was established. Since compatibility between mineral leasing and development and the purposes for which the NRA was established is a requirement that must be met to allow leasing (43 CFR 3585.1), it is unclear why there is no discussion of the alternative of mineral leasing in the White Mountains NRA in section 2.3 "Alternatives Considered but Not Analyzed in Detail."

Response

The BLM determined that a full analysis of the impacts of leasing was appropriate. This is the reason that the Supplement was developed and published for public comment.

L.4.26.3. Incomplete and Unavailable Information

Comment Number: EIRMP000000044-3, EIRMP000000094-11, EIRMP000000094-12, EIRMP000000094-13, EIRMP000000133-2, EIRMP000000133-3, EIRMP000000170B-35, and EIRMP000000170B-38

Organization: Alaska Miners Association, Alaska Department of Natural Resources

Commenter Type: mining organization and state government

Summary

- Alternative D only opens 16 percent of the White Mountains to placer gold and rare earth minerals. This ignores the potential for other types of deposits (tin, lead, zinc, silver, etc.), the fact that placer deposits can occur anywhere, and the rare earth deposit may be part of a belt that stretches far to the west.

- There is a discrepancy between the conclusions and recommendations of the field investigations conducted by the U.S. Bureau of Mines and those of the simple literature review used by the BLM to develop its Mineral Occurrence and Development Potential Report. The mineral resource assessment done by the U.S. Bureau of Mines in 1989 ("OFR 12-89") found approximately 44 percent of the lands in the study area are geologically favorable for non-placer mineral deposits. Nearly the entire area is "Favorable for metallic and related nonmetallic deposits" and at least half of the area is "Highly favorable for metallic and related nonmetallic deposits."

- Several areas contain favorable mineral terranes, but were not assigned any mineral potential in the Draft RMP/EIS. The BLM should not arbitrarily choose which areas are to be open and which are to be closed based on aging and incomplete data.

Response

Areas available to leasing are limited. No significant lode gold deposits were noted in the ARDFs in the White Mountains area. The area of High rare earth element potential follows contacts established by the DGGS and USGS during their geologic investigations.

The information in USBM OFR 12-89 was considered; resource locations in southern White Mountains NRA were included as high mineral development potential and the more remote areas were given a lower potential rating based on their remote locations.

The highest probability of an economic mineral deposit being discovered was in Area 11, which covers the entire subunit. The area of highest potential for placer gold is in the southern area which is designated as having high placer potential. Many of the metals considered in the 1989 study dropped in price and have only recovered to the same or more relative value in recent years. Few metals, with the exception of REEs and gold, have exceeded twice their relative value from 1989. Known REE and placer gold bearing areas were designated as high potential.

L.4.26.4. Impact Analysis

Comment Number: EIDRMP-0-12100-1, EIRMP_supp-0-12050-1, EIRMP_supp-0-12052-9, EIRMP_supp-0-12101-3, EIRMP_supp-0-12101-4, EIRMP_supp-1-20261-2, EIRMP000000092-4, EIRMP000000092-5, EIRMP000000096-11, EIRMP000000153E-12, EIRMP000000153E-15, EIRMP000000153E-17, EIRMP000000153E-18, EIRMP000000153E-19, EIRMP000000153E-27, EIRMP000000153E-28, EIRMP000000153E-29, EIRMP000000153E-32, EIRMP000000277-2, and EIRMP000000338-1

Organization: Alaska Miners Association, Alaska Wilderness League and cosigners, and Northern Alaska Environmental Center

Commenter Type: individuals, mining organization, and environmental organization

Summary

The EIS for the Supplement does not sufficiently address the direct, indirect, and cumulative impacts of a hardrock mineral leasing program in the White Mountains. Although the RMP estimates that 20 miles of new roads could be constructed for placer mining, these are not shown nor are their effects evaluated. There would also be significant impacts on Dall sheep, caribou, moose and their habitats, salmon and aquatic habitat, and recreation use.

Response

Impacts of hardrock mining in the White Mountains are analyzed in the Supplemental EIS, which is included in Appendix M of the Final EIS.

L.4.26.5. Assumptions for Analysis

Comment Number: EIRMP_supp-0-12052-2, EIRMP000000092-1, and EIRMP000000259-1

Commenter Type: individuals

Summary

- It is incorrect to imply that allowing exploration permits for rare earth elements in the White Mountains will have minimal effects on the landscape and environment because substantial developments over the life of the current plan are not anticipated. It still results in a big change in the regulatory and management environment that will exist when it comes time to develop the next 20-year plan. Allowing exploration now can result in huge changes to the landscape and environment down the road.

- It is incorrect to assume that in Alternative A the White Mountains NRA would remain closed to mineral leasing. The existing RMP opened much of the area and regulations for leasing are in place.

Response

Reasonably foreseeable future actions are those for which there are existing decisions, funding, formal proposals, or which are highly probable, based on known opportunities or trends. Development of a rare earth mine in the White Mountains is speculative given the high capitalization cost of such a project, the lack of infrastructure, and the limited data available on the quality of the mineral deposit. NEPA does not require the agency to speculate about future actions. An exploration license does not grant the lease holder any preference or any other right to a lease. If the BLM were to consider a lease sale in the future, the impacts of development would be analyzed at that time. The Authorized Officer would make a decision to hold a lease sale or not, based on that future impact analysis.

The existing White Mountains RMP (BLM 1986) recommended opening part of the NRA to mineral leasing. However, public land order 5180 (which closed the area to the mineral leasing laws) was never modified or revoked and an opening order was not issued by the Secretary of the Interior. Therefore, the area remains closed.

L.4.26.6. Reasonable Foreseeable Development

Comment Number: EIRMP_supp-0-12052-7 and EIRMP000000039-4

Commenter Type: individuals

Summary

- The Supplement only considers suction dredge mining and small and large scale mechanized placer operations which only take place along stream beds. Yet the maps show large areas of

uplands as open to gold mining and having high to medium potential for gold. Is there a possibility of having a Fort Knox open pit type operation?

- The White Mountains NRA is largely limestone terrain. It has not been identified by mineral resource experts as a potential for new discovery. In addition the need for new rare earth elements or minerals is debatable.

Response

The reasonably Foreseeable Development Scenario as described in section 4.2.1.3.4 found that no open pit mines are anticipated on BLM-managed lands during the life of the RMP. The EIS considers the impacts of two large lode mines on state lands as part of the cumulative impact analysis.

The commenter is correct that the White Mountains are largely a limestone terrain, but there are known mineral occurrences of rare earth minerals and there is elevated mineral industry interest in those commodities based on exploration activity and commodity prices.

L.4.26.7. Effects on Recreation

Comment Number: EIRMP_supp-0-12052-5, EIRMP_supp-0-12101-1, EIRMP_supp-1-20261-1, EIRMP_supp-1-20261-3, EIRMP000000051-1, EIRMP000000052-1, EIRMP000000054-1, EIRMP000000054-3, EIRMP000000055-2, EIRMP000000056-2, EIRMP000000061-1, EIRMP000000153-22, EIRMP000000153-65, EIRMP000000153-66, EIRMP000000153-68, EIRMP000000153E-31, EIRMP000000153E-40, EIRMP000000235-3, EIRMP000000335-1, EIRMP000000347-2, EIRMP000000360-1, EIRMP_supp-0-12053-1, EIRMP000000052-2, EIRMP000000062-1, EIRMP000000153-64, EIRMP000000173-1, EIRMP000000235-1, EIRMP000000235-2, EIRMP000000272-1, EIRMP000000277-3, and EIRMP000000338-2

Northern Alaska Environmental Center, Alaska Wilderness League and cosigners, and U.S. Fish and Wildlife Service

Commenter Type: individuals, environmental organization, and federal government

Summary

Hard rock mineral leasing would have a negative impact on recreation in the White Mountains NRA. These are incompatible uses. Increased noise and traffic from mining operations will degrade the recreation opportunities. The BLM needs to analyze these impacts in the EIS.

Response

The BLM analyzed the direct, indirect and cumulative impacts in the Supplement, Hardrock Mineral Leasing in the White Mountains NRA on pages 35-38 of the Supplemental EIS. This analysis found that short term affects could be mitigated through the SOPS or stipulations associated with a NEPA analysis; however there was a determination of a cumulative adverse effect on the administration of the recreation area. Impacts from noise, traffic and access impacts are addressed on pages 39-41 of the Supplemental EIS (See Appendix M of this document).

L.4.26.8. Effects on Fish

Comment Number: EIRMP_supp-0-12052-4, EIRMP000000059-2, EIRMP000000153E-16, EIRMP000000153E-24, EIRMP000000164-59, EIRMP000000164-60, EIRMP000000281-1, and EIRMP000000347-1

Organization: Alaska Youth for Environmental Action, Alaska Wilderness League, U.S. Fish and Wildlife Service, and Northern Alaska Environmental Center

Commenter Type: individuals, environmental organizations, and federal government

Summary

Opening the Beaver Creek drainage to mineral leasing would adversely impact fisheries in Beaver Creek WSR. More studies are necessary prior to opening up Roy Creek.

Response

The Proposed RMP (Alternative E) keeps the White Mountains NRA closed to mineral leasing and exploration, including Roy Creek. Impacts to fisheries under Alternative D were analyzed in the Supplement, Hardrock Mineral Leasing in the White Mountains National Recreation Area which is included in Appendix M of the Proposed RMP/Final EIS.

L.4.26.9. Effects on Wildlife

Comment Number: EIRMP_supp-0-12052-8, EIRMP000000096-12, EIRMP000000346-1, EIRMP_supp-0-12052-8, EIRMP_supp-0-12101-2, EIRMP000000164-57, EIRMP000000164-58, EIRMP000000258-2, and EIRMP000000346-1

Organization: Alaska Miners Association and U.S. Fish and Wildlife Service

Commenter Type: individuals, federal government, and mining organization

Summary

Several comments stated that mineral leasing in the White Mountains NRA would impact wildlife, especially Dall sheep (displacement from a rutting area and damage to habitat), moose (damage to habitat) and caribou (calving and postcalving habitat). New roads associated with mining would increase pressure on wildlife. Required operating procedures would have little effect during mineral production. Other comments considered impacts from mining in the White Mountains NRA to be overstated because access for mining activities will be tightly regulated.

Response

Mineral leasing would increase access and create surface disturbance from roads, trails, and mine sites in a variety of habitats that are difficult to reclaim to natural conditions. Although these impacts may be mitigated through wildlife harvest management, tight regulation of mining activities, and mitigation measures, there would be unavoidable impacts to wildlife and habitats from mining activity. Impacts under Alternative D were analyzed in the Supplement, Hardrock Mineral Leasing in the White Mountains National Recreation Area which is included in Appendix M of the Proposed RMP/Final EIS. Mineral leasing in the White Mountains NRA is not included in the Proposed RMP (Alternative E).

L.4.26.10. Off-site Effects

Comment Number: EIRMP000000153-13 and EIRMP000000153E-13

Organization: Alaska Wilderness League

Commenter Type: environmental organization

Summary

Mineral operations in the headwaters of Beaver Creek WSR would degrade a broader area because it flows through the Yukon Flats National Wildlife Refuge to the Yukon River and provides clean water that sustains the fish and wildlife habitats, water quality, subsistence resources, and international treaty obligations for migratory birds, salmon, and others.

Response

In the Proposed RMP (Alternative E) no mining would occur on the headwaters of Beaver Creek. Impacts under Alternative D were analyzed in the Supplement, Hardrock Mineral Leasing in the White Mountains National Recreation Area which is included in Appendix M of the Proposed RMP/Final EIS.

L.4.26.11. Effects to Beaver Creek

Comment Number: EIRMP000000153-67, EIRMP000000153E-16, EIRMP000000354-1, EIRMP000000258-2, EIRMP000000153E-41, and EIRMP000000153-14

Organization: Alaska Wilderness League

Commenter Type: individuals and environmental organization

Summary

- The Supplement proposed allowing placer mining in Alternative D. This conflicts with the existing management plan (1986 RMP) which states, “extensive placer mining on Beaver Creek or its principal tributaries would be in conflict with recreational purposes because of degradation to natural and primitive values of the Beaver Creek WSR corridor and damage to Arctic grayling habitat.”
- Mining in the White Mountains would have significant adverse effects on recreation and conservation values including Beaver Creek WSR and its intact watershed where important fisheries habitat is found including Arctic grayling. Grayling are identified as one the values for which Beaver Creek was established as a wild and scenic river.

Response

The Supplement did not propose placer mining in Beaver Creek and many of its principal tributaries, including Victoria, Colorado, Wickersham, and Nome creeks. The reasonably foreseeable development scenario does not forecast "extensive" mining. Conditions have changed since 1986. The mining regulations under 43 CFR 3809 are much more stringent.

Impacts were analyzed in the Supplement, Hardrock Mineral Leasing in the White Mountains National Recreation Area, which is included in Appendix M of the Proposed RMP/Final EIS.

All mining activities on BLM-managed lands would be reviewed following NEPA where changes to the natural or human environment would be analyzed. Any impacts to the free-flow, water quality or outstandingly remarkable values of Beaver Creek WSR would be addressed to protect and/or enhance those values. Activities on non-BLM-managed lands that would impact Beaver Creek WSR values would be addressed under Section 7 of the Wild and Scenic River Act if federal money is used or federal permits are required.

L.4.26.12. Mitigation and Standard Operating Procedures

Comment Number: EIRMP_supp-0-11950-1, EIRMP_supp-0-12050-2, EIRMP_supp-0-12102-1, EIRMP_supp-1-20961-1, EIRMP_supp-1-20961-2, and EIRMP000000108-1

Commenter Type: individuals

Summary

The BLM should establish a policy to minimize degradation of recreation resources before exploration of licenses or leases for hard rock or placer mining are offering the White Mountains NRA. Wherever possible, maintaining a visual screen of forest cover to obscure development from the view of cabins or trails. Maintain an adequate physical buffer of intact vegetation to filter erosion between exploration sites and navigable creeks, streams and rivers.

Response

Buffers are addressed in Section 3.2.9 of the Supplement. Additional buffers are addressed in the Supplement, specifically for Recreation in Section A.2.7 and for Wildlife in Section A.2.14. The Proposed RMP (Alternative E) would keep the White Mountains NRA closed to all forms of mining.

L.4.26.13. Effects to Poker Flats

Comment Number: EIRMP_supp-1-20611-1

Commenter Type: individual

Summary

Allowing leasing of locatable minerals in the White Mountains NRA would adversely affect the University of Alaska's Poker Flats Research Range. Mining activity in the downrange path of research rockets conflicts with NASA safety requirements. Jobs would be lost and the scientific research sent overseas because Poker Flats, the last northern research range in North America, would be forced to close.

Response

If leasing of locatable minerals is allowed in the White Mountain’s, it is anticipated that over the life of the plan, the vast majority of mineral exploration and development activity would take place in the summer. The Final Environmental Impact Statement published for the Poker Flats in 2013 states that historically the majority of launches have occurred during the winter months. For example, over the last 10 years, all launches have taken place between January and April, and that this is likely to continue. As such, mining activity is unlikely to have an adverse effect on the Poker Flats mission or cause a substantive conflict with NASA safety requirements.

Additionally, the Proposed RMP (Alternative E) does not propose allowing leasing in the White Mountains NRA.

L.4.26.14. Authority to Allow Leasing of Locatable Minerals

Comment Number: EIRMP000000051-2, EIRMP000000153-15, EIRMP000000153-22, EIRMP000000153-55, EIRMP000000153E-11, EIRMP000000153E-20, and EIRMP000000153E-21

Organization: Alaska Wilderness League

Commenter Type: individual and environmental organization

Summary

The BLM should reconsider its interpretation of its authority under ANILCA to offer hardrock mineral leases in the White Mountains NRA. The statute grants only limited authority to offer mineral leases in the area in connection with dam or other water projects and does not authorize the broad leasing program Interior proposes in Alternative D. Interior's regulations governing the White Mountains similarly restrict leasing in the area only to that authorized by ANILCA. The BLM lacks authority to offer the broad leasing program contemplated in its Hardrock Minerals Leasing Supplement revised Alternative D.

Response

The BLM interprets Section 1312 of ANILCA as allowing for the disposal of previously locatable minerals (such as gold) within the White Mountains NRA by lease, as described in BLM regulations 43 CFR part 3580, subpart 3585. Pursuant to 43 CFR 3585.1, the BLM can open lands in the NRA to mineral leasing and development under the land use planning process when it determines that "such use and development would be compatible with, or would not significantly impair, public recreation and conservation of the scenic, scientific, historic, fish and wildlife or other values contributing to public enjoyment". This authority is not limited to areas associated with dams or other water projects.

L.4.27. ANILCA Provisions

Comment Number: EIRMP000000170-4

Organization: Alaska Department of Natural Resources

Commenter Type: state government

Summary

It is imperative that all relevant provisions of ANILCA be fully recognized and integrated into the final plan's management framework so that the public and land managers are fully informed of ANILCA's statutory guidance during plan implementation.

Response

The requirements of ANILCA (and other federal laws) have been integrated into the Proposed RMP/Final EIS. Land managers are responsible for being informed of applicable laws and regulations during plan implementation.

L.4.27.1. ANILCA Title 8 Timber

Comment Number: EIRMP000000170-21

Organization: Alaska Department of Natural Resources

Commenter Type: state government

Summary

ANILCA Title VIII allows subsistence use of timber within the WSR corridors. The plan's blanket prohibition without specific justification is inconsistent with ANILCA and unnecessarily restricts subsistence use. The RMP should instead consider a riparian setback for personal use timber cutting without restrictions on access to the river, which provides a natural transportation corridor that facilitates moving cut logs. Blanket prohibitions on cutting timber for personal use within Wild and Scenic River corridors could potentially have greater impact on resources outside the corridors, where such activities would involve repeated trips and the need for trails and brushing for cross-country travel.

Response

Alternative D and the Proposed RMP (Alternative E) allow subsistence use of timber on all lands, including wild and scenic river corridors. Standard operating procedures in Appendix A.4.3 include a stream buffer.

L.4.27.2. ANILCA Section 810

Comment Number: EIRMP000000141-2, EIRMP000000410-10, and EIRMP000000410-12

Organization: Black River Working Group and Gwichyaa Zhee Gwich'in tribal Government

Commenter Type: concerned citizen organization and tribe

Summary

- The BLM did poor job informing members of the community what a section 810 analysis is or that section 810 hearings would be held at public meetings. Residents had no opportunity to prepare for an 810 hearing.
- The BLM failed to make the required determinations under Section 810(a)(3) of ANILCA.

Response

The BLM recognizes that it is difficult to convey complicated information and appreciates constructive criticism on how to improve public outreach. Consistent with policy, the BLM sent a notification letter of the section 810 hearings with copies of the section 810 analysis to the affected tribes, Eastern Interior Regional Advisory Council Members, the Commissioner of the Department of Fish and Game, and chairs of the Fish and Game Advisory Councils. These letters

were mailed out well in advance of the meetings. Advertisements for the meetings indicated that they included a section 810 hearing. The BLM staff at the meetings explained the purpose of the hearing. Additionally, the BLM held two hearings in most communities.

The Section 810 analysis in the Draft RMP/EIS was a draft finding for public review. By policy, the BLM makes the section 810(a)(3) determinations in the Proposed RMP/Final EIS. However, section 810(a)(3) findings are only required if there is a finding of significant restriction on subsistence use in the proposed action (or agency preferred alternative in the case of an RMP). Because the BLM found no significant restriction on subsistence use for the Proposed RMP (Alternative E), no findings under section 810(a)(3) are required.

L.4.27.3. ANILCA Section 811

Comment Number: EIRMP000000071-1, EIRMP000000170-10, EIRMP000000170-11, EIRMP000000170-5, EIRMP000000170-50, EIRMP000000170-52, EIRMP000000170-53, EIRMP000000454-4, EIRMP000000412-8, and EIRMP000000412-9

Organization: Alaska Outdoor Council and Alaska Department of Natural Resources

Commenter Type: recreation access organization, state government, and individuals

Summary

- Proposed restrictions on travel include requirements for "free permits" in areas designated as "closed." These "free permits" are required for both access under ANILCA Section 1110, i.e. "snowmobiles for traditional activities and travel to and from villages and homesites" and subsistence use of "…snowmobiles or other means of surface transportation traditionally employed" under Section 811. Requiring permits for ANILCA-protected access, even if tempered by no monetary cost, still constitutes a restriction on users who currently do not need to obtain a permit. Permit requirements should be considered a last resort but if determined necessary, must be implemented by the appropriate regulatory authority under ANILCA.

- The interim measures for Travel Management include numerous statements that ANILCA protected modes of transportation (i.e. non-motorized, snowmobiles and aircraft) will be "generally" allowed, with some that are additionally subject to reasonable "provisions." Such statements are inconsistent with ANILCA Sections 1110 and 811, which state specific modes of transportation "shall" be allowed, subject to reasonable regulation. As noted, any restrictions must be implemented in accordance with ANILCA implementing regulations. All references to "generally" allowed and reasonable "provisions" should be removed from the plan and replaced with statements that clarify these uses are allowed pursuant to ANILCA and any subsequent restrictions will be implemented in accordance with the appropriate DOI ANILCA-implementing regulations.

- The Eastern Interior Draft EIS fails to explain why the BLM process for restricting ANILCA-protected access is inconsistent with the process established in National Park Service and USFWS ANILCA-implementing regulations. In the preamble for the Title XI regulations at 43 CFR 36, DOI indicated that while the BLM did not intend to promulgate Title VIII regulations in the near future, internal procedures required satisfying Title VIII requirements (51 FR 31619). Twenty-five years later, the BLM relies on the Section 810 Analysis to satisfy the requirements of Section 811. Using the Section 810 process to implement Section 811 access restrictions is inconsistent with ANILCA and inadequate.

- The BLM is proposing numerous restrictions affecting access and uses protected under ANILCA without site-specific justification. Where justification is provided, the plan relies heavily on general statements, such as “protection of “wild” classification of a WSR”, or “to maintain appropriate recreational setting” as the only rationale. The plan contains no indication of extensive public use, site-specific resource concerns or user conflicts to justify the proposed restrictions.

Response

In the Proposed RMP (Alternative E) there are no areas closed to the use of snowmobiles.

All references to "generally allowed" have been removed. "Provisions" as used in the Draft is synonymous with "reasonably regulation." All reasonable regulations will be instituted using procedures outlined in ANILCA and 43 CFR 36.

While the BLM has not promulgated regulations for implementing ANILCA Section 811, we will follow a procedure similar to the NPS and USFWS, which is similar to that outlined in 43 CFR 36. Decisions in the Final RMP/EIS that affect access and use covered under ANILCA Sections 811 and 1110 will be noted as "proposed". Following the signing of the Records of Decision, the BLM will undertake the process of proposing these restrictions as Supplemental Rules by publishing them in the *Federal Register*, soliciting comments from the public, holding hearings in the affected communities, and responding to comments in the *Federal Register* along with the final rules. See Section 2.5 of the Proposed RMP/Final EIS.

Proposed restrictions to motor boats in wild segments of wild and scenic rivers have been removed from the Proposed RMP (Alternative E).

L.4.27.4. ANILCA Section 1010

Comment Number: EIRMP000000170B-37 and EIRMP000000170B-40

Organization: Alaska Department of Natural Resources

Commenter Type: state government

Summary

The BLM should describe and summarize specific mineral assessments of potential lode mineral deposits conducted within the White Mountains since 1986 and describe how the DOI has met or not met the legal requirements of section 1010 of ANILCA. Until the DOI completes legal obligations to appropriately assess the mineral potential of the White Mountains NRA pursuant to ANILCA, exploration licenses should be made available to applicants to explore all areas that would not significantly impair recreational values or use, to obtain geologic, environmental, and other pertinent data concerning lode deposits.

Response

The BLM has complied with section 1010 of ANILCA. Existing mineral assessments were used in development of the Eastern Interior Locatable Mineral Development and Potential Report and are cited in the report. This report is available on line at: www.blm.gov\ak\eirmp

L.4.27.5. ANILCA Section 1110

Comment Number: EIRMP000000071-1, EIRMP000000412-16, EIRMP000000412-17, and EIRMP000000170-53

Organization: Alaska Department of Natural Resources, ANILCA Program

Commenter Type: state government and individuals

Summary

The RMP restricts use of all-terrain vehicles. Use of all-terrain vehicles is a traditional means of transportation for harvesting food in the planning area. Traditional access is guaranteed by ANILCA.

Response

The BLM has not made a traditional use determination under section 1110 of ANILCA. Under the Proposed RMP (Alternative E) specific travel management decisions, such as seasonal restrictions for the White Mountains, Steese, and Fortymile subunits has been deferred to travel management plans to be completed after approval of the RMP. Additional public input will be sought at this time. During the interim, travel management would be managed as outlined in the Alternative A (No Action). This includes reasonable restrictions on weight and season of use.

L.4.27.6. 43 CFR 36.11h Closure Procedures

Comment Number: EIRMP000000170-54, EIRMP000000170-6, EIRMP000000170-7, EIRMP000000170-8, EIRMP000000412-33, EIRMP000000412-5, EIRMP000000412-6, EIRMP000000412-7, EIRMP000000431-6, and EIRMP000000408-12

Organization: Alaska Department of Natural Resources, ANILCA Program, and Citizen's Advisory Council on Federal Areas

Commenter Type: state government and state advisory committee

Summary

- The RMP should explicitly recognize that the appropriate regulation for implementing all Section 1110(a) access restrictions is 43 CFR 36.11. The Draft EIS proposes restrictions on allowed uses without this required detrimental use finding and instead proposes to restrict use to preserve desired outcomes and subjective experiences. Such restrictions are contrary to the intent in ANILCA, which is to allow access to Alaska's remote areas unless resource values are threatened. The plan references the regulations at 43 CFR 36.11(h) as the process that will be followed to restrict airboats, hovercraft and personal watercraft; however, the plan does not commit to following the closure process for Section 1110(a) restrictions, such as snow machine season, width and weight limits, motorboat horsepower limits, or pack animal and bicycle restrictions. For example, to restrict pack goats in Dall sheep habitat, which is a protected form of non-motorized surface transportation under ANILCA Section 1110(a); 43 CFR 36.11(h) includes requirements for a finding that such use would be detrimental to the resource values of the area, a notice and hearing process, and time limits for temporary restrictions.

- The White Mountains Travel Management Plan in Appendix B does not recognize Section 1110 access, or implementing regulations at 43 CFR 36 that apply to the ANILCA unit.
- The BLM should recognize and commit to follow the criteria and notice requirements in the USFWS and NPS regulations, promulgated in the early 1980s to implement Section 811 of ANILCA (50 CFR 36 and 36 CFR 13, respectively). This process ensures subsistence access is not unnecessarily or arbitrarily restricted and provides local rural residents with adequate notification and public hearings, prior to implementation.

Response

Under the Proposed RMP (Alternative E), no restrictions on motorboats, hovercraft, personal watercraft, or airboats are proposed. Any restrictions to ANILCA section 1110 (a) uses (such as maximum snowmachine weight and width) will follow 43 CFR 36.11(h) procedures.

The draft travel management plan for the White Mountains in Appendix B has been removed from the Proposed RMP/Final EIS. The BLM will prepare a travel management plan for the White Mountains within five years of approval of the record of decision.

The BLM is committed to following the process outlined in section 2.5 of this document for restrictions and closures under Sections 1110 and 811 of ANILCA.

L.4.27.7. ANILCA Section 1312b

Comment Number: EIRMP000000136-4 and EIRMP000000092-3

Commenter Type: individuals

Summary

The RMP fails to meet the requirements of ANILCA Section 1312(b) regarding leasing in the White Mountains. Congress directed the BLM to objectively consider leasing for minerals and the BLM has not done that.

Response

ANILCA section 1312(b) states that the Secretary of the Interior may permit the removal of leasable minerals within in the recreation area if such disposition would not have significant adverse effects on administration of the recreation area. ANILCA does not require the Secretary to allow leasing. The BLM considered a leasing alternative for the White Mountains NRA in the Supplement to the Draft RMP/EIS. This analysis has been incorporated into the Proposed RMP/Final EIS (Appendix M).

L.4.27.8. ANILCA Section 1323b

Comment Number: EIRMP000000152-3 and EIRMP000000453-7

Organization: Doyon, Limited

Commenter Type: Native Corporation

Summary

ANILCA Section 1323(b) requires the BLM to provide adequate access to non-federally owned land surrounded by public lands. The Draft EIS, however, contains no mention of this critically important provision. The Draft EIS simply states that "Rights-of-way authorizations on [non-CSU] BLM-managed lands would be considered, and authorized under Title V of FLPMA in accordance with the regulations found in 43 CFR 2800." In developing the Proposed RMP/Final EIS, the BLM should specifically address the access guaranteed to Doyon and other inholders under Section 1323(b).

Response

The following language was added to section 2.6.3.3 of the Proposed RMP/Final EIS. “Provide access to non-federally owned lands, including ACECs, adequate to secure the owner the reasonable use and enjoyment of such lands as required by section 1323(b) of ANILCA. Access across ACEC lands is not precluded by ACEC designation. Proposals for access across ACEC lands to private lands would be considered and evaluated on the basis of environmental impacts.”

L.4.27.9. ANILCA Sections 1326 and 101(d)

Comment Number: EIRMP000000457-3, EIRMP000000077-2, EIRMP000000094-19, EIRMP000000132-2, EIRMP000000144-3, EIRMP000000170-14, EIRMP000000161-12, EIRMP000000412-21, EIRMP000000412-22, and EIRMP000000161-29

Organization: Senator Murkowski, Alaska Miners Association, Fairbanks Chamber of Commerce, Citizen's Advisory Commission on Federal Areas, and Alaska Department of Natural Resources

Commenter Type: Congressional Delegation, mining organization, Business Organization, state advisory committee, and state government

Summary

- ACEC designation violates ANILCA section 101(d) and 1326.
- Sections 101(d) and 1326 of ANILCA require that no more federal land be administratively set aside specifically for conservation purposes, therefore, the BLM should not manage any lands in the planning area specifically to protect wilderness-like qualities. Keeping BLM lands open to multiple use will not significantly reduce the wilderness-like qualities because these lands are remote and will remain largely undeveloped even if open to potential resource development well into the foreseeable future. Currently 99% of the planning area retains wilderness-like qualities despite having been available for mining between the 1880s and 1969. Federal lands should only be managed for wilderness-like qualities if those lands are so designated by statute.
- Should any of the proposals in the plan constitute new closures or withdrawals of the planning area to mineral entry or the application of the public land laws, ANILCA Section 1326(a) applies.

Response

An ACEC is an administrative designation under FLPMA, not a congressionally designated national conservation system unit (e.g., Wild and Scenic River, designated Wilderness, National Historic Trail) as described in sections 101(d) and 1326(b) of ANILCA. ACECs do not preempt ANILCA provisions that apply to ANILCA conservation system units. If an ACEC overlays a

conservation system unit, applicable provisions of ANILCA still apply. Any recommended withdrawals from mineral entry would comply with the process in section 1326(a).

The Proposed RMP (Alternative E) identifies lands that would be managed to emphasize other resource values and multiple use while applying management restrictions to reduce impacts to wilderness characteristics. Like all public lands, they will be managed by the BLM in accordance with land use plans and all applicable provisions of law, the arrangement that Congress presumed in ANILCA Section 101(d) when it deemed its "designation and disposition of the public lands in Alaska" to afford "sufficient protection," and represent "proper balance." No new conservation-system units, national conservation areas, or national recreation areas will be established by the RMP.

ANILCA section 1326(a) would apply to any new withdrawals. Modification of existing Congressional withdrawals such as those under ANILCA or the Wild and Scenic Rivers Act is outside the scope of the RMP. The Proposed RMP (Alternative E) recommends retaining existing ANCSA withdrawals until new withdrawals under the authority of FLPMA can be established. Appendix G and maps 90-93 provide more detailed discussion on this topic.

L.4.27.10. ANILCA and Wildlife Management

Comment Number: EIRMP000000170-57

Organization: Alaska Department of Natural Resources

Commenter Type: state government

Summary

The RMP mischaracterizes the requirements of ANILCA in regards to wildlife management and healthy populations. The State of Alaska manages for the sustainability of all fish and wildlife; sustainable populations are logically viable and healthy populations. However, ANILCA did not mandate management for healthy populations as stated in section 3.2.4.2.1 of the Draft RMP, but rather confirmed State authorities regarding wildlife management and required the Secretary to assure that subsistence uses are consistent with “the conservation of healthy populations of fish and wildlife.” (ANILCA Section 802(1)).

Response

Wording was changed to indicate that in ANILCA Title VIII Section 802(1) Congress declared it to be policy that "consistent with sound management principles, and the conservation of healthy populations of fish and wildlife, the utilization of the public lands in Alaska is to cause the least adverse impact possible on rural residents who depend upon subsistence uses of the resources..."

Appendix M. Supplement to the Draft RMP

M.1. Introduction

Introduction

The Bureau of Land Management (BLM) published a Notice of Availability of the Eastern Interior Draft Resource Management Plan and Environmental Impact Statement (RMP/EIS) in the *Federal Register* on February 24, 2012 (77 FR 11154). The Environmental Protection Agency published its Notice of Availability of the Draft RMP/EIS in the *Federal Register* on March 2, 2012 (77 FR 12835), beginning a 150-day public comment period. The Draft RMP/EIS considered hardrock mineral leasing in the White Mountains National Recreation Area (NRA) as an alternative considered but not analyzed in detail (section 2.3 of the Eastern Interior Draft RMP/EIS).

When preparing the Draft RMP/EIS, the BLM understood the provisions under the Alaska National Interest Lands Conservation Act (ANILCA) for hardrock leasing in the White Mountains NRA (implemented by 43 CFR 3585) to apply only to removal of hardrock minerals from mining claims that existed before November 16, 1978. Since there are no longer any mining claims of record within the NRA, it was thought that no one could meet the requirements to lease hardrock minerals. This interpretation was incorrect, as the BLM, through its regulations at 43 CFR part 3580, has interpreted Section 1312 of ANILCA as allowing for disposal of hardrock minerals by lease in the White Mountain NRA even in the absence of an underlying unperfected mining claim, subject to certain findings by the Secretary.

To analyze an adequate range of alternatives and obtain public comment on hardrock mineral leasing in the White Mountains NRA, the BLM issued this Supplement to the Eastern Interior Draft RMP/EIS. This Supplement amends Alternative D to include the hardrock mineral leasing scenario. This alternative would recommend making approximately 160,000 acres in the White Mountains NRA available for hardrock mineral leasing. This Supplement describes the additions to Alternative D and environmental effects associated with the hardrock mineral leasing scenario. Only after receiving, reviewing, and considering public comment, will the BLM decide whether or not to recommend opening the NRA to hardrock mineral leasing as a feature of the agency preferred alternative in the Proposed RMP/Final EIS.

In this document, a hardrock mineral leasing program refers to issuing exploration licenses and mineral leases for the exploration and development of known deposits of placer gold and rare earth elements. Both gold and rare earth elements are locatable minerals normally only available through mining claims. As discussed above, however, ANILCA allows for leasing hardrock minerals in the White Mountains, but not for the location of new mining claims. Mineral leasing is done by a lease sale at the discretion of the BLM. Leases are for a defined term, a royalty is charged, and the lease may contain leasing stipulations at the time of the lease sale.

Pursuant to Section 810 of ANILCA, the BLM evaluated the effects of the revised Alternative D presented in this Supplement on subsistence activities and determined that there may be a significant restriction on subsistence uses. These findings are located in Appendix B of this document. The BLM will hold public hearings related to Section 810 findings in conjunction with public meetings on the Supplement. The BLM will announce notice of specific dates and locations for public meetings and ANILCA hearings, through public notices, media releases, and/or mailings.

Background

Section 1312 of ANILCA (16 U.S.C. 460mm-4) withdrew the lands within the White Mountains NRA from location, entry, and patent under the Mining Law of 1872, but allows the Secretary to "permit the removal of the nonleasable minerals" from these lands, provided the Secretary makes a finding that such disposition would not have significant adverse effects on the administration of the NRA. The BLM interprets Section 1312 as allowing for the disposal of previously locatable minerals (such as gold) within the NRA by lease, as described in its regulations at 43 CFR part 3580, subpart 3585. Pursuant to land use plan decisions, BLM lands can be opened to mineral leasing and development when "such use and development would be compatible with, or would not significantly impair, public recreation and conservation of the scenic, scientific, historic, fish and wildlife or other values contributing to public enjoyment" (43 CFR §3585.1).

The existing White Mountains Resource Management Plan (BLM 1986) recommended opening approximately 44 percent of the NRA to leasing of hardrock minerals. This decision was never implemented.

In April 1986, the BLM issued a final rulemaking in the *Federal Register* revising the provisions of 43 CFR part 3500 concerning the leasing of solid minerals. Included in this rulemaking were regulations allowing for hardrock mineral leasing in the White Mountains NRA.

A U.S. Bureau of Mines (Fechner and Balen 1988) assessment of the placer resources in the White Mountains documented economically recoverable quantities of placer gold in the Nome and Beaver Creek drainages. Many of the areas known placer deposits were under claim at the time of withdrawal. These claims have since lapsed, and due to the withdrawal, no new claims could be staked. The deposits identified by the U.S. Bureau of Mines and those once under claim, have not seen significant development activities since the establishment of the White Mountains NRA in 1988.

Mapco Incorporated explored for uranium in the 1970s and found a high-grade rare earth element (REE) deposit hosted in granite at the headwaters of Roy Creek. Rare earth elements found in the area include lanthanum (La), praseodymium (Pr), Cerium (Ce), and neodymium (Nd). In this document, these rare earth elements are generally referred to as the Roy Creek REE deposit.

REEs are a set of 17 metals including the 15 lanthanides, yttrium, and scandium. Because of their geochemical properties, REEs are not often found in concentrated and economically exploitable forms. REEs are used in hybrid automobiles, wind turbine generators, and many high tech industrial and consumer products. During the past 20 years there has been a greatly increased demand for many of these products requiring REE. Only recently has there been an interest in REEs in the planning area since Chinese export restrictions have caused their price to spike. The known deposit of REE minerals in the White Mountains is restricted to a specific occurrence of granite mapped in the Roy Creek area.

M.2. Alternatives

This Supplement modifies the Eastern Interior Draft RMP/EIS by adding the following decisions to Alternative D for the White Mountains Subunit (BLM 2012a, section 2.8.2.3). All alternatives are described in more detail in the Eastern Interior Draft RMP/EIS (BLM 2012a).

Alternative D

Alternative D for the White Mountains Subunit of the Eastern Interior Draft RMP/EIS would include the following decisions:

Approximately 160,000 acres in the White Mountains NRA would be recommended open for leasing of hardrock minerals (Figure M.1).

- 64,000 acres of lands with known placer deposits of gold and high development potential would be open for leasing. Competitive leases issued in Quartz Creek will contain stipulations requiring mining by suction dredging only;
- 85,000 acres of lands with known placer deposits of gold and medium development potential would be open for leasing; and,
- 11,000 acres of lands with known deposits of four rare earth elements, lanthanum (La), praseodymium (Pr), Cerium (Ce), and neodymium (Nd), would be open for leasing.

The Required Operating Procedures (ROPs) and Leasing Stipulations in Appendix A of this document would apply to hardrock mineral leasing and exploration licenses. The BLM has the authority to include special lease stipulations for the protection of the surface, its resources and use for recreation (43 CFR 3585). The BLM would use this authority to develop additional lease stipulations as appropriate at the time of a lease sale or approval of an exploration license.

This Supplement changes only Alternative D. Alternative D is not the Agency Preferred Alternative. The other alternatives are:

Alternative A (No Action Alternative)

The White Mountains NRA would remain closed to hardrock mineral leasing. Although the White Mountains RMP (BLM 1986) recommended opening the Semi-Primitive Motorized Unit (428,000 acres) to leasing of hardrock minerals, this decision was never implemented.

Alternatives B and C (Agency Preferred Alternative)

No lands within the White Mountains Subunit would be recommended open to leasing of hardrock minerals.

Table M.1. Hardrock Mineral Leasing White Mountains Subunit: Summary of Alternatives

Program	Alternative A (No Action)	Alternative B	Alternative C (Agency Preferred)	Alternative D
Hardrock mineral leasing	0 acres open			160,000 acres open to leasing

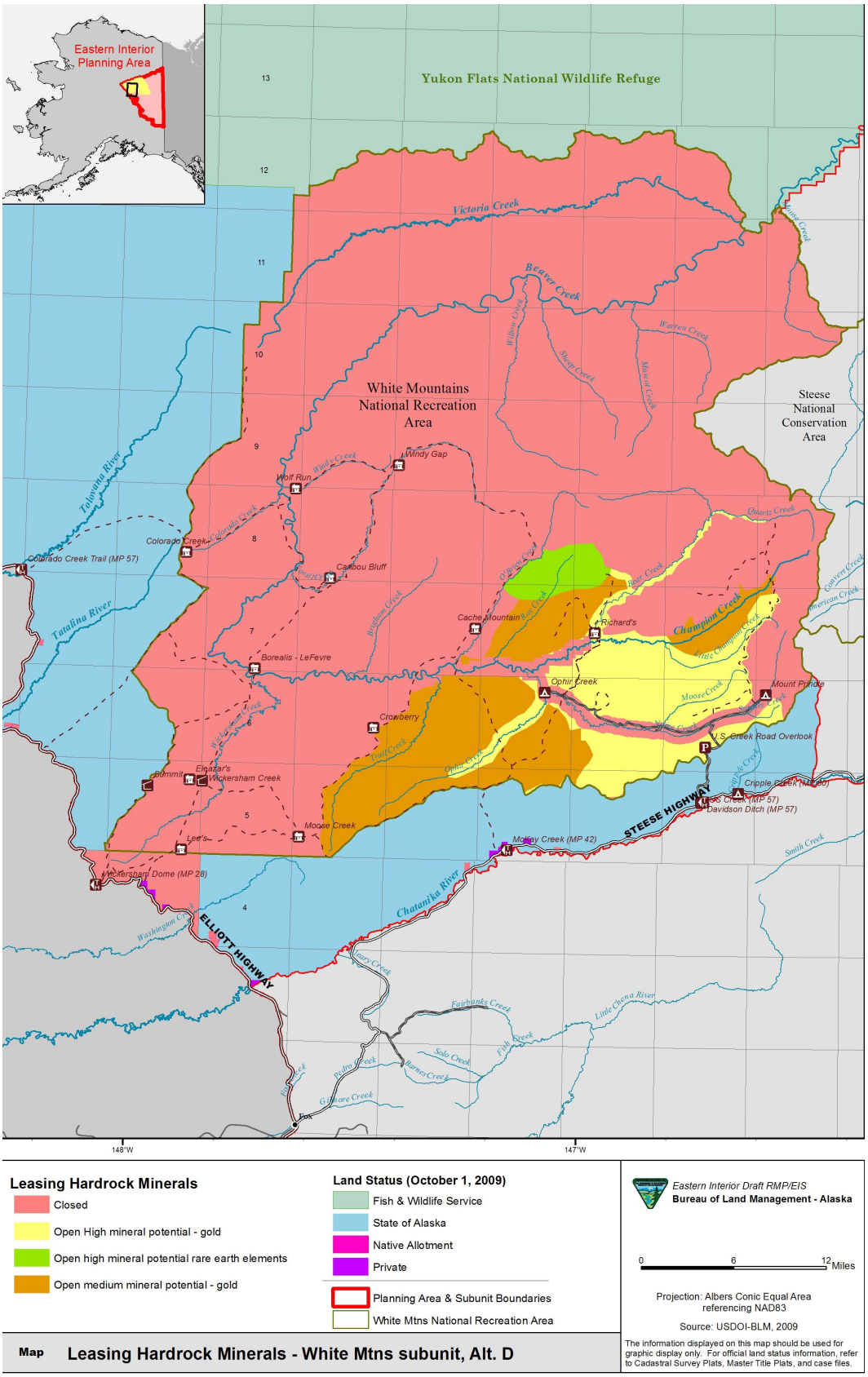


Figure M.1. Alternative D Hardrock Mineral Leasing Areas

M.2.1. Summary of Impacts

The following table summarizes the impacts in Alternative D with the addition of hardrock mineral leasing. For a summary of impacts of other programs and alternatives, see section 2.9 of the Eastern Interior Draft RMP/EIS (BLM 2012a).

Table M.2. Summary of Impacts

Program or resource	Alternatives A–C	Alternative D
Cultural and Paleontological Resources	None	Possible disturbance to historic and prehistoric sites. Increased access to areas open to hardrock mineral leasing increases potential for both inadvertent and intentional damage to resources.
Fish and Aquatic Species	None	Suction dredging has been shown to locally reduce benthic invertebrates; cause mortality to early life stages of fish; destabilize spawning and incubation habitat; remove large roughness elements such as boulders and woody debris; increase suspended sediment; decrease the feeding efficiency of sight-feeding fish; and, reduce living space by depositing fine sediment. Alternatively, suction dredging may temporarily improve fish habitat by creating pools or spawning gravels. Operations that do not alter streambank stability or adversely impact riparian and stream channel function, are likely to be minimal and of short-term duration (less than or equal to five years). Placer mining can negatively affect fish and aquatic resources by degrading or eliminating aquatic habitat; reducing available food sources and water quality; reducing available pool habitat; eliminating riparian vegetation and function; creating sparsely vegetated valleys and floodplains with slow rates of natural revegetation and unstable stream channels with highly erodable beds and banks; altering the longitudinal slope, geometry, and sediment transport rates in streams; and, creating undersized or absent floodplains. Placer mining may directly affect an estimated eight miles of stream. With ROPs and good conditions, streams would trend toward a functional, but altered, habitat within five to ten years after reclamation. Mechanized placer mining within the headwaters of Beaver Creek Wild and Scenic River (WSR) may affect water quality, the recreational grayling fishery in Beaver Creek, and Beaver Creek Chinook (a BLM Alaska Watch List species).
Non-native Invasive Plants	None	Mineral leasing and associated access would increase the likelihood of the introduction, establishment, and spread of nonnative invasive plants (invasive plants). Indirect impacts would result where invasive plants become established due to hardrock exploration development, including potentially long-term changes in plant community structure and diversity and wildlife habitat degradation. Costs include long-term monitoring and control. Containment and control of invasive plants may include further soil disturbance and the application of herbicides, also for the long-term. ROPs and Leasing Stipulations (Appendix A) would reduce the level of impact.

Program or resource	Alternatives A–C	Alternative D
Soil and Water Resources	None	Placer mining can have an adverse effect on the structure of the existing soil profile by stripping of overburden and riparian/wetland vegetation. There is an irretrievable loss of any soil that enters waterways and is transported downstream. The primary impact to water quality is an increase in sedimentation and turbidity. Some direct effects on water quality can be anticipated during the development stage of an operation, resulting in short-term increases in sediment levels and turbidity while equipment operates near or in the active stream channel. It is likely that occasional high water or failure of water control structures would introduce sediments collected by the water treatment system into the stream channel, resulting in short-term increases in turbidity and sediment load levels and possible localized sedimentation of the stream substrate. Stream channel morphology would be directly affected in all areas where activities associated with mining occur in the active channel. Indirect impacts to water quality would occur through non-point source erosion from disturbed areas directly adjacent to stream channels. Channel readjustment would occur where the active channel was modified. These processes increase suspended sediment into the stream system, particularly during spring break-up and floods. Impacts to soil and water resources could be expected to decrease after cessation of mining, successful revegetation, and channel stabilization. Reestablishing vegetation on placer waste rock piles may take decades. All placer mine operations would be required to recycle turbid water through settling ponds to prevent high turbidity discharge into streams and to reclaim disturbed stream channels and riparian areas. It is anticipated that turbidity as a result of direct and indirect discharge from placer mine operations would meet ADEC water quality standards. ROPs shown in Appendix A would be implemented to reduce impacts to soil and water resources.
Special Status Species	None	Wetland, riparian, and aquatic habitats support most BLM Alaska sensitive animal species. Most sensitive plant species occur on the uplands. Exploration for rare earth elements may affect sensitive plant species. Placer mining and associated changes in access could result in substantial local impacts to riparian and aquatic habitats and species. Hardrock leasing would impact individuals of some BLM Alaska sensitive species. The distribution of most of these species is not well-known. Implementation of ROPs (Appendix A) would reduce impacts. It is not anticipated that hardrock mineral leasing would trend any sensitive species toward federal listing.
Vegetation	None	Native vegetation, mostly riparian and wetland habitats, would be lost on an estimated 661 acres. Times to reestablish vegetative cover would vary widely. Some areas would remain unvegetated for several to many years. Areas with adequate fine and organic soil materials and viable seed and vegetative plant parts would revegetate relatively quickly. ROPs requiring vegetation cover to meet pre-determined standards would result in faster revegetation. Riparian areas where a stable stream channel was not established would remain largely unvegetated until the channel stabilizes. Loss of fines and organic material through flooding and shifting channels can delay revegetation for decades. Roads and trails developed for access would disturb an undetermined area of native vegetation and supporting soils. Heavy, season-long use may result in significant loss of vegetation and degrading of soils in a variety of vegetation types. Additional disturbance would occur by expansion of this network of roads and trails by recreational users. Much of the hardrock leasing area burned in 2004 and soils and vegetation may be more susceptible to impacts from motorized use.

Program or resource	Alternatives A–C	Alternative D
Visual Resources	None	Eighty-four percent of the White Mountains NRA would be closed to mineral leasing including Beaver Creek WSR, research natural areas, and reclaimed areas along Nome Creek, protecting visual resources in these areas. Visual resources would be affected within the 160,000 acres open to mineral leasing. Surface disturbing activities associated with exploration and mining, such as drilling, trenching, access trails, removal of vegetation and stockpiling of materials, would impact line, form, color, and texture of mined areas creating contrast between mined areas and background landforms. These activities may attract the attention of the casual observer from various distances. Large-scale placer mining would have the greatest impact to visual resources. Small-scale placer mining would have similar impacts, but at a smaller scale. Movement of materials from dredging occurs underwater and thus does not have a noticeable impact on visual resources. Suction dredging camps would impact visual resources on less than six acres annually. Mineral exploration activities would impact visual resources on an estimated 70 acres.
Wildlife	None	Mineral leasing activities and associated access would result in disturbance of more than 661 acres of terrestrial wildlife habitat. Much of this disturbance would occur to riparian areas and wetlands habitats which are typically high-value wildlife habitats. Effects on these habitats would extend, to some extent, downstream into Beaver Creek WSR. Human activities associated with mines would reduce use of riparian habitats by many wildlife species in the immediate vicinity of the activity. Changes in access and resulting increases in human use of the area may have a greater effect on wildlife and their habitats than direct habitat disturbance. In general, motorized access would increase throughout the leasing area. Human use of additional access to sheep habitats in the Upper Champion Creek and Quartz Creek area may reduce sheep use of those habitats. Moose may benefit from some ground disturbances that result in growth of deciduous browse species. Increased hunting pressure and harvest in previously remote areas would likely reduce harvest in areas with already-established access, such as Nome Creek. Hunting pressure may result in some displacement of moose from high-density rutting areas. Most of the habitat disturbance would occur within the historical calving range of the Fortymile caribou herd and current calving area of the White Mountains caribou herd. The greatest impact to caribou would likely be the change in access, human infrastructure, and the generally increased levels of human activity in the area. Although placer mining operations may have little direct effect on caribou use of the area, the combined direct and indirect effects from changes in access and human use patterns would likely reduce the suitability of the area as calving habitat and potentially reduce the likelihood that the Fortymile Herd would reestablish a habit of calving season use of the White Mountains. Compared with other large migratory caribou herds, the Fortymile herd's current annual range has a low proportion of range above treeline (17%; Boertje et al. in press). Boertje and others (in press) surmised that overgrazing of the herd's current core upland tundra habitat may have resulted in reduced herd nutrition levels and suggested that expansion to additional spring and summer upland tundra in the White Mountains may be of key importance to realizing continued herd growth. Several species of migratory birds are dependent on (or found in much higher densities in) riparian habitats. Placer mining would remove habitat for these species in localized areas and habitat recovery may require several decades.

Program or resource	Alternatives A–C	Alternative D
Recreation and Travel Management	None	Direct impacts to recreation include visual impacts, short-term user conflicts, exhaust, and noise impacts. In contrast to the short-term noise and exhaust produced by a passing motorized vehicle, noise and exhaust from suction dredging and mechanized placer mining would persist for hours. Some recreation visitors anticipating a backcountry experience may be displaced. Buffers around BLM cabins and Nome Creek would help reduce impacts from noise in these areas. Occupancy of mining equipment and related operations may last for 90 days per operation and displace some recreation users. Proper location of camps and staging areas could reduce this impact. Views of mining activity would be visible from ridge tops (e.g., Table Top Trail). The visual resource management ROPs (section M.4.2.11) would help reduce visual impacts. Increased turbidity, inherent with mining activities, would reduce the aesthetic appeal of Beaver Creek and influence the floating experience by boat floaters. Beaver Creek supports a popular grayling fishery. Fishing success would decrease in muddy water and displace some users. River hazards are more difficult to identify in muddy water, increasing floating difficulty. Access routes to leases could benefit other users if constructed in the proper locations using sustainable trail construction techniques. Roads and trails associated with mining would be attractive to motorized recreation users. While contributing to greater access by the motoring public it would also greatly expand the proliferation of user-made trails and multiple routes to the same location. Mobilization of mining equipment on existing trails would require the trails to be widened possibly attracting use of vehicles larger than allowed by current OHV regulations. Increased summer use on winter trails would make winter trail maintenance difficult and reduce the quality of the trails for winter uses. Indirect effects from road construction include the reclamation of road beds after the life of the mine or the maintenance and redevelopment of sustainable road infrastructure by the BLM, requiring additional expense and maintenance beyond the life of the plan. Direct effects to recreation may be short-term and could be mitigated. The access needs and infrastructure associated with mining would increase the proliferation of user-created trail networks in a heavily used area. The proximity to Fairbanks and growing popularity of the area, coupled with the existing recreational facilities would have a cumulative adverse effect on the administration of the recreational area and may result in increased maintenance cost for BLM.
Subsistence	None	Impacts include user conflicts, displacement of resources, and potential declines in resource availability due to disturbance in critical habitats (spawning) or during critical times (e.g., calving periods). Minimal direct impacts to subsistence wildlife resources or uses would occur from hardrock mineral leases and exploration licenses because of seasonal restrictions on activities in Dall sheep lambing and caribou calving habitats. Indirect impacts are expected to be greater and more difficult to mitigate. Increased access to largely remote wildlife habitat is expected to occur. The resulting increase in non-mining activities may cumulatively reduce the suitability of the areas for calving and postcalving. Data indicates that current calving and postcalving range for the Fortymile caribou herd has been diminished from overgrazing and limited suitable habitat is available. The research indicates that habitat in the White Mountains would become increasingly important to continued growth and stability of the Fortymile herd (Boertje et al. in press). Analysis of indirect impacts to Fortymile caribou from mineral leasing resulted in a finding of may significantly restrict subsistence use of Fortymile caribou (Appendix B). Some conflicts with federal subsistence hunters may occur from mid-August through September and from November through March if exploration and

Program or resource	Alternatives A–C	Alternative D
		placer mining is active during these time periods. Access by subsistence hunters may be restricted due to perceived or real barriers to wildlife resources, displacing hunters to other areas. Caribou are generally distributed over a wide area, thereby minimizing access issues for subsistence hunting. Moose are available through the greater area and much of the rural resident harvest of moose occurs outside the area open to mineral leasing. Conflicts among hunters would not be expected to be significant. Spawning areas for Chinook salmon have been identified within Ophir Creek. Because active mining is likely to occur in and adjacent to these spawning areas, direct impacts on this population are expected. Indirect impacts to subsistence fish species and water quality may occur downstream due to turbidity, crossing of streams, high water events and occasional failure of settling ponds. These impacts would likely be short-term. Regulations and ROPs that require recycling of turbid water through settling ponds and reclamation of disturbed stream channels should mitigate most of these impacts.
Economic	No additional positive economic effects.	Exploration and leasing for placer gold and rare earth mineral exploration would result in positive economic effects. The total mining employment on BLM-managed lands would be estimated at 84 part-year workers. The full-time equivalent in the White Mountain Subunit would be approximately 35 workers, based on the Stebbins (2009) models. Total employment by the Alaska minerals industry in 2008 was 3,392 full-time equivalent jobs (Szumigala et al. 2009). The statistics indicate less than one percent of the statewide industry employment on BLM-managed lands would occur at White Mountain operations. The DGGS reported the average monthly wage for mining in Alaska during 2010 at $8,345. White Mountains gold mining operations account for approximately $3 million in wages, annualized.
Environmental Justice	None	Minority and low income populations would not be disproportionately impacted. Minority or low income populations in the Fairbanks area may benefit from employment in the recreation and mining industries. New mining leases and mineral exploration could result in additional employment accruing to local populations. Possible negative impacts to environmental justice populations and the entire population of the area include loss of employment in another existing industry due to mining development. However, there are no commercial activities in the area potentially opened to mining under Alternative D providing employment that will be affected.

M.3. Affected Environment and Environmental Consequences

The following sections describe the environmental consequences that would occur due to hardrock mineral leasing in Alternative D. There would be no impacts associated with hardrock mineral leasing under Alternative A (No Action Alternative), Alternative B, or Alternative C. Therefore, these alternatives are not discussed any further.

M.3.1. Assumptions for Analysis

This section describes the assumptions used for analysis of impacts and the level of exploration and development that is reasonably foreseeable during the life of the plan in Alternative D.

M.3.1.1. Alternative D

The following information is summarized from the *Eastern Interior RMP Reasonably Foreseeable Developments for Locatable Minerals and Leasable Hardrock Mineral Resources in the White Mountains Subunit* (BLM 2012b) which is incorporated by reference. In the reasonably foreseeable development scenario (RFD) the BLM developed models for typical suction dredging, small placer, and large placer operations, describing acres of annual disturbance, size of the crew, hours of operation, fuel requirements, and type of equipment used for each type of operation. These same models were used for the analysis of hardrock mineral leasing. This analysis assumes that development under mineral leases would occur in a similar manner to development under the 3809 regulations (43 CFR 3809).

In accordance with the regulations for hardrock leasing (43 CFR 3500), the BLM envisions the following potential developments:

1. The BLM would offer competitive leases for known deposits of placer gold in areas with high development potential (64,000 acres).
2. In the areas of known deposits of placer gold with medium development potential (85,000 acres), the BLM could issue exploration licenses based on public interest, likely leading to additional placer leases.
3. The BLM could issue exploration licenses based on public interest in the Roy Creek known REE deposit (11,000 acres). It is unlikely that any lode mineral occurrences explored under a license would move to a production lease within the anticipated twenty-year life of this plan.

Methodology for Estimation of Mining Activities

To estimate the types and number of mining-related activities that might occur in the White Mountains if known mineral deposits were made available for leasing, the BLM compared State of Alaska land of a similar nature in the Steese Subunit. For every 7,000 acres of state land in the Steese, there is one typical placer operation. There is one suction dredge operation for every six miles of dredgable stream on high development potential areas of the Steese. These ratios are applied to areas of known mineral deposits in the White Mountains NRA to establish the number of anticipated mechanical placer mining leases, suction dredge leases, and both REE and placer exploration licenses over the life of this plan (Tables 3.1 and 3.2). Tables 3.1 and 3.2 include only acreage that can be directly estimated. Surface disturbance due to access routes was not estimated.

Access Assumptions

In order to reduce impacts, access would generally be limited as follows:

- Helicopter access for exploration licenses in the Roy Creek REE deposit;
- No construction of roads for exploration licenses;
- Winter overland moves for heavy equipment;
- Summer access by all-terrain vehicle (ATV), consistent with off-highway vehicle (OHV) designations for Alternative D (limited to 1,000 pounds curb weight and 50 inches width). The BLM could approve heavier vehicles, such as utility terrain vehicles (UTV), on a case-by-case basis. The BLM would determine access routes to mining locations off current BLM-managed recreational trails on a case-by-case basis. Seasonal restrictions may apply;
- Aircraft (helicopter or fixed-wing); and,

- The BLM could consider construction of new access roads for placer development on a case-by-case basis if consistent with recreation management objectives and if other access was not feasible. The BLM estimates up to 20 miles of roads could be built over the life of the plan.

Leases

The BLM may issue a competitive lease on unleased lands where a known valuable mineral deposit exists. This lease is accomplished through a competitive lease sale. There are two types of leases applicable to hardrock mining in the White Mountains NRA, and they are described in more detail below.

Suction Dredge Placer Leases: In addition to the mechanical operations described below, the BLM estimates there would be 10 suction dredge operations on lands with high placer development potential and one additional operation on lands with medium development potential. A suction dredge operation is limited to within active steam margins and would disturb about one-half acre per year. The maximum potential disturbance from all 11 operations for the twenty-year life of the plan with natural concurrent reclamation is 84 acres.

Mechanized Placer Leases: To estimate the effects of development of traditional placer mining operations, the BLM considered two mining models: a smaller mobile placer operation using a small dozer and excavator feeding an 11 cubic yard-per-hour washplant and a larger 145 cubic yard-per-hour "Kantishna-type" washplant supported by a larger excavator and track-dozer. A small operation would mine and reclaim one acre per year, but have a continual 4.4 acres of disturbance per year for a total disturbance of 27 acres for the life of this plan. A large operation would have a continual 20 acres of disturbance and a total disturbance of 107 acres over the life of this plan. The BLM estimates there could initially be two large and eight small operations annually, with an additional three small operations following work done under exploration licenses, for a total disturbance of 507 acres over the life of the plan.

Exploration Licenses

An exploration license allows the applicant to explore known mineral deposits to obtain geologic, environmental, and other pertinent data concerning the deposits. The application for an exploration license includes an exploration plan approved by the BLM that becomes part of the license. The requirements for an exploration plan are described in 43 CFR 3505.45. A proposed notice of exploration must be published, inviting others to participate in the exploration under the license on a pro-rata basis. Applications for exploration licenses would be subject to site-specific analysis under the National Environmental Policy Act (NEPA). Site-specific measures to protect the environment and use for recreation would be included in the approved exploration license. There are two types of licenses applicable to hardrock mining in the White Mountains NRA, and they are described in more detail below.

Placer Exploration Licenses: The BLM may require exploration of placer resources in the medium development potential areas prior to issuing placer leases; the applicant may request exploration licenses in the higher development potential areas before the BLM offers competitive leases. Most placer exploration would cause minimal disturbance, but the applicant could also request approval for more intensive placer sampling with heavy equipment. The BLM anticipates there could be four exploration licenses (5,000 acres each) requested within the lands opened to leasing, resulting in direct disturbance to and reclamation of 20 acres over the life of the plan.

Rare-Earth Element Exploration Licenses: If the White Mountains NRA were opened to hardrock leasing, there would likely be an exploration license request for the 11,000 acres in the Roy Creek REE known deposit. Exploration activities would range from field mapping and sampling, to trenching and core-drilling. The total life-of-plan disturbance from exploration of the Roy Creek REE deposit is expected to be 50 acres.

Table M.3. Anticipated Activity Due to Hardrock Leasing in the White Mountains Under Alternative D

Activities under Reasonably Foreseeable Exploration and Development	High Potential Lands – Gold	High Potential Lands - REE	Medium Potential Lands – Gold	Total
# Suction dredge placer leases	10 leases		1 lease	**11**
Life of plan disturbance due to suction dredging (active stream channel only)	76 acres		7.6 acres	**84 acres**
# Mechanized placer leases	2-large leases 8-small leases		3- small leases	**13 leases**
Life of plan disturbance due to mechanized placer mining (uplands/floodplains)	427 acres		80 acres	**507 acres**
Total lease disturbance (20 years)	**503 acres**		**88 acres**	**591 acres**
Acres open to leasing	**64,000 acres**	**11,000 acres** [a]	**85,000 acres**	**160,000 acres**

[a]No production leases anticipated during the life of the plan.

Table M.4. Anticipated Activity Associated with Exploration Licenses in the White Mountains Under Alternative D

Activities under Reasonably Foreseeable Exploration and Development	High Potential Lands Lode REE	Medium Potential Lands – Placer Gold	Total
# Placer exploration licenses		4	4
Area licensed for placer (acres)		20,000	20,000
Acres of disturbance due to placer exploration licenses		20	20
# Lode exploration licenses	1		1
Area licensed (acres)	11,000		11,000
Acres of disturbance due to lode exploration licenses	50		50
Total disturbance from exploration licenses (20 years)	**50 acres**	**20 acres**	**70 acres**

M.3.2. Affected Resources

M.3.2.1. Cultural and Paleontological Resources

Affected Environment

Placer gold prospecting and mining has occurred in some drainages in the White Mountains NRA for more than 100 years. The specific areas outlined in Alternative D equate to areas of known historic mineral activity. Non-systematic archaeological surveys in these areas have found historic mining sites immediately adjacent to portions of all creeks addressed in this alternative. Similarly, Alaska Native prehistoric sites have been found along two of the creeks in this alternative, in

spite of the almost complete lack of archaeological surveys aimed towards finding such sites in the project area. There are almost certainly more such sites.

Environmental Consequences

Section M.3.1 of this appendix describes the nature of the proposed hardrock mineral leasing. Alternative D outlines disturbance of up to: 507 acres by mechanized placer mining operations, 70 acres from the issuance of exploration licenses, and 84 acres by suction dredging in and alongside specified creeks (including Ophir, Bear, Trail, Quartz, Champion, and Little Champion creeks).

Surface disturbing activities, including mining and exploration activities outlined here, directly and adversely impact cultural and paleontological resources. Disturbance to prehistoric sites by any particular mining or exploration operation would need to be assessed on a case-by-case basis. Their locales on the landscape are a bit more predictable than are historic mining sites. In sum, hardrock mineral leasing would likely directly and adversely impact all manner of surface and buried cultural and paleontological resources.

Similarly, new access roads might be authorized to reach future valid mineral leases. New road construction has a direct and adverse effect on cultural and paleontological resources. It also has an indirect effect when new users (such as recreators, hunters, and those interested in procuring forest and woodland products) gain access to previously isolated lands. With more resource users accessing BLM-managed lands, the potential increases for more people finding surface cultural resources and adversely impacting them, whether intentional or not.

Cumulative Effects

Cumulative impacts to cultural and paleontological resources can occur through incremental degradation of the overall resource base. Excepting especially rare or unique sites, the destruction of any one, two, three, or more sites would likely not impact the overall, areal resource base, as there would probably be more of any similar type of site elsewhere in the planning area. However, cultural and paleontological resources are a non-renewable resource and the loss of any one of them is one less from a finite total. There would eventually be a point at which the cumulative overall destruction of sites would limit management options within any defined area, such as the planning area. Hardrock mineral leasing in the White Mountains would contribute to this cumulative effect.

Many low-level, seemingly minor impacts (such as walking or camping on a site) can slowly and cumulatively grow into a larger direct adverse effect over time. Similarly, visitors to sites often feel an urge to connect with the past by removing a piece of the site when they leave, like an artifact. Removal of a one, two, three, or more artifacts would not likely affect overall site interpretation. However, the point would come when enough artifacts are removed, that the cumulative removal would irreversibly affect any interpretations that can be made about that site. By promoting and increasing use and visitation upon public lands, hardrock mineral leasing may inadvertently adversely impact cultural and paleontological sites in this cumulative manner.

M.3.2.2. Fish and Aquatic Species

Methods of Analysis

Indicators: For aquatic resources, fish, and Special Status Species, the indicators used to identify the level of impact include water quality, riparian vegetation, streambank stability, and stream miles open to leasing of hardrock minerals.

Methods and Assumptions: Potential impacts on fish and aquatic resources are based on interdisciplinary team knowledge of the resources and the planning area. Impacts were identified using best professional judgement and were assessed according to the following assumptions:

- Healthy riparian areas are critical for properly functioning aquatic ecosystems. Improvements or protection of riparian habitats would indirectly improve or protect aquatic habitats and fisheries. Adverse impacts to riparian habitats would indirectly degrade aquatic habitats and fisheries;
- All of the anadromous streams or extent of anadromy within the area proposed for hardrock mineral leasing may not yet be identified;
- A hardrock mineral leasing program would result in an increased number of placer mining operations with the potential to adversely affect fish and aquatic resources, including BLM Alaska watch list species and the outstandingly remarkable fisheries value for Beaver Creek;
- All BLM land use authorizations would incorporate appropriate project design, Procedures, and mitigation to ensure no adverse long-term (greater than 20 years) impacts to water quality and aquatic habitats exist.
- The BLM would identify channel reconstruction activities. Reconstructed stream channels would be designed by an individual(s) trained and qualified for the task and the channel would be built as designed.
- Reclamation techniques would use an "adaptive management" approach to address potential problems allowing for corrective actions should they become necessary. These techniques would ensure applicable performance standards and required conditions are met at the conclusion of operations.
- The timeframes associated with long- and short-term impacts assume that channel equilibrium is maintained.

Affected Environment

A general description of fish and fish habitat within the planning area, including areas specific to Alternative D, is in section 3.2.4.1 of the Eastern Interior Draft RMP/EIS (BLM 2012a) and is incorporated by reference. The planning area supports 17 native fish species. None of these species are listed as threatened or endangered. With few exceptions, the current condition of fish species is good, and most fish populations are self-sustaining.

Approximately 160,000 acres are recommended open to hardrock mineral leasing in Alternative D, including 250 miles of headwater streams located in the southeast portion of the White Mountains NRA. These streams form the headwaters of Beaver Creek WSR (Figure M.1). These headwater streams are clear, rapid streams with long riffles, few pools, with an average width of 50 feet (Rhine 2005). The substrate generally consists of a gravel-cobble mixture (3 to 12 inches in diameter). Although some placer mining activity has occurred in headwater areas of Beaver Creek, most of these streams are thought to be in pristine condition, with the exception of Nome Creek. Nome Creek was heavily placer mined for gold from the early 1900s to the late 1980s.

Mining disturbed more than seven miles of stream and by the 1980s the floodplain was largely obliterated (Kostohrys 2007). From 1991 to the present, the BLM has been working to restore the floodplain, reestablish riparian vegetation, and maintain a single thread channel. The BLM has expended an estimated $450,000 on the Nome Creek reclamation project (USKH 2006).

Fish species found within the upper Beaver Creek watershed that are adjacent to or within areas recommended open to mining include Chinook salmon (*Oncorhynchus tshawytscha*), Arctic grayling (*Thymallus arcticus*), whitefish (*Coregoninae spp.*), and slimy sculpin (*Cottus cognatus*). Beaver Creek also supports regionally significant fish species which include small populations of coho (*O. kisutch*), and summer chum salmon (*O. keta*). The creek also supports moderate to high densities of Arctic grayling and northern pike (*Esox lucius*) which provide important recreational fishing opportunities. These populations of regionally significant fish species, unique concentrations of Arctic grayling, and the river's pristine habitat support BLM's identification of fish as an Outstanding Remarkable Value (ORV) for Beaver Creek (BLM 2012a, Appendix E).

The BLM monitored Beaver Creek Chinook salmon escapement from 1996 to 2000 and the data revealed a declining trend similar to the overall decline of Yukon River Chinook salmon (Volk et al. 2009). The Beaver Creek Chinook salmon escapement for these years ranged from 114 to 315 Chinook salmon. Although Beaver Creek Chinook salmon were designated as a BLM Alaska sensitive species in 2004 due to the downward trend of this small population, they were recently removed from that list and placed on a watch list. Since 2000, the Alaska Department of Fish & Game (ADF&G) has considered the Yukon River Chinook salmon stock as a *stock of yield concern* based on escapement performance, expected yields, and harvestable surpluses (Howard et. al. 2009). Beaver Creek Chinook are a component of the Yukon stock. Between 1996 and 2000, the overall Yukon River Chinook escapement range from the highest (about 300,000) to the lowest (about 100,000) dating back to 1982. Beaver Creek contributes a small percentage of the overall Yukon River Chinook salmon stock. The Yukon stock, however, is made up of numerous genetic stocks (such as the Beaver Creek stock) all of which are considered important to the overall health and viability of the stock.

The ADF&G Anadromous Water Catalog identifies Chinook salmon spawning and rearing in Beaver and Ophir creeks and Chinook spawning in Nome Creek (Figure M.2). Adult Chinook salmon in spawning condition have been observed at the confluence of Bear and Champion Creek (E. Yeager, pers. comm. May 15, 2012). That location is many miles farther upstream than what the Anadromous Waters Catalog identifies as the extent of anadromy. This reinforces ADF&G's assumption that approximately 50 percent of the anadromous streams or extent of anadromy have not yet been identified.

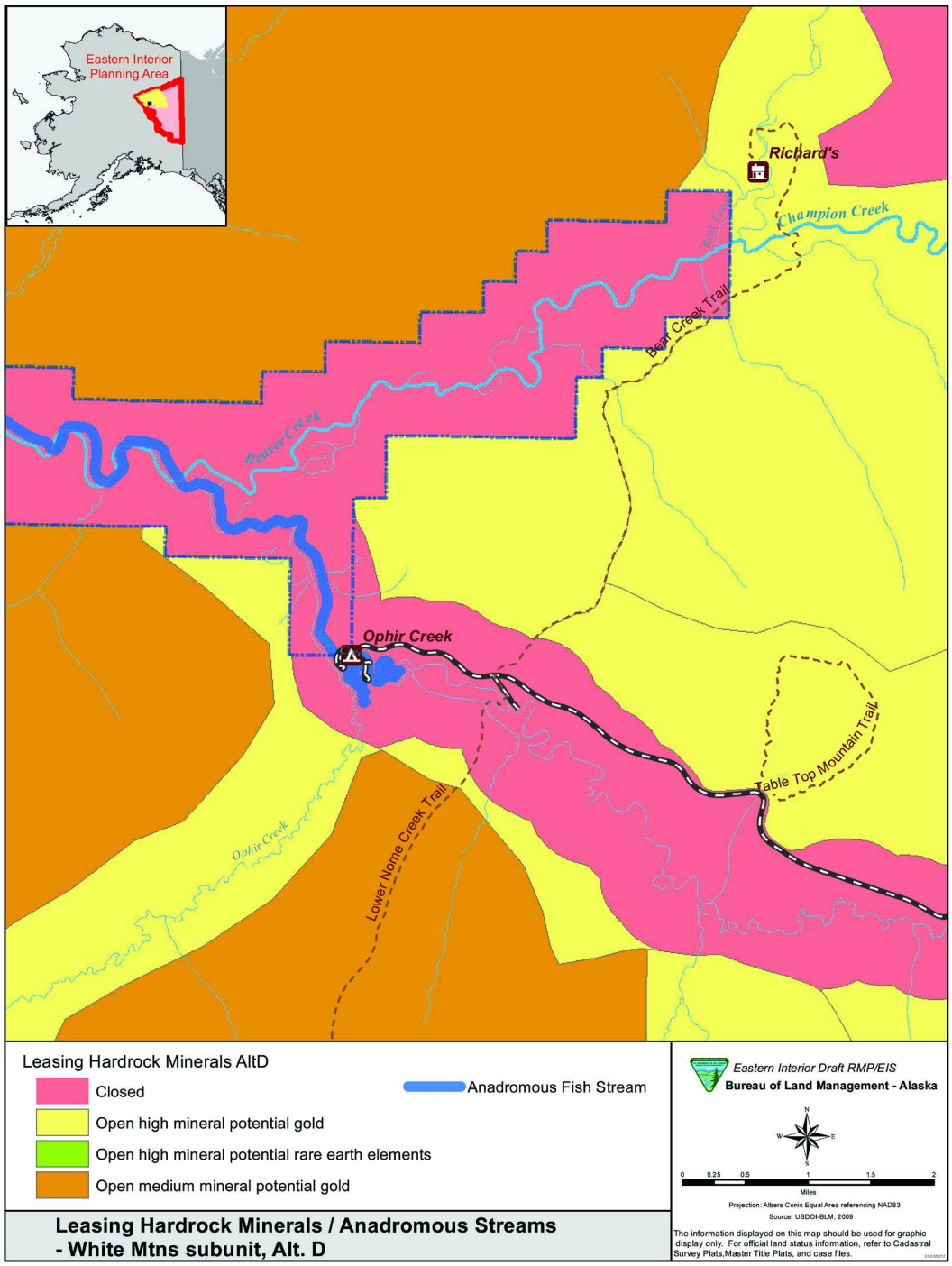


Figure M.2. Map of Anadromous Streams in Headwaters of Beaver Creek

The excellent opportunity for Arctic grayling fishing was one of the values identified for establishing Beaver Creek as a component of the National Wild and Scenic Rivers System (BLM 1983). In 2000, the BLM and ADF&G performed an Arctic grayling study on the upper 30 miles of Beaver Creek, including the area between the confluence of Bear and Champion creeks and the confluence of Nome Creek (Fleming et al. 2001). This study estimated the population density of Arctic grayling at 1,325 per mile, which is higher than other studies on summer feeding

populations in Alaska by as much as 44 percent. The study also revealed an increase in the size of grayling as the study moved upstream to the headwaters of Beaver Creek. This pattern was reinforced by other studies that found large male Arctic grayling migrating from downstream areas to Bear and Champion creeks during late May and June, while females and smaller males move into these areas during July and August (Rhine 1985). Within the upper 100 miles of Beaver Creek, the headwater streams (e.g., Bear and Champion creeks) have produced the largest and oldest Arctic grayling based on BLM and ADF&G fish sampling efforts and reports from recreational anglers (T. Dupont, pers. comm., May 22, 2012). This pattern reflects the generally accepted life-history paradigm for Arctic grayling that larger and older fish spend the summer feeding period in headwater areas and tributaries of rapid runoff rivers in Alaska (Armstrong 1982). Although Arctic grayling primarily use the headwater streams for summer feeding, some evidence of spawning has been observed (Rhine 1985; Kretsinger 1986) and may justify future inventory work.

Environmental Consequences

The effects on fish and aquatic habitats of mining (and exploration) for hardrock minerals in the White Mountains Subunit under mineral leases would be similar to those described for locatable mineral development in other parts of the planning area. These effects are described in section 4.3.1.4 of the Eastern Interior Draft RMP/EIS (BLM 2012a) and are incorporated by reference.

Suction dredging, a type of placer mining, can have both beneficial and adverse effects on fish and aquatic habitat depending on the timing and location of the activity.

Suction dredging has been shown to locally reduce benthic (bottom dwelling) invertebrates (Thomas 1985; Harvey 1986), cause mortality to early life stages of fish due to entrainment by the dredging equipment (Griffith and Andrews 1981), destabilize spawning and incubation habitat, remove large roughness elements such as boulders and woody debris that are important for forming pool habitat and that can govern the location and deposition of spawning gravels (Harvey and Lisle 1998), increase suspended sediment, decrease the feeding efficiency of sight-feeding fish (Barrett et al. 1992), and reduce living space by depositing fine sediment (Harvey 1986).

Conversely, suction dredging may temporarily improve fish habitat by creating deep pools or by creating more living space by stacking large non-embedded substrate (Harvey and Lisle 1998; Figure M.2). In dredged areas, invertebrates and periphyton are known to recolonize relatively rapidly, as long as the disturbance area is sufficiently limited to maintain populations of recolonizing organisms (Griffith and Andrews 1981; Thomas 1985; Harvey 1986). In addition, dredge tailings may increase spawning sites in streams lacking spawning gravel or streams that are armored by substrate too large to be moved by fish (Kondolf et al. 1991). In some cases, reduced visibility caused by elevated levels of turbidity can diminish the feeding efficiency of fish, while at the same time the reduced visibility may lessen the risk of predation (Gregory 1993).

Suction dredging operations within the Steese Subunit have been known to adversely impact streambank stability as well as riparian and stream channel function. Although disturbance to streambank and riparian habitats and alterations to the stream course is prohibited for suction dredging operations, in some cases these areas have been impacted. This type of activity results in an overwidened and shallow stream course, which is braided around stacked piles of large substrate. These impacts adversely affect riparian and stream function and if not reclaimed may persist for extended periods of time (years/decades) due to the amount of stream energy required to redistribute this large-sized substrate in the stream channel. It is assumed that these situations

would be limited and that lease and license stipulations would minimize the level and duration of impacts to aquatic resources.

The anticipated number of suction dredging operations during the life of this plan is 11 (Table M.3). There would be 250 miles of stream open mineral leasing with an anticipated disturbance of 84 acres, or 14 miles of stream. Suction dredging operations are anticipated to disturb 22,000 cubic yards of stream gravel over the life of this plan or the equivalent of 2,200 typical (10 cubic yard) dump truck loads of stream gravel. Impacts from suction dredging operations that do not alter streambank stability or adversely impact riparian and stream channel function, and adhere to stipulations in the suction dredge permit, are likely to be minimal and of short-term duration (less than or equal to five years).

Mechanized Placer Leases – Conventional Mining

For Alternative D, fish and aquatic resources would be primarily affected by surface-disturbing activities which alter stream channels and floodplain connectivity, remove or impair riparian vegetation and function, or result in soil erosion and sedimentation to fish and aquatic habitat. These activities would include mechanized placer mining and associated road construction that occur within or adjacent to riparian areas or waterbodies.

Conventional mechanized placer mining involves the use of heavy equipment to access gold deposits. One method of mine development is to move the stream into a bypass channel, while the original stream channel is excavated for gold deposits. During this process the streambed, streambanks, and riparian vegetation are physically removed in order to access gold-bearing fluvial deposits which may extend to the bedrock. This method destroys the existing fish and aquatic habitat and eliminates all biological stream functions. Impacts to fish and aquatic resources can be severe and last for decades under the stream-altering bypass method (Tidwell et al. 2000, Arnett 2005, Viereck et al. 1993; Milner and Piorkowski 2004; BLM 1988 a, b, and c). Soil erosion from large surface disturbing activities (such as mechanized mining) often results in poor water quality and elevated turbidity levels harmful to fish and fish habitat far beyond the impact site. The River Management Plan for Beaver Creek National Wild River (BLM 1983c) stated that placer mining activities in the headwaters of Beaver Creek resulted in turbid water conditions as far as 30 miles downstream. Surface management regulations have since changed, in part to reduce adverse impacts to water quality from mining. The severity and duration of impacts are substantially reduced when mining operations occur outside of the stream channel and active floodplain.

The anticipated number of mechanized placer mining leases during the 20-year life of this plan is 13 (BLM 2012b). Approximately 250 miles of stream would be open to leasing for mechanized placer mining with an anticipated amount of disturbance of 507 acres. This disturbance would likely occur within floodplain areas and/or in the stream channel. In an attempt to quantify the number of stream miles that may be directly impacted by leasing, the length of a typical mining claim block (660 feet) from other subunits was used. The anticipated number of stream miles directly impacted by leasing would be eight miles. The likelihood of impacts would be greatest in the high development potential areas, which, contain more than half of the stream miles open to mechanized leasing.

If mining did occur, the ROPs specific to fish and aquatic species (Appendix A) would improve the likelihood of obtaining desired future conditions for aquatic habitats within an accelerated timeframe after reclamation. A range of success would be expected based on several factors.

These factors include baseline data collection, stream channel design/construction technique, the reclamation measures specified for the particular operation, the watershed characteristics, the capability of the site to revegetate, and the probability of experiencing a flood event prior to the reestablishment of riparian vegetation that is capable of dissipating stream energy and preventing erosion.

Assuming that baseline data is collected, reclamation is designed using the best available techniques such as those outlined in the Natural Resources Conservation Service's (NRCS, 2007) *Stream Restoration Design, National Engineering Handbook, Part 654*, and all of the factors previously mentioned are favorable, it is likely that instream habitats would rehabilitate within five years following reclamation. In these cases, impacts would be expected to be minor and short-term. However, stream channel design/reconstruction and aquatic habitat rehabilitation is very complex, especially within the planning area due to the harsh environmental conditions (such as short growing season, aufeis) and limited availability of hydrography data. Recognizing this complexity, a more realistic outcome may be a strong positive trend toward the desired habitat conditions within five to ten years under this management scenario. It would be essential that reclamation plans incorporate stream channel design based on channel forming discharge (typically a 1.5 year recurrence interval) and the floodplain be capable of transporting 100-year flood flows. This would minimize the chance of reclamation failure and the need for subsequent reclamation work by the operator.

In summary, placer mining can negatively affect fish and aquatic resources by degrading or eliminating aquatic habitat; reducing available food sources and water quality; reducing available pool habitat; eliminating riparian vegetation and function; creating sparsely vegetated valleys and floodplains with slow rates of natural revegetation and unstable stream channels with highly erodable beds and banks; altering the longitudinal slope, geometry, and sediment transport rates in streams; and, creating undersized or absent floodplains.

Mineral Exploration Licenses

It is anticipated that there would be four placer exploration licenses and one lode exploration license. Placer exploration licenses may encompass 20,000 acres with an anticipated disturbance and reclamation of 20 acres over the 20-year life of this plan. The impacts to fish and aquatic resources would vary depending on the location, type of exploration activities, and subsequent reclamation, all of which would be analyzed during a site-specific NEPA analysis prior to approval of exploration licenses and exploration plans.

Potential adverse impacts would likely be from surface erosion of disturbed soils and the destruction of riparian vegetation resulting in elevated turbidity levels and sedimentation to nearby water bodies. The effects of excess sediment and the removal of riparian vegetation to fish and aquatic resources is described in section 4.3.1.4.1 of the Eastern Interior Draft RMP/EIS, which is incorporated by reference. Although sediment is a natural part of the aquatic ecosystem, an increase in fine sediment has the potential to affect the availability of food, predator avoidance, immune system heath, and reproduction of fish and aquatic species. The ROPs (Appendix A) should reduce impacts from exploration to a negligible level with short duration given the anticipated level of disturbance from exploration activities. The larger the surface disturbance and the closer it is to the stream, the greater the severity and duration of the impact.

It is anticipated that one lode exploration license would be requested in the Roy Creek REE deposit, resulting in 50 acres of disturbance. While it is unlikely that fish or fish habitat studies

have ever been performed in the headwaters of Roy Creek, it is reasonable to conclude that fish may not be present in the headwaters of this relatively small, high gradient stream. Direct impacts from lode exploration are not anticipated. Potential indirect adverse impacts from surface erosion would be similar to those described above for placer exploration activities.

Previous surveys in the Roy Creek area indicate that the soils are mainly of the granitic type (John Hoppe, pers. comm. May 10, 2012) that pose little threat to fish and aquatic life when disturbed and exposed to air and water. Although unlikely, if soils containing sulfide bearing ore were disturbed and exposed to air and water during exploration activities, acid mine drainage may occur and result in adverse indirect impacts to downstream waters. Acid mine drainage can cause physical, chemical, and biological degradation to aquatic habitat (Jennings et al. 2008). Predicting the risk of acid mine drainage at mine sites is often inaccurate (Jennings et al. 2008). It will be necessary to collect site-specific information variables and data to predict the potential for acid mine drainage in the Roy Creek area.

Outstandingly Remarkable Values and Watch List Species

As noted previously, the Arctic grayling fishery was one of the values identified when Beaver Creek was established as a component of the National Wild and Scenic Rivers System (BLM 1983c). Fish are currently proposed as an outstandingly remarkable value for Beaver Creek (BLM 2012a, Appendix E). As such, fish habitat within Beaver Creek and its tributaries in the White Mountains NRA have been managed to maintain and/or enhance fish populations with an emphasis on Arctic grayling (BLM 1986). Similarly, a major goal for the NRA is to protect and maintain the water quality of Beaver Creek to meet state water quality standards and promote a quality fishing experience (BLM 1986b). Mechanized placer mining within the floodplain and/or stream channels of Beaver Creek's principal tributaries would not maintain or enhance fish habitat and populations or water quality. The White Mountains NRA Record of Decision and Resource Management Plan (BLM 1986b) states that "Extensive placer mining on Beaver Creek or its principal tributaries would be in conflict with recreational purposes because of degradation to natural and primitive values of the Beaver Creek WSR corridor and damage to Arctic grayling habitat". It also states that sport fishing on Beaver Creek contributes to public enjoyment of the NRA and fish habitat in tributary streams should be protected because they contribute to fish populations in Beaver Creek.

Beaver Creek Chinook salmon are currently a BLM Watch List species (BLM 2010). This species should be emphasized for additional inventory, monitoring, or research efforts to better understand the population or habitat trends. Beaver Creek Chinook salmon are a component of the Yukon River Chinook stock, a *stock of yield concern* since 2000 (Howard et al. 2009). Beaver Creek Chinook salmon spawn and rear immediately downstream and potentially within the area proposed for opening to conventional mining (Figure M.1). The adverse impacts from mechanized mining, including the downstream effects and habitat degradation, could cause the Beaver Creek Chinook to become designated as a BLM Alaska Sensitive Species.

Cumulative Effects

Cumulative impacts to fish and aquatic resources consist of past, present, and reasonably foreseeable future impacts, including impacts on non BLM-managed lands. Hardrock mineral leasing in Alternative D would add to cumulative impacts from exploration and development of locatable and leasable minerals elsewhere in planning area, including on state and private lands.

Fish and aquatic resources have been adversely impacted from past mechanized mining activity in the Beaver Creek drainage. The majority of these impacts occurred from 1900 until the mid-1980s in Nome Creek, where extensive mining for placer gold obliterated seven miles of stream and floodplain (Kostorhys 2007). This activity resulted in the direct loss of fish habitat and sediment pollution to Beaver Creek. Although habitat conditions in Nome Creek have greatly improved from nearly 20 years of reclamation work by the BLM, desired conditions for aquatic habitat have not yet been achieved (desired future conditions are described in section 2.4.1.3 of the Draft RMP/EIS, BLM 2012a). Portions of Nome Creek have not been reclaimed and are not likely to be in desired condition for aquatic habitats. Mechanized mining activities have also occurred in other tributaries, but to a much lesser extent. There are no known current mining activities in the Beaver Creek drainage.

A hardrock mineral leasing program would open 160,000 acres to the leasing and exploration of formally locatable minerals in the White Mountains NRA with an anticipated disturbance of 661 acres and eight miles of stream. Suction dredging activities may impact 14 miles of stream. Past and future mechanized mining proposed in this alternative may result in approximately 20 miles of stream within the NRA that would not meet the desired conditions for aquatic habitats. Cumulative impacts specific to the NRA would be in addition to the cumulative impacts described in section 4.3.1.4.2. of the Eastern Interior Draft RMP/EIS (BLM 2012a). Cumulative impacts from Alternative D, would have the greatest potential for adverse impacts to fish and aquatic resources relative to the other alternatives.

M.3.2.3. Non-Native Invasive Species

Alternative D also allows the most latitude to OHV use and rights-of-way and would result in the greatest disturbance to soil and vegetation in the areas recommended open to hardrock mineral leasing. This would create the greatest potential for the introduction of nonnative invasive plant species (invasive plants) within the White Mountains NRA. Equipment imported for mineral exploration and development activities often harbor seeds of invasive species that could dislodge and germinate at these remote sites.

The reasonable foreseeable development scenario (RFD) forms the basis for evaluating the impacts to resources (section M.3.1) from hardrock mineral leasing. The total disturbance over the life of the plan is expected to be 661 acres from all hardrock leasing and exploration licenses, a relatively small portion of the 160,000 acres open to exploration and development. Assuming that exploration and development occurs throughout the open area, invasive plant species could be introduced in a dispersed rather than concentrated pattern, complicating control and containment.

The RFD includes the assumption that 20 miles of roads would be built in support of new placer developments. The roads are linear vectors for the introduction and spread of invasive plants into these remote areas. Seeds from infestations along roads can move along other intersecting linear features, such as trails and waterways, further spreading undesirable nonnative species into remote areas. For example, infestations of white sweetclover (*Meliotus officianalis*) have been documented on sand bars along the Nenana River, spreading from source populations upstream (Conn et al. 2008). Section 4.7.1.3.4 of the Eastern Interior Draft RMP/EIS (BLM 2012a), which is incorporated by reference, contains analysis of rights-of way development in the White Mountains NRA for Alternative C. Impacts identified in this section apply to the roads in support of new placer developments analyzed in this supplement.

Any natural or human-caused disturbance to the landscape provides an opportunity for invasive plants to become established. Equipment, watercraft, vehicles, and gear may harbor seeds that may then be transported to project sites. Climate change may accelerate the ability for invasive plants to become established (Rupp and Springsteen 2009). More general information about vectors and impacts from introduction and spread of nonnative invasive plants are in Chapter 4 of the Eastern Interior Draft RMP/EIS (BLM 2012a). This information is incorporated by reference. Section 4.3.1.5 discusses effects common to all subunits. Section 4.7.1.3 of the Draft RMP/EIS contains analysis of impacts for locatable minerals on 4,000 acres of valid existing rights outside the NRA and other decisions, but assumes no hardrock leasing within the White Mountains NRA. Impacts from hardrock mineral leasing would be similar to those from locatable mineral exploration and development.

ROPs and Leasing Stipulations in Appendix A of the draft RMP/EIS and those modified in this supplement (shown in Appendix A of this document) to mitigate impacts from hardrock mineral leasing would be applied on a case-by-case basis to leases and exploration licenses. ROPs in section M.4.2.10 of this document specifically address eliminating or minimizing the introduction and spread of invasive plants by prescribing standards for vegetation treatment, revegetation with native plants, reclamation for roads and trails, and salvage of vegetative mat and topsoil. Other ROPs in Appendix A would also help limit the introduction and spread of invasive plants.

Nonnative invasive species other than plants may be introduced by exploration or development when equipment from Canada or other parts of the United States are imported to the work sites. This equipment can harbor insect eggs, larvae, pupae, adult or other viable life cycle stages and other undesirable pathogens and pests. Little documentation exists that invasive species other than plants have been introduced into Interior Alaska. Over the life of the plan where there may be concerns about other invasive species, however, permit stipulations to mitigate introduction of insects, other pests and pathogens would be developed on a case-by-case basis.

Indirect impacts would result where invasive plants become established due to hardrock exploration development, including potentially long-term changes in plant community structure and diversity and wildlife habitat degradation. Costs include long-term monitoring and control. Containment and control of invasive plants for the long-term may also include further soil disturbance and the application of herbicides.

Cumulative Effects

Cumulative effects of past, present and reasonably foreseeable actions that are common to all for nonnative invasive species have been developed in section 4.3.1.5.2 of the Eastern Interior Draft RMP/EIS (BLM 2012a). Cumulative effects specific to the White Mountains Subunit for nonnative invasive species are in section 4.7.1.3.6. The combination of the removal of vegetation for exploration and development, increased disturbance of riparian vegetation and bank stability from multiple stream crossings, user-created trails, new support roads in the southeast portion of the White Mountains NRA, and present and potential future actions on adjacent federal, state and private lands increases the footprint for invasive plants to become established and spread from adjacent development into the relatively weed-free NRA. Ongoing climate change is expected to result in an increase in the number of nonnative species that can become established in subarctic areas due to longer frost-free season and thawing of permafrost. Changes in precipitation projected for the Eastern Interior may also benefit invasion by invasive plants that outcompete native plants and alter wildlife habitat.

M.3.2.4. Soil and Water Resources

Compared to other alternatives, Alternative D would result in the greatest disturbance to soil resources and adverse impacts to water quality because selected areas (Figure M.1) would be open to hardrock mineral leasing. Ongoing climate change would also affect these resources and may increase the magnitude of effects from mining.

Anticipated disturbance in the White Mountains NRA is estimated at 507 acres by mechanized placer mining operations, 20 acres associated with the issuance of placer exploration licenses, 50 acres from the issuance of rare earth element exploration licenses, and 84 acres of disturbance from placer gold suction dredging in areas with high placer gold potential, including Ophir, Bear, Quartz, Champion, Little Champion and Moose creeks. Mining activities would be limited to approximately 160,000 acres in areas of known historic mineral activity in the south/southeast part of the White Mountains NRA. Lands within one-half mile of Nome Creek would be closed to leasing because of long-term ongoing stream reclamation as well as parcels of wetland acreage committed in perpetuity as U.S. Army Corps of Engineers compensatory wetland mitigation acreage.

Disturbance to soil and water resources by any particular mining or exploration operation would need to be assessed on a case-by-case basis. Impacts to soil and water resources vary depending on the development methods used, size of the operation, and number of mines. Because 160,000 acres would be open to mineral development under Alternative D there would be increased potential for adverse impacts to soil and water resources. Impacts would be reduced through application of ROPs and site-specific analysis of subsequent authorizations.

Effects from Mechanized Placer

Probable impacts to soil and water resources from placer mining were described in detail in the Beaver Creek Placer Mining Final Cumulative EIS (BLM 1988b). Impacts can vary considerably depending on factors including site characteristics, size of the disturbed area, and mining methods. Where placer mining operations utilize heavy equipment, the following impacts could be expected.

Placer mining can have an adverse effect on the existing soil profile structure by stripping of overburden and riparian/wetland vegetation. The usual procedure is for the overburden (including organic materials) to be stripped, coarse underlying materials separated from gold-bearing material in the processing plant, and fine materials discharged to a series of settling ponds with recycled water used by the processing plant. There is an irretrievable loss of any soil that enters waterways and is transported downstream.

Erosion of soils from non-point sources typically contribute to the sediment load of stream systems and may result from stream crossings, roadways directly adjacent to stream channels, improved roads and trails which converge down-gradient to stream channels.

The primary impact to water quality from mining is an increase in sedimentation and turbidity. Some direct effects on water quality can be anticipated during the development stage of an operation due to the construction of settling ponds and stream bypasses, and through re-channelization of the stream. This would result in short-term increases in sediment levels and turbidity while equipment operates near or in the active stream channel.

Leasees would be required to meet Alaska Department of Environmental Conservation water quality standards and acceptable discharge standards available online at http:\\dec.alaska.gov/commish/regulations/index.htm. It is anticipated that turbidity as a result of direct and indirect discharge from placer mine operations would meet ADEC water quality standards. However, it is likely that occasional high water or failure of water control structures would introduce sediments collected by the water treatment system into the stream channel. This would result in short-term increases in turbidity and sediment load levels and possible localized sedimentation of the stream substrate. The degree of impact would depend on the amount of material released and the streamflow at the time of release.

Stream channel morphology would be directly affected in all areas where activities associated with mining occur in the active channel; by-pass channels are usually constructed to allow mining in the active channel.

Indirect impacts to water quality would occur through non-point source erosion from disturbed areas associated with placer operations including access road and trails and equipment staging areas directly adjacent to stream channels. Channel readjustment would occur where the active channel was modified. These processes increase suspended sediment into the stream system, particularly during spring break-up and floods.

The impacts to soil and water resources could be expected to decrease after cessation of mining, successful revegetation of the disturbed areas, and stabilization of the disturbed channel. It is estimated that reestablishing vegetation on placer waste rock piles may take decades. The rate of succession (revegetation) seems to be heavily influenced by the proportions of particles of silt and clay size in the surface layer of the tailings (Rutherford and Meyer 1981).

ROPs (Appendix A) have been developed to reduce impacts to soil and water resources that may result from hardrock mineral leasing activities. Additional mitigation measures, if necessary, could be developed during NEPA analysis of specific mineral leases or exploration licenses. Water quality monitoring requirements (Wagner et al. 2006) would be defined through this process.

Daily stream flow and water quality is currently monitored on lower Nome Creek and on Beaver Creek near its confluence with Victoria Creek to document daily, annual, and long-term variation in flows and water quality. The BLM would continue to monitor water quality and in-stream flow in selected streams and lakes to ensure that state water quality standards were met and to document changes in stream flow. Activities expected to adversely alter natural flows would not be permitted.

Effects from Suction Dredging

Suction dredge mining activities have the potential to affect soil and water resources, particularly if operations require access over steep terrain or permafrost soils where surface disturbance may result in increased erosion. Adverse impacts could result from equipment transport and storage, fuel spills, unauthorized expansion of existing trail networks, as well as from compaction of soils at long-term camping sites associated with suction dredge mining operations.

In Interior Alaska a majority of the suction dredge operations occur in the Fortymile River area. The USGS conducted a systematic water quality study of the Fortymile River and many of its major tributaries in June of 1997 and 1998 (Wanty et al. 1999). Surface-water samples were collected for chemical analyses to establish regional baseline geochemistry values and to evaluate the possible environmental effects of suction-dredge placer gold mining and

bulldozer-operated placer gold mining (commonly referred to as cat-mining). They concluded, based on water-quality chemistry and turbidity data, that the suction dredges had no apparent impact on the Fortymile River system, although possible effects on biota were not evaluated. One of the three cat-mining operations monitored, however, had adverse impacts on local water quality and streambed morphology.

Cumulative Effects

Cumulative impacts to soil and water resources consist of past and current impacts in addition to reasonably foreseeable future impacts, regardless of whether these impacts were from private, state, or federal actions. Any proposed resource development involving surface disturbance has the potential to cumulatively impact soil and water resources. Incremental cumulative degradation of soils and water resources within a watershed can occur, for example, through mining operations on selected stream segments. For each individual mining operation a small direct loss of soil and some small degradation of water quality are likely. As the number of mining operations increase in a given watershed the cumulative soil loss and cumulative impact to water quality can have long-term adverse impacts on soil stability, riparian habitat, fisheries habitat and water quality.

Cumulative impacts can also result from repetitive use of an area, such as a single OHV stream crossing along a user-created trail. Minor disturbance may result from a single crossing, however, multiple use of an unimproved OHV stream crossing site can result in substantial cumulative impacts including soil compaction, damage to riparian vegetation, erosion along user-created trails and potential decrease in bank stability and local water quality.

Placer mine development has occurred in the Steese-White Mountains area since the early 1800s using a variety of mechanized methods including dredges, draglines, dozers, and excavators. The soil profile is typically destroyed for long periods in areas of active dredging or sluicing, with shorter-term impacts of soil compaction and alteration in areas of facilities, roads, and trails. Water quality is often degraded by increased siltation depending on site characteristic and the type of mining operation.

The total disturbed area from historic placer activity on BLM-managed lands in the planning area is estimated at 7,500 acres, with less than 500 acres likely disturbed by past mining activity in the White Mountains. Alternative D of the Draft RMP/EIS would recommend opening selected areas to mining, potentially resulting in development of new access roads and mine operations. A portion of this projected mining, however, would likely occur in previously mined areas. Development of an estimated 61 small-scale (20 to 30 acres) placer mines and eight large-scale (60 to 80 acres) would be expected on BLM-managed land under Alternative D, all outside of the White Mountains NRA. The addition of a hardrock mineral leasing program in the White Mountains NRA would potentially add two large-scale placer mines, 11 small-scale placer mines, and 11 suction dredging operations in the White Mountains. This level of activity is projected to add an additional 661 acres of new disturbance in the NRA.

In its 2007 Mineral Industry Report, the Alaska Division of Geologic and Geophysical Surveys (DGGS), lists 81 separate companies or individuals that were estimated to be producing gold in the planning area (Szumigala et al. 2008). The amount of acreage on state and private land that has been disturbed or reclaimed by mining operations within the planning area is uncertain.

Two large-scale lode mines, Pogo and Fort Knox, are in operation on state lands within the planning area. One potential lode mine, “Money Knob”, is located near the town of Livengood

along the western boundary of the White Mountains subunit. If potential lode mines are developed, varied impacts to soil and water resources would be expected depending on the type of mine development and ore processing methods.

M.3.2.5. Special Status Species

Wetland, riparian, and aquatic habitats support most of the BLM Alaska sensitive animal species. Olive-sided flycatcher, blackpoll warbler, rusty blackbird, Alaskan brook lamprey, Alaska endemic mayfly (*Rithrogena ingalik*), a mayfly (*Acentrella feropagus*), and a stonefly (Alaska sallfly, *Alaskaperla ovibovis*) are BLM Alaska sensitive species that are dependent on these habitats and may occur in the hardrock leasing area, or downstream in areas potentially affected by hardrock leasing activities. The Alaska tiny shrew (*Sorex yukonicus*) may also occur more frequently in riparian habitats. Placer mining and associated changes in access could result in substantial localized impacts to riparian and aquatic habitats and species, if the species occurs in or downstream of the area of disturbance. Rangewide impacts are unlikely to be substantial. Reclamation requirements for riparian and aquatic habitats should increase reclamation success and reduce impacts for sensitive species occurring in these habitat types.

Olive-sided flycatcher, blackpoll warbler, and rusty blackbird are found in the White Mountains in low densities. These species are widely distributed in the planning area. All are associated to some extent with riparian or wetland habitats. ROPs that minimize impacts to riparian and wetland habitats through reclamation would reduce impacts over the long-term. Occurrence of these species in other habitats and areas is dispersed enough that anticipated activities are unlikely to impact any of them at a population level.

Alaskan brook lamprey is found in the Chatanika River, near the Elliott Highway bridge close to the Beaver Creek drainage in the White Mountains NRA, but is not known to occur on BLM-managed lands. Alaska endemic mayfly, a mayfly, and Alaska sallfly are not currently known to occur in the Beaver Creek headwaters or the White Mountains NRA, but data on distribution is extremely limited. It is not known how much of these species habitat, if any, is encompassed by the hardrock mineral leasing area, but disturbance of up to 591 acres of riparian habitats within the headwaters of Beaver Creek is not expected to result in impacts at the population level nor cause a trend toward federal listing for any of these species.

The Alaska tiny shrew occurs in low density within a variety of habitats, but is most common in riparian shrub habitats. It has been documented to occur in the Steese National Conservation Area near Twelvemile Summit. Widespread activities that clear large areas of vegetation could negatively impact this species. Mining could have localized effects to shrew habitat, but given the variety of habitats used and the low level of disturbance anticipated, would not likely occur at a scale or degree to cause a trend toward federal listing.

Most BLM Alaska sensitive plant species occur in habitats with specialized conditions, such as: steep south-facing dry bluff habitats; moist alpine herbaceous sites; rocky ridges, slopes, and screes; and, calcarious rocks or soils. Four species are known to occur in the White Mountains: *Douglasia arctica* is known from Mount Schwatka, Victoria Mountain and VABM Fossil (Parker et al. 2003); *Poa porsildii* found in the Lime Peak and VABM Fossil areas; *Ranunculus camissonis* collected in the Lime Peak area; and, *Trisetum sibiricum* collected from below Mount Schwatka and on Lime Peak. Although not documented, there is a potential for BLM Alaska sensitive plant species to occur in the mineral leasing area, particularly on the ridge between Quartz, Bear, and Champion creeks and in the Roy Creek REE deposit. There is less potential

for these species to occur in creek bottom habitats where placer mining would occur. Given the habitat preferences for these species, the highest potential for impacts would be from REE mineral exploration activities. Exploration activities would result in minimal surface disturbance and impacts would be localized at drilling or trenching sites. ROPs SS-2 and SS-3 which require site-specific measures, such as avoidance, to protect sensitive plant species populations or individuals would further reduce the potential for direct impacts.

Hardrock leasing would impact individuals of some BLM Alaska sensitive species, the distribution of which are generally not well-known. Hardrock mineral leasing in the White Mountains NRA would result in greater impacts to sensitive species relative to Alternatives A, B, and C, and would add to cumulative impacts described for Alternative D in section 4.3.1.7.2 of the Eastern Interior Draft RMP/EIS (BLM 2012a). It is not anticipated, however, that the hardrock mineral leasing in Alternative D would trend any sensitive species toward federal listing.

M.3.2.6. Vegetation

A direct loss of native vegetation on 661 acres (less than one percent of the area open to mining) is estimated to occur at exploration and leasing operations during the life of the plan. Most of this vegetation would be riparian and wetland habitats. Some of this area would be needed for ongoing operations and would remain unvegetated for several to many years. A portion would be allowed to revegetate beginning within a year or two of disturbance. Times to reestablish vegetative cover would vary widely. Areas which have adequate fine and organic soil materials and viable seed and vegetative plant parts revegetate relatively quickly. Lease stipulations which require vegetation cover to meet pre-determined standards would result in faster revegetation. Riparian areas in which the stream channel was disturbed and a stable stream channel was not established would remain largely unvegetated until the channel stabilizes. Loss of fines and organic material through flooding and shifting channels can delay revegetation for decades.

The roads and trails developed for access to exploration and mine sites would disturb an undetermined area of native vegetation and supporting soils. Heavy, season-long use may result in significant loss of vegetation and degrading of soils in a variety of vegetation types. Vehicles larger than 1,000 pound curb weight and 50 inch width would be allowed in some instances, resulting in relatively greater impacts. Additional disturbance would occur through expansion of this network of roads and trails by recreational users. Much of the hardrock leasing area burned in a wildfire in 2004 and soils and vegetation may be more susceptible to impacts from motorized use.

In addition to changes in vegetation at exploration and mine sites and the network of roads and trails, establishment and spread of non-native invasive plant species could occur, facilitated by motor vehicle use.

M.3.2.7. Visual Resources

Effects from Hardrock Mineral Leasing

Impacts from mineral leasing would be similar to the impacts from mining operations described in section 4.3.1.9 of the Eastern Interior Draft RMP/EIS (BLM 2012a) which is incorporated by reference. Impacts from mining would vary depending on the methods used and size of operation. Surface disturbing activities associated with mining, such as removal of vegetation and stockpiling of materials, would impact line, form, color, and texture of mined areas creating contrast between mined areas and background landforms. These activities may attract the

attention of the casual observer. Large-scale placer mining would have the greatest impact to visual resources. Small-scale placer mining would have similar impacts, but at a lesser scale. Suction dredging would have the least impact, but would still impact visual resources due to camps and associated facilities.

Under Alternative D, 843,000 would be closed to hardrock mineral leasing, protecting visual resources in these areas (Figure M.1). Closed areas include the Beaver Creek WSR Corridor, the Research Natural Areas, and approximately 86 percent of the White Mountains NRA. This would protect visual resources by not allowing surface disturbing activities associated with mineral development. The reclaimed areas along Nome Creek would be closed protecting the viewshed from the access road.

Approximately 16 percent of the NRA (160,000 acres) would be recommended open to hardrock mineral leasing. Two large-scale and 11 small-scale placer mine operations are anticipated in this area. Total disturbance from all mechanized placer mining is anticipated to be 507 acres over the life of the plan.

Approximately 11 suction dredge operations are anticipated. Each operation would have a camp with a footprint of one-half acre over the life of the mine for a total maximum disturbance from all operations of 84 acres over the life of the plan. The movement of materials from dredging occurs underwater and thus does not have a noticeable impact to visual resources and is generally redistributed each spring during break-up or high water events. Impacts from the suction dredge camps are anticipated to be less that six acres annually over the life of this plan.

Effects from Exploration Leasing and Licenses

Placer exploration activities would most likely occur within areas of medium development potential (85,000 acres). It is anticipated that four exploration licenses could be issued over the life of the plan occurring on 5,000 acres each for a total of 20,000 acres (24 percent of the medium potential area). Each operation would have a disturbed annual footprint of 2.5 acres each year for two years per license, for a total of 20 acres of disturbance.

Exploration licenses could be issued on up to 11,000 acres in the Roy Creek REE deposit; however, exploration activities would disturb only an estimated 50 acres over the life of the plan.

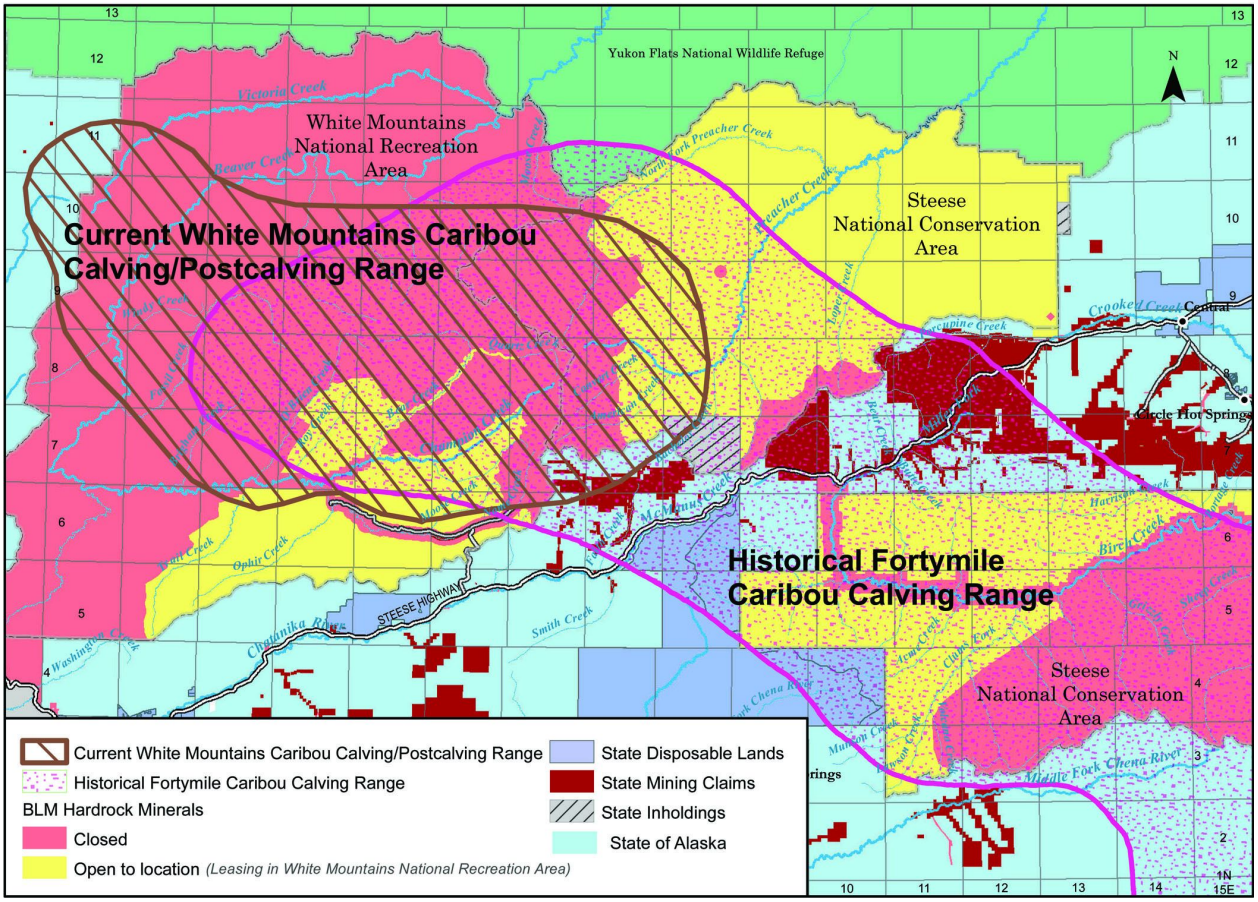
Impacts to visual resources by exploration activities would depend on the scale of the action. Changes to line, form, color and texture of the natural landscape would result from activities such as trenching, access trails, vegetation clearing for drilling activities with the removal of vegetative cover and stockpiled materials creating form contrast between the trenched areas and the stockpiled materials and the background landforms. Trenched material stockpiles would also create color contrast between the greens of vegetation and the browns of soils. Texture would change from a natural medium, subtle texture of vegetation to a course, rough contrast of disrupted soils and organic materials. Changes in line from the irregular, weak line of the natural landscape to a regular, strong line between natural vegetation. Drill structures would introduce straight regular lines into a natural irregular weak line of the natural landscape as well as color contrast between the greens of vegetation and the drill structure for the short time the drill was in place.

M.3.2.8. Wildlife

Affected Environment

The hardrock mineral leasing area contains a high diversity of wildlife habitats ranging from lower-elevation riparian habitats to alpine ridgelines. Most of the hardrock leasing area occurs within the historical calving area of the Fortymile caribou herd and within the current concentrated calving and postcalving area of the White Mountains caribou herd (Figure M.3). The presence of prehistoric archaeological sites immediately south of Nome Creek (Mile 57 of the Steese Highway) used for hunting and caching of caribou during spring migration (Robin Mills pers. comm.) indicates that the area has long been used by large numbers of caribou during calving and migration.

The northern portions of the hardrock leasing area (including the Roy Creek REE deposit and upper Bear Creek and Quartz Creek placer gold areas) have been especially utilized by caribou. These areas occur within the core (most highly used) calving/postcalving area of the White Mountains caribou herd and the area most highly used by the Fortymile caribou herd in the past. The Fortymile herd calved in the White Mountains until 1963, and were reported to "most heavily" utilize the upper portions of Bear, Quartz, and Champion creek drainages (Olson 1957), which are mostly within the hardrock leasing area. The "concentrated calving area" identified by Olson (1957) centered on and included almost all of Bear and Champion creek drainages and headwater portions of Moose and Nome creeks. The location of Fortymile herd calving shifted from year-to-year, but reports indicate that the head of Bear Creek and Quartz Creek were the center of the herd's long-term calving distribution.



This figure displays lands recommended open to hardrock mineral leasing in this Supplement or to location in Alternative D of the Draft RMP/EIS relative to areas historically used by the Fortymile caribou herd as calving habitat and the current White Mountains caribou herd calving/postcalving range. The core of the Fortymile calving range was roughly centered on the heads of Bear and Quartz Creeks from the 1900s through the 1950s before shifting southeast towards the current calving range, centered on southern Yukon-Charley Rivers National Preserve.

Figure M.3. Map of Caribou Habitat

Dall sheep habitat occurs in and adjacent to northern portions of the hardrock mineral leasing area. A Dall sheep mineral lick occurs 0.7 mile from the mineral leasing area in upper Little Champion Creek. The Roy Creek REE deposit is utilized by Dall Sheep during the rutting season. Hobgood and Durtsche (1990) mapped the ridgeline in this area as rutting habitat. The area was not included in a recent delineation of medium-to-high Dall sheep use based on a 2004-2008 study of radio-collared Dall sheep, but that study did document short-term use by one ram during the rut, supporting the earlier designation. The scattered granite tors on the ridge between Quartz, Champion, and Bear creeks are utilized by Dall sheep in all seasons. Although not included in the area to be opened to leasing, this ridge is likely to be utilized for access to leases.

The hardrock mineral leasing area contains relatively high densities of moose, during at least the October through April time period. Rut concentrations in the area were identified by Durtsche et al. (1990). High-quality riparian and aquatic habitats, including salmon spawning and rearing and high densities of Arctic grayling, support aquatic and terrestrial wildlife species. Nutrient transfer from aquatic to upland environments increases productivity of upland habitats. One known peregrine falcon nest site occurs in the hardrock leasing area and a gyrfalcon nest site

occurs adjacent to the hardrock leasing area. Redtail hawk nest throughout the leasing area, often near streams.

Environmental Consequences

The effects on wildlife from mining (and exploration) of known deposits of hardrock minerals in the White Mountains Subunit under mineral leases would be similar to those described for locatable mineral development elsewhere in the planning area (BLM 2012a, section 4.3.1.12). Lease procedures (including Leasing Stipulations) allow the BLM to manage development of leases so as to reduce impacts to a greater extent than management under the locatable mineral laws and regulations (43 CFR 3809), but the nature and types of impacts would be similar.

Hardrock mineral leasing in Alternative D would result in an estimated direct disturbance from exploration and mining of 661 acres of terrestrial wildlife habitat. In addition, 20 miles of road is estimated to be built for access. Much of the surface disturbance from mining and access would occur to riparian areas and wetlands habitats which are typically high-value wildlife habitats. Effects of surface disturbance of these habitats would extend, to some extent, downstream into Beaver Creek WSR (e.g., through effects on turbidity or fish migration). Human activities associated with mines would reduce use of riparian habitats by many wildlife species in the immediate vicinity of the activity.

Changes in access and resulting increases in human use of the area may have a greater effect on wildlife and their habitats than direct habitat disturbance from mining-related activities. Most of the leasing area is not accessible via existing trails and much of the existing network of trails (mostly user-created) is susceptible to degradation from increased use. Mining activities would require much heavier use than the current levels of use (much of which is related to hunting) and for longer periods. Vehicles larger than allowed under OHV designations would be permitted in some cases, likely creating proportionally greater disturbance. The linear amount of new access has not been determined, but if each of the estimated 29 suction dredge and placer operations and exploration leases resulted in an average three miles of new trails (or seriously degraded existing trail), about 87 miles of such new or seriously degraded trail might be predicted.

Winter overland moves would often require clearing of vegetation. The linear clearings created may lead to summer use by OHVs and establishment of new OHV trails. The network of mining access trails would be utilized by lessees and recreationists to reach previously inaccessible areas, within which additional new trails may be created, resulting in further expansion of trail networks. Similarly, roads built for mine access would facilitate much greater OHV activity in the area in which they are constructed. In general, motorized access would increase throughout the hardrock leasing area, especially in the high potential areas. In addition to direct changes in habitat from user-created trails, the creation and use may also facilitate the establishment and spread of invasive plants, especially in areas recently burned.

Although little Dall sheep habitat is within the identified hardrock leasing areas, human use of additional access to sheep habitats in the Upper Champion Creek and Quartz Creek area may reduce sheep use of those habitats.

Moose may benefit from some ground disturbances that result in growth of deciduous browse species, such as willow. Increased hunting pressure and harvest in previously remote areas would likely reduce harvest in areas with already-established access, such as Nome Creek. Hunting pressure may result in some displacement of moose from high-density rutting areas.

Most of the estimated 661 acres of habitat disturbance would occur within the historical calving range of the Fortymile caribou herd and current calving area of the White Mountains caribou herd (Figure M.3). The White Mountains caribou herd has a dispersed calving distribution and the hardrock leasing area comprises a small proportion (11 percent) of the current White Mountains caribou herd calving/postcalving area. The much larger Fortymile Herd calves in a dense distribution. More than half of the hardrock leasing area of high development potential occurs within the area of concentrated calving identified by Olson (1957) for the Fortymile herd in 1956. Exploration of the Roy Creek REE deposit is estimated to result in disturbance of 50 acres of current and historic caribou calving habitat. Exploration activities would be required to occur outside of calving/postcalving season in this area, limiting impacts from those activities. The greatest impact to caribou would likely be the change in access, human infrastructure, and the generally increased levels of human activity in the area. Although anticipated placer gold mining operations in the area may have little direct effect on caribou use of the area, the combined direct and indirect effects from changes in access and human use patterns in the area would likely reduce the suitability of the area as calving habitat and potentially reduce the likelihood that the Fortymile Herd would reestablish a habit of calving season use of the White Mountains. The overall level of disturbance, including linear disturbance, and human activity within the calving area would influence the likelihood of use by caribou.

Compared with other large migratory caribou herds, the Fortymile herd's current annual range has a low proportion of range above treeline (17 percent; Boertje et al. in press). Boertje and others (in press) surmised that overgrazing of the herd's current core upland tundra habitat may have resulted in reduced herd nutrition levels and suggested that expansion to additional spring and summer upland tundra in the White Mountains may be of key importance to realizing continued herd growth.

Several species of migratory birds are dependent on (or found in much higher densities in) riparian habitats. Placer mining would remove habitat for these species in localized areas and habitat recovery may require several decades. Regardless of when the vegetation clearing occurs, impacts from the changes in vegetation would persist probably for many years. ROPs (Appendix A) protect only currently nesting birds. Nesting peregrine falcon and gyrfalcon are more likely to be affected indirectly by changes in access than directly by mining activities. Nesting redtail hawk may be displaced by nearby placer mining and dredging activities. These impacts are not expected to result in planning area population level declines of any species of migratory birds.

Cumulative Effects

Hardrock mineral leasing in Alternative D would add to the cumulative impacts from exploration and development of locatable and leasable minerals elsewhere in the planning area, including on state and private lands.

In Alternative D, with this supplement, 26 percent of the current White Mountains caribou calving/postcalving area would be open to leasing of hardrock minerals. A much higher proportion of the Fortymile herd's historical (prior to 1963) would be open to leasing (Figure M.3). Almost the entire 38-mile segment of historical calving and migration habitat between Mount Prindle and Clum's Fork calving area would be open to location or leasing of hardrock minerals (Fig 3.4). The addition of hardrock mineral leasing would further decrease the likelihood that Fortymile caribou would reestablish a tradition of calving in the White Mountains vicinity. Given the relatively small amount of alpine habitat within the range of the Fortymile herd,

re-occupation of the calving and postcalving habitats in the White Mountains may be necessary for maintenance and growth of the Fortymile caribou population.

The development of mines and associated access in the hardrock leasing area during the life of the plan would likely make additional mines more economically feasible to develop in later years, possibly including the Roy Creek REE deposit. This could expand the intensity and zone of impacts to wildlife beyond that predicted during the life of this plan, including additional caribou and Dall sheep habitats.

M.3.2.9. Recreation and Travel Management

Affected Environment

Previous placer mining has affected recreation use in both positive and negative ways. Many of the trails now used in the White Mountains NRA were developed as mining access routes and formed the basis the trail development plan in the Recreation Activity Management Plan (BLM 1986). Alaska's history of mining is of interest to many recreation visitors. Mining has helped to provide some of the recreation opportunities that still exist in the NRA today and provide for a rich cultural context of the landscape and its uses.

In contrast, active mining operations and related infrastructure has the potential to have negative effects for those recreation visitors seeking a more primitive form of recreation experience, particularly in summer, when the effects of mining are more visible. The experience expectation for primitive recreation includes a feeling of solitude and closeness to nature. The 2007 and 2009 Benefits Based Management studies for the White Mountains (Fix 2007, Harrington and Fix 2009) demonstrated that in Nome Creek valley and adjacent areas of the NRA, awareness of the natural world, awareness of minimum impact recreation, and family bonding were rated as important to over 60 percent of the respondents. Highest rated activities in these areas included hiking, walking, hunting big game, berry picking and ATV riding.

The areas currently managed as a Semi-Primitive zone did have historic mining activity prior the 1980 Congressional designation. These areas were targeted for development in the Recreation Activity Management Plan (BLM 1986) to improve and sustain existing access routes and provide for a semi-primitive experience including OHV hunting opportunities, scenic qualities, recreational access to primitive areas and river put-in, wildlife viewing, and hiking opportunities. Since 1986 two campgrounds, a non-motorized hiking trail, a series of motorized summer and winter trails, recreational cabins, and river put-in have been established. These planned infrastructure developments have been entered into BLMs Facility Asset Management system and the BLM receives an annual budget for maintenance and program management.

The White Mountains NRA has quickly developed into an easily accessible recreation destination with a steady increase from 1,200 user days in 1986 to over 12,000 user days in 2011. The bulk of this visitor use increase is in the Semi-Primitive zones.

Very little historic mining occurred in areas currently managed for a primitive recreation experience. Any historic mining in the Primitive zone took place prior to the Congressional designation in 1980. Areas managed for a semi-primitive experience in the NRA have not seen mining activity for 20 years or more.

Environmental Consequences

Direct impacts to recreation include visual impacts, short-term user conflicts, and noise impacts. A formal study was conducted in 1988 for placer mining activity in Beaver Creek. The Beaver Creek Placer Mining EIS (BLM 1988b) found that negative impacts to primitive recreation experiences can result from views of the old claims and disturbance to the landscape in the adjacent recreation management zone. Impacts resultant from active mining is also caused from being able to hear the equipment or see the effects on water quality. These impacts may be mitigated with the ROPs and stipulations analyzed for each action and may be more tolerated over time by the affected user groups.

The anticipated continuous noise production for suction dredging is expected to occur up to four hours per day over a ten hour period in the same location. This continual noise could displace some recreation visitors anticipating a backcountry experience under the current recreation management classification. The RFD suggests that there would be 11 such leases. Lands immediately adjacent to the area recommended open for suction dredge leases are currently managed for primitive recreation setting. There are some large trees adjacent to the creeks in many areas that could dampen the noise levels and shield passersby from the undesirable experience.

The smell of exhaust from a continuously running engine associated with a suction dredge may impact some users by displacing them out of range of the exhaust fumes. Though similar to the exhaust fumes from an ATV, the exhaust smell from a stationary operation would not pass by the recreationalist, but creates a situation where the recreationalist has to displace their intended route to avoid the smell.

Buffers around BLM-maintained facilities (ROPs R-1 and R-2) would be implemented in areas of high and medium development potential (Figure M.1), the terrain is hilly, the trees are small or non-existent and sight distances can be miles long. Views of mining activity would be visible from ridge tops. The visual resource management ROPs would reduce visual impacts.

The Table Top Trail was designed as part of the White Mountains Gateway Project in 1987. It was designed to give non-motorized users a place to go in the midst of an area intensively managed for many uses, including various types of developed facilities including roads, OHV trails, and campgrounds. The trail crosses a ridge top with views to the ridgelines to both the north and south. Mining activity would be visible toward the north. Visual impacts may be mitigated with the ROPs.

Occupancy of mining equipment and related operations may impact as much as 0.2 acres of land for approximately 90 days per operation and impact some recreation users that would be displaced as far as necessary to be out of sight of the camp and out of audio range of the mining operation. This could potentially be miles away. Proper location of camps and staging areas could reduce this impact.

Occasional increases in turbidity levels occurred 30 to 50 miles downstream of active mining in Nome Creek (BLM 1988b, Webb 1982), a primary tributary of Beaver Creek WSR. It is conceivable to assume that new mining activities in Bear, Champion, Little Champion, Ophir, and Trail Creeks could produce similar increases in turbidity especially if mining activity was occurring on more than one creek at the same time, however under the current mining regulations, turbidity levels should be greatly reduced. All of the aforementioned creeks flow into Beaver Creek. Increased turbidity or muddy water, inherent with mining activities, would reduce the aesthetic appeal of Beaver Creek and negatively influence the floating experience by boat floaters

(BLM 1983). The semi primitive recreation management zones are managed for naturalness including clear, free flowing streams with the appearance of being untouched and undisturbed by humans. Beaver Creek supports a popular grayling fishery. Fishing success would decrease in muddy water and displace some users. River hazards are more difficult to identify in muddy waters which increases floating difficulty.

Cumulative Impacts

Indirect and cumulative impacts from the activities and infrastructure associated with mining activities and exploration include the related travel and access to lease locations as well as the increase of recreational users accessing these new access routes. The geographic area of consideration for cumulative effects is the White Mountains NRA.

Access routes to leases could benefit other users if trails were constructed in the proper locations and use sustainable trail construction techniques. Cross-country travel is allowed under alternative D, however, the addition of more concentrated routes with multiple passes over the same area would compact the soil and vegetation and create a permanent scar on the landscape. User-created trails or routes created by four-wheelers are not typically sustainable because they tend to go straight up and straight down hills, which creates a path for water to accelerate and intensify erosion. User-made trails deteriorate over time. They become difficult to travel and negotiate with an OHV. This can develop into a safety hazard. Roads and trails associated with mining operations are attractive to motorized recreation users. While contributing to greater access by the motoring public, it will also greatly expand the proliferation of user-made trails and multiple routes to the same location. The cumulative impact of such actions may result in increased costs for BLM administration of the recreation area and maintenance of new and unsustainable travel routes. These impacts may be mitigated during site-specific NEPA analysis when access routes for each exploration license or lease block is identified, and routed in the most appropriate location.

Mining activity is expected to occur adjacent to Backcountry and Semi-Primitive recreation management zones which are closed to the summer use of OHVs (April 15 through October 30). Mining access routes could attract more ATV users into these border areas where there is currently little to no motorized activity. Access into Bear and Quartz creeks, where suction dredge leasing would occur (and mechanized placer mining in Bear Creek), is generally on north facing slopes typical of black spruce forests and tussock tundra. These areas are underlain with permafrost near the surface and have slopes greater than 20 percent. These environmental conditions can be difficult obstacles for building trails or any kind of sustained access.

The Trail Management Objective (TMO) for managed OHV trails in the White Mountains NRA are for a type 2 semi-primitive motorized trail and describe access as “more difficult” with a tread width of 72 inches maximum and clearance width of 6 to 8 feet. The trails are not developed for access by vehicles other than ATVs and snowmobiles (generally 1,000 pounds or less curb weight and not exceeding 50 inches in width). Any mobilization of mining equipment on these trails would require the trails to be widened. A wider trail corridor could attract use of vehicles larger than allowed by current OHV regulations. Sixty-one miles of these trails are designed for winter use and are not maintained for summer use due to wet and boggy soil conditions. An increase in summer use on these little-used trails will have adverse effects on winter trails. Summer use causes rutting and erosion making winter trail maintenance difficult and reducing the quality of the trails for winter uses. Trail drainage structures currently in place would not accommodate larger vehicles.

The Quartz Creek Trail is a hardened, sustainable trail located in the area of high development potential and would be an attractive access route for mining activity. The trail is currently designed for a three-year maintenance schedule. With the anticipated increase in use, the maintenance schedule may have to be accelerated to every year. To date, there has been a significant investment of public funds into this trail, which would increase with additional maintenance needs.

According to the RFD (BLM 2012b) up to 20 miles of road could be considered for access into Bear and Quartz creeks. Up to 10 miles of road could be considered for access into Ophir Creek. Roads also attract a larger vehicle types not associated with the mining activity that are beyond the scope of the management objectives for travel management in the NRA. Larger vehicles (over 50 inches in width and greater than 1,000 pounds curb weight) would likely leave the road for cross-country travel and create some enforcement issues. Indirect effects from road construction include the reclamation of road beds after the life of the mine or the maintenance and redevelopment of sustainable road infrastructure by the BLM and would require additional expense and maintenance beyond the life of the plan.

Direct effects to recreation are expected to be short-term and could be mitigated through the ROPs or stipulations associated with NEPA analysis of each exploration or leasing action. The access needs and infrastructure associated with the mining activity will increase the proliferation of user-created trail networks in a heavily used area. The proximity to Fairbanks, growing popularity of the area, existing recreation facilities, layered with new user and travel access needs are expected to have a cumulative adverse effect on the administration of the recreation area.

M.3.2.10. Subsistence

Affected Environment

The affected environment is discussed in more detail in Chapter 3 of the Draft RMP/EIS (BLM 2012a) and the fish and wildlife sections of this document.

The areas recommended open to mineral leasing through this supplement are within the current White Mountains caribou herd calving and postcalving area and the historic calving and postcalving range of the Fortymile caribou herd. Caribou are most vulnerable to disturbance during these periods. The area is also important current winter range for White Mountains and Fortymile caribou. The northern portion of the area, which includes the Roy Creek REE deposit and upper Bear and Quartz creeks placer gold, are current and historic high use calving and postcalving areas for both caribou herds. Dall sheep movement corridors and habitat are within and adjacent to the area proposed for hardrock mineral leasing. The area contains relatively high densities of moose during rut and winter seasons (October through April).

Fortymile caribou are among the most important subsistence resources in the planning area. As Yukon River salmon stocks decline, Fortymile caribou become increasingly important to subsistence users in and adjacent to the planning area. Research on land use patterns by rural residents indicates that residents of Birch Creek Village area moved seasonally into the White Mountains to harvest caribou and sheep (Caulfield 1983). Contemporary harvest data indicate little current use of White Mountains caribou and Dall sheep by rural subsistence hunters however use of these populations could increase in importance over the life of the plan and should not be discounted (Subsistence Resources, White Mountains Subunit, Draft RMP/EIS).

Environmental Consequences

Impacts on subsistence resources and uses within areas recommended open to mineral leases and exploration licenses in the White Mountain NRA include user conflicts, displacement of resources, and potential declines in resource availability due to disturbance in critical habitats (spawning) or during critical times (e.g., calving periods). Alternative D, which also allows the most latitude to OHV use and rights-of-way development and identifies the smallest area of protection for wildlife habitat, would have the highest negative impacts on subsistence of all alternatives considered.

ROPs and stipulations developed in the draft RMP/EIS and Supplement (Appendix A) to mitigate the impacts of land use actions on subsistence wildlife resources would be attached as stipulations to the authorizing documents. Minimal direct impacts to subsistence wildlife resources or uses would occur from hardrock mineral leases and exploration licenses because no exploration activities would be allowed in Dall sheep habitat from May 10 through June 1 or in caribou calving and postcalving areas from May 15 through July 15. Exceptions would be allowed when it can be demonstrated that caribou or Dall sheep do not occupy the area (Table M.6, Stipulation 5). Therefore, no direct impacts on abundance of subsistence wildlife resources is expected from this plan decision.

Indirect impacts are expected to be greater and more difficult to mitigate. Increased access to largely remote wildlife habitat is expected to occur as roads to support placer mining are developed and areas cleared of vegetation for winter overland moves become used as summer OHV pioneered trails (section M.3.2.9 Recreation and Travel Management, of this appendix). The resulting increase in non-mining activities may reduce the suitability of the areas for calving and postccalving. Analysis of data on Fortymile caribou habitat condition indicates that current calving and postcalving range has been diminished from overgrazing and limited suitable habitat is available. The research indicates that this area of the White Mountains NRA will become increasingly important to continued growth and stability of the Fortymile caribou herd (Boertje et al. in press). Analysis of indirect impacts to Fortymile caribou from mineral leasing resulted in a finding of may significantly restrict subsistence use of Fortymile caribou (See the ANILCA Section 810 Analysis in Appendix B of this document for further analysis and findings.)

Some conflicts between hardrock-leasing related activity and federal qualified subsistence users may occur from mid-August through September and from November through March if exploration and placer mining is active during these time periods. Access by subsistence hunters may be restricted due to perceived or real barriers to wildlife resources. As a result, hunters may be displaced to other areas. When caribou are in the area during seasons open to hunting they are generally distributed over a wider area, thereby minimizing access issues for subsistence hunting. Moose are available through the greater area and much of the rural resident harvest of moose occurs away from the area open to hardrock mineral leasing, although distribution of moose hunters could change due to increased access into the area. Conflicts among hunters are not expected to be significant.

Ophir Creek, a tributary of Beaver Creek, has been identified as an area with high development potential for placer gold in Alternative D. Spawning areas for Chinook salmon have been identified within Ophir Creek. Because active mining is likely to occur in and adjacent to these spawning areas, direct impacts on this population are expected.

Indirect impacts to subsistence fish species and local water quality from mineral leasing may occur downstream due to turbidity, crossing of streams, high water events and occasional failure of settling ponds (sections M.3.2.4 Soil and Water Resources and M.3.2.2 Fish and Aquatic

Species). These impacts are likely to be short-term. Regulations and ROPs that require recycling of turbid water through settling ponds and reclamation of disturbed stream channels should mitigate most of these impacts.

Cumulative Effects

Cumulative effects may significantly restrict subsistence use of Fortymile caribou due to past, present and reasonably foreseeable actions within the herd's range. The impacts are the same as those described for Alternative D when considered with the cumulative case for the Fortymile and Steese Subunits (BLM 2012a Appendix J).

For subsistence fisheries resources, when analyzed with the cumulative case, impacts may incrementally contribute to the downward trend and resiliency of Yukon River Chinook salmon stocks. Chinook salmon are highly important subsistence species within the Yukon River drainage. The Alaska Board of Fish (Board) classified the Yukon River Chinook salmon stock as a *stock of yield concern* in 2000 (Howard et. al., 2009). Each regulatory cycle the Board reassesses the stocks and Yukon River Chinook salmon have remained a stock of concern as it continues to decline with lower returns each year and harvestable yields not being maintained. Genetic diversity of these small stocks, such as the Ophir Creek population, are extremely important for resiliency of the Yukon drainage stocks and are often overlooked in impact analysis (JTC 2012). Due to declines of the Yukon River Chinook salmon stock and the importance of Chinook salmon to Upper Yukon subsistence villages, analysis of Alternative D with the cumulative case has resulted in a finding of may significantly restrict subsistence use of Chinook salmon within the Upper Yukon River including and downstream from the village of Beaver.

M.3.2.11. Social and Economic

Economic Effects

An economic effect in the White Mountains Subunit continues to result from recreation oriented activities as a result of population growth in the region. Economic effects due to mining on non-federal land and on existing federal claims outside of the White Mountains NRA, but within the subunit, would also continue to be important to the region. There are federal, state, and patented mining claims in the Livengood area with ongoing mineral exploration. Exploration and leasing for placer gold and rare earth mineral exploration would result in positive economic effects from this subunit under Alternative D.

The following discussion is based on gold mining activities likely to occur on land leased for placer or suction dredge mining (Stebbins 2009). Section 4.4.4.1.2 Fortymile Subunit, Effects from Locatable Minerals of the Draft RMP/EIS (BLM 2012a) outlines the Stebbins models for small- and large-scale placer mines, life of mines, and a background discussion of the types of economic impacts and is incorporated by reference.

Economists consider three categories of employment and income in considering the effect of an activity such as mining. These three categories are: direct employment and income, including only employees of mining companies; Indirect employment and income such as employees of businesses providing goods and services to mining companies: and, induced employment and income occurring when jobs are created as a result of spending of direct and indirect income attributable to mining activity. All employment and income shown in this analysis is estimated

using input and assumptions from BLM reports (Stebbins 2009, BLM 2009) and McDowell reports (2006 and 2009).

Opening the identified lands in the White Mountains NRA to hardrock mineral leasing under Alternative D is predicted to result in large and small-scale placer mining operations. Small-scale placer mining uses a bulldozer, and excavator and a mobile wash plant to excavate and process gold-bearing gravel. In this model, a two-man crew works 12 hours per day, seven days per week, during a 130-day season. The camp includes one support person and a cook; a total of four workers. Eleven small-scale placer mines are forecast to operate with employment of about four workers each.

Large-scale placer operations utilize excavation equipment larger than the small-scale model. In this model, 2 two-man crews moving material each work a 10-hour shift, seven days per week, during a 130-day season. Five additional employees, including a supervisor, skilled workers, and laborers; a total of nine workers are included in the model. Assuming two large-scale placer mines, the resulting employment is about eighteen workers.

Suction dredging would occur on about 11 new leases. These would employ approximately two workers per operation, for all phases.

In addition, the BLM development scenario indicates approximately four licensed placer exploration efforts. These are included in direct income calculations show in Table M.3.

The total mining employment on BLM-managed lands would be estimated at 84 part-year workers. Data prepared by the State of Alaska uses full-time equivalents. The full-time equivalent in the White Mountain Subunit would be approximately 33 workers, based on the Stebbins (2009) models. Total employment by the Alaska minerals industry in 2008 was 3,392 full-time equivalent jobs (Szumigala et al. 2009). The statistics indicate less than one percent of the industry employment on BLM-managed lands would occur at White Mountain operations. The DGGS reported the average monthly wage for mining in Alaska during 2010 at $8,345. White Mountains gold mining operations account for approximately $3 million in wages, annualized. Jobs data indicates maximum level of effect predicted to occur during the life of the plan. Development scenarios used as the basis for analysis do not contain time lines for development. Mineral exploration licenses or leases may not be issued for years after the plan is completed.

Table M.5. Direct Employment and Income for New Mining

Activity	Crew	Alternative A		Alternative B[a]			Alternative C			Alternative D		
		Current Operations	Current Jobs	New Operations	New Jobs	New Income	New Operations	New Jobs	New Income	New Operations	New Jobs	New Income
Fortymile Subunit												
Suction Dredge	2	6	12	4	8	$278,122	8	16	$566,244	12	24	$834,366
Small Placer	4	27	108	4	16	$578,142	6	24	$867,212	13	52	$1,878,960
Large Placer	9	2	18	1	9	$325,204	1	9	$325,204	1	9	$325,204
Total		**35**	**138**	**9**	**33**	**$1,181,468**	**15**	**49**	**$1,748,660**	**26**	**85**	**$3,038,530**
Steese Subunit												
Suction Dredge	2	1	2	0	0	$0	8	16	$556,224	11	22	$764,836
Small Placer	4	7	28	1	4	$144,535	8	32	$1,156,283	17	68	$2,457,102
Large Placer	9	2	18	0	0	$0	2	18	$650,409	2	18	$650,409
Total		**10**	**48**	**1**	**4**	**$144,535**	**18**	**66**	**$2,362,916**	**30**	**108**	**$3,872,347**
Upper Black River Subunit												
Suction Dredge	2	0	0	0	0	$0	0	0	$0	0	0	$0
Small Placer	2	0	0	0	0	$0	0	0	$0	0	0	$0
Large Placer	9	0	0	0	0	$0	0	0	$0	0	0	$0
Total		**0**	**0**	**0**	**0**	**$0**	**0**	**0**	**$0**	**0**	**0**	**$0**
White Mountains Subunit												
Suction Dredge	2	0	0	0	0	$0	0	0	$0	11	22	$764,836
Small Placer	4	3	12	0	0	$0	0	0	$0	11	44	$1,589,889
Large Placer	9	1	9	0	0	$0	0	0	$0	2	18	$650,409
Total		**4**	**21**	**0**	**0**	**$0**	**0**	**0**	**$0**	**24**	**84**	**$3,005,134**

[a]Sources: Szumigala 2011, BLM 2009, BLM 2012a, Stebbins 2009, McDowell 2006

The BLM plans to open 11,000 acres of known deposits at the headwaters of Roy Creek to mineral leasing and predicts that it will eventually issue competitive leases for deposits of certain rare earth elements under 43 CFR part 3500 on these lands. The lease is offered competitively and a royalty may result. The BLM will charge fair and reasonable rental, determined at the time of licensing or leasing. These rentals are exclusive of royalties.

Exploration activities could include mapping and drilling or trenching in the lease area over a five year period. Income effects would depend upon the size of the initial operation, which may begin with as few as three personnel plus a helicopter crew, all based off site. It is fair to assume the minimum cost of exploration over a 120 day period would average approximately $2,000 to $2,500 per day. This is $240,000 to $300,000 per season in overall cost. The cost is essentially field personnel, helicopter contract, and fuel. Part of this cost would be attributed to the Fairbanks economy. Beyond the initial exploration, expansion of activities may occur, including further drilling and delineation, and eventual mining operation. Additional NEPA analysis will be necessary on a case-by-case basis for the BLM decision to lease for production.

There are no special recreation permits in the area of likely mineral development. No impacts to commercial recreation permits are anticipated (section M.3.2.9). The likely economic effect in an area of little or no commercial recreational activity is zero.

Section M.3.2.10 Subsistence reports: "Contemporary harvest data indicate little current use of White Mountains caribou and Dall sheep by rural subsistence hunters however use of these populations could increase in importance over the life of the plan and should not be discounted (Subsistence Resources, White Mountains Subunit, Draft RMP/EIS)." Given that there is little or no documented subsistence use in the White Mountains NRA, an economic effect is unlikely.

Environmental Justice

Communities most likely to be affected by increased activity in the White Mountains Subunit are (Fairbanks and Livengood) do not qualify as environmental justice populations. Minority or low income populations in the Fairbanks area may benefit from employment in the recreation and mining industries. Under Alternative D, the number of special recreation permits in the planning area would be slightly higher than other alternatives. New mining leases and mineral exploration could result in additional employment accruing to local populations. Minority and low income populations would not be disproportionately impacted.

Possible negative impacts to environmental justice populations and the entire population of the area include loss of employment in another existing industry due to mining development. However, there are no commercial activities in the area potentially opened to mining under Alternative D providing employment that will be affected. All populations may benefit from expanded recreation industry employment as well as mining employment within the White Mountains Subunit. This includes additional land outside of the White Mountains NRA.

Loss of subsistence resources or opportunity may be considered. However, the extent of subsistence use of the specific areas likely to be affected must be demonstrated before there is an attributable and measurable impact. Current data indicate little subsistence activity in these areas. The Fairbanks North Star Borough is also classified as a non-rural community as such, residents of the borough do not quality to fish or hunt under federal subsistence regulations.

M.4. Required Operating Procedures and Hardrock Mineral Leasing Stipulations

M.4.1. Introduction

The BLM has developed measures to protect resources called "Required Operating Procedures" (ROPs) and "Hardrock Mineral Leasing Stipulations" (Leasing Stipulations) as part of the development of the Draft RMP/EIS and Supplement. These measures were guided by the standards and guidelines included in the Alaska Statewide Land Health Standards (Instruction Memorandum AK 2004-023) and by the goals outlined in the RMP/EIS. The ROPs are requirements, procedures, management practices, or design features that the BLM will adopt to protect resources. Leasing Stipulations are requirements to reduce impacts to natural resources from hardrock mineral exploration and development. The ROPs and Leasing Stipulations generally do not restate requirements that already exist in regulations or laws. Regulations or laws may require conditions that are more stringent than those presented in this section.

During development of the Supplement to the Draft RMP/EIS two of the existing ROPs were modified and some new ROPs were added. These changes are highlighted. This appendix does not include the Fluid Mineral Leasing Stipulations. These can be found in Appendix A of the Draft RMP/EIS (BLM 2012a).

M.4.1.1. Required Operating Procedures

Required Operating Procedures apply to all actions, whether implemented by the BLM or authorized by the BLM and implemented by another individual, organization or agency on public land. These were based on the best information available during development of the RMP/EIS.

ROPs are common to all action alternatives and will be applied as appropriate for BLM actions and BLM-authorized activities including: leases and permits; Special Recreation Permits; oil and gas activities; hardrock mineral leasing activities; coal activities; renewable energy activities; mining Plans of Operation; and, authorizations for rights-of-way. For mineral leasing activities, ROPs would apply in addition to the Leasing Stipulations. Only those ROPs concerning resources that are potentially affected by the action will be applied to permits and authorizations. The ROPs may be modified through site-specific analysis of subsequent authorizations. Modifications to ROPs may be appropriate if other measures are taken to protect resources that would result in the same or reduced impact.

The Authorized Officer (AO) or their representative is responsible for ensuring that the intent of the ROPs presented in this RMP/EIS are followed and that permittees comply with the conditions of their authorization. Non-compliance will be documented and a notice will be sent to the permittee, along with corrective actions and a time frame in which the actions are to be completed.

M.4.1.2. Hardrock Mineral Leasing Stipulations

Hardrock Mineral Leasing Stipulations (Leasing Stipulations) are specific to hardrock mineral leasing and exploration in the White Mountains NRA. These Leasing Stipulations are included in a lease. In this Supplement, leasable hardrock minerals include placer gold and rare earth elements. Leasing Stipulations constitute significant restrictions on the conduct of operations under a lease.

Additional site-specific Leasing Stipulations may be added, if determined necessary, through further analysis. Steps during the leasing process where additional NEPA analysis would occur include approval of exploration licenses and associated exploration plans, lease sales, and approval of development plans for approved leases. Additional stipulations may be developed at any of these steps in the process.

Leasing Stipulations may be excepted, modified or waived by the Authorized Officer (AO) pursuant to 43 CFR 3101.1-4 and WO-IM-2008-032. The environmental analysis prepared for hardrock mineral development (such as lease sales or development plans) will address proposals to except, modify, or waive a Leasing Stipulation. To except, modify, or waive a stipulation, the environmental analysis would need to show that: 1) the circumstances or relative resource values in the area had changed following issuance of the lease; or 2) less restrictive requirements could be developed to protect the resource of concern; or 3) operations could be conducted without causing unacceptable impacts; or 4) the resource value of concern does not occur within the lease area. An exception exempts the holder of a lease from the Leasing Stipulation on a one-time basis. A modification changes the language or provisions of a Leasing Stipulation, either temporarily or for the term of the lease. A waiver permanently exempts the Leasing Stipulation.

Compliance with Leasing Stipulations is monitored by the AO or their representative. Non-compliance may result in monetary fines or operation shut-down.

M.4.2. Required Operating Procedures

M.4.2.1. Cultural and Paleontology

ROP C-1 For permitted activities, cultural resource protection and conservation will be consistent with 1) Sections 106, 110, and 101d of the National Historic Preservation Act (1966, as amended); 2) procedures under BLM's 1997 National Programmatic Agreement for Section 106 compliance or its successor agreement; and, 3) the 1998 Protocol for Managing Cultural Resources in Alaska between BLM Alaska and the Alaska State Historic Preservation Officer (SHPO) or its successor agreement.

ROP C-2 Mitigation measures will be considered for all actions that may potentially affect cultural resources. If the AO determines mitigation measures are necessary to protect and conserve known cultural resources, a mitigation plan will be approved by SHPO and implemented by the AO. Mitigation plans will be reviewed as part of Section 106 consultation for National Register of Historic Places eligible or listed properties. The extent and nature of recommended mitigation will be commensurate with the significance of the cultural resource involved and the anticipated extent of the damage. Costs for mitigation will be borne by the land use applicant.

ROP C-3 The BLM will evaluate the impacts of proposed actions to known paleontological resources. If damage to known significant paleontological resources cannot be avoided, the applicant (or the BLM for internal actions) will perform scientific examination of the impacted significant paleontological resources followed by mitigation approved by the AO. This may include the professional collection and analysis of significant specimens by scientists.

M.4.2.2. Fish and Aquatic Species

ROP FA-1 No road crossings will be permitted in priority fish species spawning habitat, unless no feasible alternative exists.

ROP FA-2 New, replacement, and reconstructed stream crossing structures (such as bridges and culverts) will be designed to:

- Accommodate a 100-year flood event, including bedload and debris;
- Maintain fish and aquatic organism passage;
- Maintain channel integrity;
- Accommodate mean bankfull channel widths; and,
- Incorporate adjacent reclamation (such as willow cuttings, wattles, brush layering) on the disturbed areas up and downstream of the abutments.

ROP FA-3 Application of pesticides and other toxicants will occur in a manner that does not prevent or retard attainment of desired conditions or adversely impacts priority aquatic species.

ROP FA-4 Drilling is prohibited in fish-bearing rivers and streams, as determined by the active floodplain; and fish-bearing lakes, except where the applicant can demonstrate on a site-specific basis that impacts would be minimal or it is determined by the AO that there is no feasible or prudent alternative.

ROP FA-5 When feasible, all water intakes will be screened and designed to prevent fish intake.

ROP FA-6 Reclamation plans for the rehabilitation of fish habitat as required under 43 CFR 3809.420(b)(3)(ii)(E) (Performance standards in part 3809 will also be used for hardrock mineral leasing operations in the White Mountains NRA) will focus on three objectives. Typically, these requirements would be satisfied through the development of a site-specific reclamation plan and on achievement of reclamation objectives. Bond release would be based on meeting specific measurable objectives outlined in a monitoring plan (43 CFR 3809.401(b)(3)). These objectives are:

1. Provide a stable channel form that is in balance with the surrounding landform such that channel features are maintained and the stream neither aggrades nor degrades. To achieve this, it will be necessary to design a post-mining stream channel using morphological characteristics of the pre-disturbance channel and floodplain (such as bankfull and floodprone dimensions, meander patterns, design flows and velocities, riffle-to-pool ratios, substrate particle sizes, and so on); which could be derived from field surveys of the area, remotely sensed information, and/or information from adjacent watersheds that exhibit similar characteristics as the watershed proposed for mining.
2. Provide sufficient riparian vegetation or anchored rocks/logs to effectively dissipate stream energy, prevent soil erosion, stabilize streambanks, provide essential nutrient input, and maintain water quality and floodplain function.
3. Provide instream habitat complexity similar to that of pre-disturbance levels through the use of instream structures (such as vortex rock weirs, cross-vane structures, and installation of root wads).

ROP FA-7

Within Riparian Conservation Areas, the Salmon Fork ACEC, and areas open to hardrock mineral leasing in the White Mountains baseline hydrological data adequate to characterize

the seasonal flow patterns and discharge will be required prior to surface-disturbing activities with the potential to affect stream channel integrity; reduce riparian functioning condition; or, reduce the Watershed Condition Rating. The BLM will be available to advise operators on the exact type of information and detail needed to meet this requirement. Reclamation plans will be designed to result in rehabilitation of habitats within an accelerated timeframe (such as less than three years) and will focus on active revegetation and streambank stabilization techniques as the basis for reclamation design.

M.4.2.3. Forestry

ROP Forest-1 Timber sale authorizations will require the proper site preparation to ensure natural regeneration of timber stands.

ROP Forest-2 Timber sales will include buffers to prevent disturbance of priority fish species habitat and sedimentation into streams. Buffer widths will be dependent on harvest method, season of harvest, equipment used, slope, vegetation, and soil type. Winter operations will be considered in order to avoid the need for road building and reduce impacts to soils, vegetation, and riparian areas.

M.4.2.4. Hazmat and Waste Management

ROP Hazmat-1 Areas of activities will be left clean of all debris to minimize environmental contamination from solid waste.

ROP Hazmat-2 All solid wastes, including incinerated ash, will be removed by the permittee from public lands and disposed of within an Alaska Department of Environmental Conservation (ADEC) approved facility, unless otherwise specified. Solid waste combustibles may be incinerated in a contained and controlled manner, however, burn restrictions may apply during high-risk wildland fire seasons. Burial of solid waste is not authorized on public lands.

ROP Hazmat-3 Wastewater should be managed in accordance with Title 18 Alaska Administrative Code, Chapter 72, (18 AAC 72) Wastewater disposal. Wastewater can be defined as human wastes (sewage) and gray water (wastewater from a laundry, kitchen, sink, shower, bath or other domestic sources). Pit privies are authorized in accordance with 18 AAC 72.020(b)(c)(i), 72.030 and all applicable updates. If these standards cannot be met, then special authorization may be given by the AO. Gray water may not be released in any waterbody, without authorization under the Alaska Pollutant Discharge Elimination System (APDES). Gray water may be filtered and released to the surface so as not to cause erosion, and the grey water released must maintain compliance with the ADEC's guidance.

ROP Hazmat-4 All hazardous materials and petroleum, oil, and lubricants (POLs) will be stored in containers that are compatible to the material being stored. Containers will be labeled with the responsible party's name, contents of the container, the date the product was purchased, and the date the container was filled.

ROP Hazmat-5 Transportation and storage of POLs will be handled in a safe manner to avoid impacts to the environment and human health. The storage area for any POLs must be approved by the AO.

ROP Hazmat-6 POLs that are transferred to remote locations for operations are to be stored within a containment area constructed to contain 110 percent of the volume of the largest container. The containment area must be lined with an impermeable liner which is free of cracks or gaps, compatible with the contents to be stored, and sufficiently impervious to contain leaks or spills. The containers shall be covered to eliminate the collection of rainwater within the containment area throughout the storage period.

ROP Hazmat-7 All hazardous materials/toxic substances must be disposed of in accordance with EPA and ADEC regulations at the time of disposal.

ROP Hazmat-8 Transfer of POLs to equipment will be completed in a secure manner to minimize the possibility of contamination to the surrounding environment. At a minimum, POL-type absorbent pads will be placed under the transfer location to catch overflow or assist the operator in containing a spill. If refueling cannot be avoided within riparian habitat, 500 feet of fish-bearing waterbodies, or 100 feet of non-fish bearing waterbodies; the responsible party must exercise caution while refueling to ensure no release of POLs into the waterbody. Equipment that has been identified as having a fluid leak must have a drip basin placed under the leak area to ensure no release to the surrounding environment or collection of rain water.

ROP Hazmat-9 Equipment maintenance by the responsible party may be allowed if it is necessary to operate equipment as described in the authorization. Equipment maintenance that has the potential to release fluids should be completed over an impermeable liner to ensure fluid migration to the environment does not occur.

ROP Hazmat-10 A Spill Prevention, Control and Countermeasure Plan will be written for all sites which have the potential to store 1,320 gallons or more of POLs. Spill Prevention, Control and Countermeasure Plans will follow the requirements in 40 CFR 112 and state regulations.

ROP Hazmat-11 All spills will be contained and cleaned up in accordance with ADEC guidance as soon as the release has been identified, unless health and safety of personnel is at risk. ADEC discharge notifications and reporting requirements are outlined in AS 46.03.755 and 18 AAC 75 Article 3. The release of POLs to any waterbody must be immediately reported to ADEC, as soon as the person has knowledge of the release. The responsible party will contact the AO within 48 hours of a spill on public lands. Notifying the EPA may be required for discharges of oil, as required by 40 CFR 112.4.

M.4.2.5. Mineral Materials

ROP MM-1 Use existing upland material sources that meet suitability and economic needs whenever possible. Using material from wetlands, lakes, and active or inactive floodplains will be avoided, unless no feasible upland alternative exists. Sales or permits for in-stream gravel extraction within an active channel will not be allowed in priority fish species spawning habitat.

ROP MM-2 When authorizing mineral material sale sites, avoid habitats critical to local fish or wildlife populations (such as fish spawning and overwintering, calving areas, or raptor nesting sites). Avoid key geomorphic features, such as the river cut banks and associated riparian zones; springs; active channels of small, single channel rivers; and, wetlands.

ROP MM-3 When authorizing mineral material sale sites, avoid priority plant species and communities. If sales are authorized in vegetated areas all overburden, vegetation mats and debris

will be saved and appropriately stored for use during site reclamation to facilitate vegetative recovery.

ROP MM-4 When scraping gravel in active or inactive floodplains, maintain buffers that will constrain active channels to their original locations and configurations.

M.4.2.6. Soils

ROP Soils-1 Save all organic material in a separate area from overburden (defined in 43 CFR 23.3 (d)) for future use.

ROP Soils-2 Stockpiled soil and overburden will be spread over mine tailings and stabilized to minimize erosion. The shape of contoured tailing and overburden should approximate the shape of surrounding terrain.

ROP Soils-3 Roadways will be ditched on the uphill side. Culverts or low water crossings will be installed at suitable intervals. Spacing of drainage devices and water bars will be appropriate for the road gradient and soil erodibility of the site.

ROP Soils-4 Design roads and trails for minimal disruption of natural drainage patterns.

ROP Soils-5 Roads and trails should avoid areas with unstable or fragile soils.

ROP Soils-6 Water bars will be placed across reclaimed roads. Spacing will be dependent on road gradient, soil erodibility, and other site-specific factors.

ROP Soils-7 Snow and ice bridges will be removed, breached, or slotted before spring break-up. Ramps and bridges will be substantially free of soil and debris.

ROP Soils-8 Overland moves and heavy equipment use:

- Whenever possible, overland moves that are a part of permitted operations will occur during winter when frost and snow cover is sufficient to minimize vegetation and soil disturbance and compaction. The AO will determine the date when sufficient frost and snow cover exists and no overland moves should occur until these conditions are met.
- Design and locate winter trails and ice roads for overland moves to minimize compaction of soils and breakage, abrasion, compaction, or displacement of vegetation.
- Clearing of drifted snow is generally allowed, to the extent that vegetative ground cover is not disturbed.
- Offsets of winter trail/ice road locations may be required to avoid using the same route or track each subsequent year.
- When access is required in snow-free months, routes that utilize naturally hardened sites will be selected to avoid trail braiding and wetlands will be avoided. The permittee will employ vehicle types and methods that minimize vegetation and soil disturbance, such as use of air or water craft, utilizing existing roads or trails, or use of low ground pressure vehicles.
- The use of heavy machinery in saturated soil conditions will be limited to low ground pressure designated machinery.

M.4.2.7. Recreation

ROP R-1 No mining activity within one-half mile of Crowberry and Richards cabins.

ROP R-2 No mining activity within 200 feet of BLM-managed recreational trails.

ROP R-3 No utilization of public use cabins for purposes of mining activity.

M.4.2.8. Special Status Species

ROP SS-1 The planning area may contain or be identified with Special Status Species or their habitats. The BLM may require actions to avoid or minimize impacts to Special Status Species, pursuant to BLM policy and Endangered Species Act consultation.

ROP SS-2 Where practical, use may be redirected to protect Special Status Species habitat; to enhance indigenous animal population; or, to otherwise maintain public land health through avoidance of sensitive habitat. If impacts to Special Status Species (populations and habitats) cannot be avoided, the applicant (or the BLM for internal actions) will develop mitigation measures to reduce impacts.

ROP SS-3 Where populations or individual sensitive status plant species are located, take measures to protect these populations or individuals through site-specific buffers or management prescriptions. Route new roads and trails away from known sensitive plant communities, with minimum 100-foot buffers; and minimize summer cross-country OHV travel where there are sensitive plants.

M.4.2.9. Subsistence

ROP Sub-1 For externally generated actions, the BLM may require applicants to provide information to potentially affected subsistence communities regarding the timing, siting, and scope of a proposed activity; and to consult with the potentially affected subsistence communities about ways to minimize impacts to subsistence. If these consultations occur, the applicant may be required to provide documentation of their consultation efforts to the BLM.

M.4.2.10. Vegetation and Non-Native Invasive Species

ROP Veg-1 All vegetation treatments and revegetation of surface disturbance will require an approved site-specific plan designed to prevent the introduction of non-native invasive plants (invasive plants), and achieve desired conditions. These plans should describe current vegetative conditions: including plant community composition, structure, cover, seral stages, soil descriptions, age class distribution if applicable, and presence of invasive plants, desired vegetative conditions (based on the ecological capability of the site), treatment methods, measures for preventing introduction and spread of invasive plants, and monitoring actions. Whenever possible, treatments will use native vegetation and seed. Non-native vegetation and seed may be used with specific approval from the AO, and in the following cases (1) where native species are not available in sufficient quantities; (2) where native species are incapable of maintaining or achieving the objectives; or, (3) where non-native species are essential to the functional integrity of the site. Seed must meet Alaska certification standards (11 AAC 34.020 Prohibited and Restricted Noxious Weeds) and any amendments to the existing seed laws or new seed legislation.

ROP Veg-2 Existing roads and trails will be utilized for access where feasible, rather than creating new roads and trails. All road or trail construction must include a plan for reclamation similar to a vegetation treatment plan in ROP Veg-1 above. It should also include best management practices

for revegetation of cuts and fills and minimize off-site sediment transport impacts. Construction of road or trails in wetlands and floodplains will be avoided.

ROP Veg-3 Destruction of the vegetative mat and associated vegetation will not be be authorized, unless the AO determines that no feasible alternative exists. In those cases the AO will require that the vegetative mat and topsoils be salvaged and appropriately stored and used for reclamation. If the AO decides that vegetative mat and topsoils cannot be salvaged, other measures to protect vegetation and soils will be considered. Plans for revegetation of surface disturbances will be clearly addressed during authorization of an action.

ROP Veg-4 Design and locate permanent facilities to minimize the development footprint.

ROP NIS-1 To eliminate, minimize, or limit the spread of noxious and non-native invasive plants, only feed and mulch (hay cubes, hay pellets, or straw, for example) certified as weed-free through the Alaska Weed-Free Forage certification program (or other programs with approval of the AO) will be authorized on BLM lands. Where Alaska certified sources are not available, locally produced forage and mulch may be used with approval from the AO. If no certified weed-free or local sources are available, other products may be used with the approval of the AO.

ROP NIS-2 To eliminate, minimize, or limit the spread of noxious and non-native invasive plants, only gravel and material certified as weed-free through the Alaska Weed-Free Gravel certification program will be authorized on BLM lands. Where weed-free gravel and materials are not available other sources may be used, with the approval of the AO.

ROP NIS-3 Fire management actions, including prescribed fire operations, wildland fire suppression and fire rehabilitation efforts, will protect burned and adjacent areas from the introduction and spread of non-native invasive plants. Protection may include the use of washing stations with a containment system.

ROP NIS-4 Employ measures outlined in the most current Alaska Aquatic Nuisance Species Management Plan (ADF&G 2002a) and the most current Interim Fire Operations Guidance to Prevent Spread of Aquatic Invasive Species (USFS 2011) to reduce the introduction and spread of Aquatic Nuisance Species.

ROP NIS-5 All actions implemented or authorized by the BLM will include measures to prevent the introduction and spread of non-native invasive species, if applicable to the site.

M.4.2.11. Visual Resource Management

ROP VRM-1 To the extent practicable, all facilities and activities will be located away from roads (except access roads), rivers, trails, and other transportation features; using distance to reduce the facility's visual impact along travel corridors.

ROP VRM-2 All facilities and activities will be designed to meet the visual resource management class, using proper siting and location so that natural features of vegetation and landforms provide screening from travel corridors and other key observation points, and to blend with the natural surroundings.

ROP VRM-3 The modification or disturbance of landforms and vegetative cover will be minimized. Facilities and activities will be designed to reduce unnecessary disturbance.

ROP VRM-4 Facilities and activities will be designed so their shapes, sizes, colors, and textures harmonize with the scale and character by repeating the elements of line, form, color and texture of the surrounding landscape, where possible.

ROP VRM-5 In open exposed landscapes, development will be located in the opposite direction from the primary scenic views, where feasible.

M.4.2.12. Water, Riparian, and Wetlands

ROP Water-1 Where instream operations are authorized, streams must be diverted using an appropriately sized bypass channel.

ROP Water-2 In mining operations and fluid mineral leasing operations, all process water and ground water seeping into an operating area must be treated appropriately (i.e., use of settling ponds) prior to re-entering the natural water system.

ROP Water-3 Settling ponds will be cleaned out and maintained at appropriate intervals to comply with state and federal water quality standards. Fine sediment captured in the settling ponds will be protected from washout and left in a stable condition at the end of each field season to prevent unnecessary or undue degradation to the environment during periods of non-operation.

ROP Water-4 Streams altered by channeling, diversion, or damming will be restored to a condition that will allow for proper functioning of the riparian zone and stream channels. Active streams will be returned to the natural water course or a new channel will be created at its lowest energy state (valley bottom) that approximates the old natural channel in shape, gradient, and meander frequency using a stable channel design.

ROP Water-5 All permitted operations will be conducted in such a manner to not block any stream or drainage system.

ROP Water-6 Structural and vegetative treatments in riparian and wetland areas will be compatible with the capability of the site, including the system's hydrologic regime, and will contribute to maintenance or restoration of proper functioning condition.

ROP Water-7 Projects requiring the withdrawal of water will be designed to maintain sufficient quantities of surface water and contributing groundwater to support fish, wildlife, and other beneficial uses.

ROP Water-8 State-designated stream crossings will be used where possible for vehicle travel. Stream crossings are online at http://www.habitat.adfg.alaska.gov/gpvehstreamxings.php, noted under the General Permits Index-Authorized Vehicle Stream Crossings

ROP Water-9 Rivers and streams will be crossed by vehicles at shallow riffles from point bar to point bar, where possible.

ROP Water-10 When a stream must be crossed, the crossing will be as close to possible to a ninety degree angle to the stream. Stream crossings will be made at stable sections in the stream channel, based on Rosgen channel type evaluations.

ROP Water-11 Disturbed stream banks will be recontoured and revegetated (or other protective measures will be taken) to prevent soil erosion into adjacent waters.

M.4.2.13. Wildland Fire Management

ROP FM-1 Permittees and casual users will be held financially responsible for any actions or activity that results in a wildland fire. Costs associated with wildland fires include (but are not limited to) damage to natural or cultural resources and costs associated with any suppression action taken on the fire.

ROP FM-2 The BLM will not be held responsible for protection of permittees' structures or their personal property from wildland fire. It is the responsibility of permittees and lessees to mitigate and minimize risk to their personal property and structures from wildland fire, following the conditions in their permit.

ROP FM-3 Gas-powered equipment must be equipped with manufacturer approved and functional spark arrestors.

ROP FM-4 To avoid the potential impacts to aquatic life, the BLM prohibits the use of fire retardant, except when necessary to protect human life, permanent year-round residences, national historic land-marks, structures listed or eligible for the National Register of Historic Places, government facilities, other designated sites or structures, or high-value resources on adjacent lands. Water will be used instead of fire retardant where possible or appropriate. The use of fire suppressant foams is prohibited. Fisheries staff will be involved with decisions to deliver chemical retardant, additives to, or grey water discharge into surface waters.

ROP FM-5 The use of tracked or off-road vehicles in wildland fire suppression or management activities will be conducted in a manner that does not cause erosion, riparian area damage, water quality or fish habitat degredation, or contributes to stream channel sedimentation.

ROP FM-6 Off-road use of heavy equipment and other motorized vehicles requires approval of the AO.

ROP FM-7 Rehabilitate burned areas in accordance with the wildland fire-specific rehabilitation plan provided by the Field Office to the suppression agency.

ROP FM-8 Firelines to mineral soil will not be built in or around riparian areas; unless they are needed to protect life, property, and/or wetland resources. Use natural features as preferred firebreaks over firelines constructed to mineral soil. When possible, use hand crews to construct firelines within (or adjacent to) riparian areas.

ROP FM-9 To the extent practicable, select the location for incident bases, camps, helibases, and so on to avoid riparian areas.

M.4.2.14. Wildlife

ROP Wild-1 Design pipelines and roads to allow the free movement of wildlife and the safe, unimpeded passage of the public while participating in traditional subsistence activities. The currently accepted design practices are: 1) Above-ground pipelines will be elevated a minimum of seven feet, measured from the ground to the bottom of the pipeline at vertical support members, to facilitate human and wildlife movement under the pipe; 2) In areas where facilities or terrain may funnel caribou movement, ramps over pipelines or buried pipelines may be required; and, 3) Where feasible, maintain a minimum distance of 500 feet between above-ground pipelines and roads.

ROP Wild-2 Prior to development of large facilities, the AO may require development of an ecological land classification map of the development area. The map will integrate geomorphology, surface form, and vegetation at a scale, level of resolution, and level of positional accuracy adequate for detailed analyses of development alternatives and facility siting options. The map will be prepared in time to plan one summer season of ground-based wildlife or vegetation surveys, if deemed necessary by the AO, before approval of exact facility location and facility construction.

ROP Wild-3 Whenever possible, operations that require vegetation removal will avoid the migratory bird nesting period of May 1 to July 15 (USFWS Advisory: Recommended Time Periods for Avoiding Vegetation Clearing in Alaska to Protect Migratory Birds. September 2007). If NEPA analysis reveals that this would unacceptably compromise project objectives or logistical feasibility, potential impacts must be identified, and mitigation applied that are appropriate to the magnitude and duration of expected effects. Assessments would focus on species of concern, priority habitats, and key risk factors. Permittees/project proponents will be reminded that it is their responsibility to comply with provisions of the Migratory Bird Treaty Act.

ROP Wild-4 Employ industry accepted best management practices to prevent raptors and other birds from colliding with or being electrocuted by utility lines, alternative energy structures, towers, and poles (APLIC 2006, http://www.aplic.org/). If possible bury utility lines in important bird areas. Where raptors are likely to nest in human-made structures (such as cell phone towers) and such use could impede operation or maintenance of the structures or jeopardize the safety of the raptors; equip the structures with either (1) devices engineered to discourage raptors from building nests, or (2) nesting platforms that will safely accommodate raptor nests without interfering with structure performance.

ROP Wild-5 Guy-wired apparatus, regardless of purpose, will be marked in accordance with the guidance provided by the USFWS Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers, dated September 14, 2000, or a more current or contemporaneous version of that guidance.

ROP Wild-6 To minimize the potential for disease transmission to wildlife, the use of domestic sheep, goats, alpacas, llamas, and other similar species will not be authorized in conjunction with BLM-authorized activities in Dall sheep habitat.

ROP Wild-7 Activities will not be authorized between May 15 and July 15 if the activity will interfere with caribou calving and postcalving activities or Dall sheep lambing (May 10 through June 1). However, ongoing mineral production activities will be allowed throughout these time periods. In these areas and time periods, aircraft associated with activities that require BLM authorization will maintain an altitude of at least 1,500 feet above ground level (except for takeoffs and landings), unless doing so would endanger human life or violate safe flying practices. These seasonal restrictions can be modified based on actual caribou or Dall sheep occupancy of the area.

ROP Wild-8 Within the Fortymile and White Mountains caribou calving and postcalving ranges (Map 90 of the Draft RMP/EIS), mineral exploration activities will not be authorized from May 15 through July 15 unless the AO determines that caribou no longer occupy the specific area of the proposed operations. This seasonal restriction can be modified based on actual caribou occupancy of area.

ROP Wild-9 All reasonable precautions will be taken to avoid attracting wildlife to food and garbage. Garbage from all BLM-authorized activities will be removed and properly disposed

to prevent habituation of wildlife or alteration of populations. The BLM may require food and garbage to be stored in bear-proof containers or by methods that make it unavailable to bears or other wildlife.

ROP Wild-10 From May 1 through August 31, avoid sustained human activity within one-quarter mile of trumpeter swan nests and rearing ponds. No activity will commence prior to May 15 and, if necessary, qualified personnel will conduct a preliminary site survey within the two-week period prior to the projected start date of the activity to determine trumpeter swan presence. If present, short-term activities will be delayed until after nesting trumpeter swans and cygnets have left the habitat. Exceptions may be granted by the AO, following NEPA analysis, if no feasible alternative exists.

ROPs Specific to Areas of Critical Environmental Concern

The following four ROPs apply to the Steese, Fortymile, and White Mountains ACECs and the White Mountains Wildlife Conservation Area. They are not applicable to the Salmon Fork ACEC

ROP Wild-11[1] Applicants proposing to conduct surface-disturbing activities or other intensive activities will, at the determination of the AO, be required to submit an approved plan (Caribou and Dall Sheep Impact Assessment and Mitigation Plan) describing methods to minimize impacts to caribou and Dall sheep and their habitat. This plan must describe the proposed project, the design and mitigation alternatives considered, the amount and quality of habitat to be affected, the mitigation and restoration to be applied, the residual impacts predicted, and the monitoring to be undertaken to confirm mitigation success.

ROP Wild-12[1] Permanent roads will generally not be allowed (although long-term temporary roads may be) and roads will generally not be open to the public. Roads will be of the lowest practical profile. Road use may be restricted during caribou calving, postcalving, or Dall sheep lambing. Road construction will not be permitted if other means of access is practical (such as aircraft or winter ice-road). Facilities within ACECs that require year-round access will be located in forested areas where practical. Permitted aircraft will follow a minimum flight level of 1,500 feet above ground level, except at landing and takeoff and when it would compromise safety. The AO may allow exceptions to these access requirements where impacts to caribou and Dall sheep are adequately minimized and where other resource considerations are of higher priority.

ROP Wild-13[1] To minimize habitat loss, the surface disturbance and the aerial extent of facilities will be minimized. The amount of cumulative vegetation clearing and surface disturbance will be minimized through an integrated review of planned disturbance between all land users.

ROP Wild-14[1] Reclamation and revegetation of disturbed areas will be required to meet performance standards set in site-specific reclamation plans, such as a required plant cover (percent) within a certain number of years before a performance bond is released.

Priority Raptor ROPs

Priority raptor species are peregrine falcon, gyrfalcon, bald eagle, and golden eagle. Nesting seasons are defined as: From April 15 through August 15 for bald eagles, golden eagles, and peregrine falcons; and, from March 15 through July 20 for gyrfalcons. Nesting season dates apply to ROP Wild-16 through ROP Wild-20.

[1] Applicable to the Steese, Fortymile, and White Mountains ACECs and the White Mountains Wildlife Conservation Area.

ROP Wild-15 To minimize the direct loss of priority raptor foraging habitat, all reasonable and practicable efforts will be made to locate permanent facilities as far from priority raptor nests as feasible and to minimize habitat loss to the extent feasible. Of particular concern for avoidance are ponds, lakes, streams, wetlands, and riparian habitats.

ROP Wild-16 To minimize disturbance to nesting priority raptors, aircraft authorized by the BLM are required to maintain an altitude of at least 1,500 feet above ground level when within one-half mile of priority raptor nesting sites during nesting season. This protection is not intended to restrict flights necessary to conduct wildlife surveys satisfying wildlife data collection requirements.

ROP Wild-17 To reduce disturbance to nesting priority raptors, campsites authorized by the BLM, including short- and long-term camps and agency work camps, must be located at least 500 meters from any known priority raptor nest site during the nesting season. Exceptions may be granted by the AO if no feasible alternative exists.

ROP Wild-18 Authorized human activity within 500 meters of priority raptor nest sites will be minimized during the nesting season. The cumulative number of authorized visits (defined as each day in which work is done within 500 meters of a nest site) to any nest site per nesting season, by all authorized users, must be limited to three visits per nest site. Exceptions may be granted by the AO if no other feasible alternative exists.

ROP Wild-19 To reduce disturbance impacts to priority raptors, motorized ground-vehicle use must be minimized within one mile of any known priority raptor nest during the nesting season. Such use is prohibited within one-half mile of nests during the nesting season, unless an exception is granted by the AO.

ROP Wild-20 Construction within one-half mile of known priority raptor nests is prohibited during the nesting season. No facilities that will be used or accessed during the nesting period (including the area of associated human activity by facility users) can be constructed within one-half mile of known priority raptor nesting sites. Exceptions may be granted by the AO if no feasible alternative exists.

ROP Wild-21
and revegetation of disturbed areas will be required to meet performance standards set in site-specific reclamation plans, such as required plant cover (percent) within a certain number of years before a performance bond is released.

M.4.3. Hardrock Mineral Leasing Stipulations

The following leasing stipulations would be applied to hardrock mineral lease sales.

Table M.6. Hardrock Mineral Leasing Stipulations

Stipulation	Areas where Stipulations Apply	Exception, Modification, Waiver
Goal: Prevent avoidable damage from proposed land uses to habitats supporting Special Status Species animals and plants, and their habitats.		
Stipulation 1: The lease area may contain or be identified with Special Status Species or their habitats. The BLM may require applicants to conduct inventories for Special Status Species and to avoid or minimize impacts to these species pursuant to BLM policy and Endangered Species Act consultation.	Areas open to hardrock mineral leasing	**Exception:** None **Modification:** None **Waiver:** None
Goal: Ensure that goals to protect other resource values in the planning area are met to the extent possible when authorizing hardrock mineral leasing activities.		
Stipulation 2: Upon abandonment or expiration of the lease, all hardrock mineral-related facilities will be removed and sites rehabilitated as near to the original condition as practicable, subject to the review of the AO.	Areas open to hardrock mineral leasing	**Exception:** The AO determines that it is in the best interest of the public to retain some or all facilities. **Modification:** None **Waiver:** None
Goal: Minimize impacts to wildlife species from BLM-authorized activities.		
Stipulation 5: No exploration activities from May 10 through June 1 in Dall sheep habitats and from May 15 through July 15 in caribou calving/postcalving habitat. Construction of production facilities and production activities may occur.	Identified caribou calving/ postcalving and Dall sheep habitats	**Exception:** The AO may grant an exception if the lessee demonstrates that calving caribou or Dall sheep are not currently using the area. **Modification:** Season may be shortened or extended based on actual occupancy of the area. **Waiver:** This stipulation may be waived if caribou migratory patterns change and the areas are no longer used for calving.
Stipulation 6: No exploration or development activities within 500 meters of active priority raptor nests from April 15 through August 15 (only March 15 through July 20 for gyrfalcon nests).	Areas open to hardrock mineral leasing	**Exception:** The AO may grant an exception if the lessee demonstrates that impacts would be minimal or there is no feasible or prudent alternative and after consultation with the U.S. Fish and Wildlife Service. **Modification:** Season may be adjusted based on actual nest occupancy. **Waiver:** None
Stipulation 7: No motorized ground-vehicle use or facility construction within a half mile of any known priority raptor nests from April 15 through August 15 (only March 15 through July 20 for gyrfalcon nests).	Areas open to hardrock mineral leasing	**Exception:** The AO may grant an exception if the lessee demonstrates that impacts would be minimal or there is no feasible or prudent alternative. **Modification:** Season may be adjusted based on actual nest occupancy.

Stipulation	Areas where Stipulations Apply	Exception, Modification, Waiver
		Waiver: None

M.5. Section 810 Analysis

M.5.1. ANILCA Section 810 Evaluation and Finding for the Supplement to the Eastern Interior Draft RMP/EIS

This Section 810 evaluation is supplemental to Appendix J sections J.2.4.4 and J.2.4.5 of the Eastern Interior Draft RMP/EIS (BLM 2012a), which analyzed Alternative D decisions on leasing mineral materials (gravel), travel management, and wildlife habitat conservation areas in the White Mountains Subunit. This supplement analyzes the leasing of hardrock minerals within the southeast portion of the White Mountains NRA. The area recommended open to leasing includes headwater tributaries of the Beaver Creek WSR. This supplemental evaluation only addresses Alternative D in the White Mountains Subunit.

M.5.2. White Mountains Alternative D

Alternative D emphasizes active management to facilitate resource development on BLM lands in the subunit. As part of this management direction, leasing of hardrock minerals on approximately 16 percent of the White Mountains NRA would be considered. Travel and trail restrictions would be minimized. A smaller wildlife conservation area focused on protection of Dall sheep and caribou habitat would be identified.

Evaluation of the Effects of Use, Occupancy, or Disposition

Development of mechanized placer mines and suction dredging placer operations would be allowed in areas with high development potential under mineral leases. The projected disturbance as determined through the reasonably foreseeable development (RFD) scenario would be about 591 acres over the life of the plan. Known deposits of rare veearth elements in the headwaters of Roy Creek would be open for exploration, but no development is anticipated during the life of the plan. An estimated 50 acres would be disturbed by exploration for these elements. Exploration of placer resources in areas with medium development potential is anticipated to disturb 20 acres over the life of the plan. The RFD also predicts development of 20 miles of roads in support of exploration and development.

Impacts that may occur include direct disturbance to wildlife on priority habitats, fragmentation of habitat through important movement corridors, and long-term impacts to streams and riparian habitats.

Areas open to hardrock mineral leasing include portions of the current White Mountains caribou core calving and postcalving areas and winter range, historical Fortymile caribou calving and postcalving areas and current winter range, moose habitat, and Dall sheep movement corridors and habitat (see section M.3.2.8 Wildlife). The northern portion of the open area, which includes the Roy Creek REE deposit and upper Bear and Quartz Creeks, are high use current and historic calving and postcalving areas for these two caribou herds.

Caribou are most vulnerable to disturbance during calving and postcalving (Fortymile Caribou Herd Planning Team 2000). However, development and exploration activities will not be authorized between May 15 and July 15 if the activity will interfere with caribou calving and postcalving activities, which will mitigate direct impacts (Appendix A, ROP Wild-7). Additionally, leasing regulations (43 CFR 3500) allow a higher level of protection than locatable mineral laws. Therefore direct impacts from leasing activity are not expected to occur.

The following indirect impacts are expected to be greater and more difficult to mitigate: changes in access to currently remote areas, hardrock leasing related infrastructure (such as roads), and increased levels of human activity. These impacts may reduce the suitability of the area as caribou habitat from pre-calving through postcalving. Changes in access are not limited to projected road development. Areas cleared of vegetation for winter overland moves of large equipment are likely to be used as summer OHV trails. The expanded network of trails may be used by recreationists to reach previously inaccessible areas.

Fortymile caribou are unique among large caribou herds in that they are dependent on a relatively small area of upland tundra for pre-calving through autumn (Boertje et al. 2012). Further, Boertje et al. (2012) expect that the White Mountains will become increasingly important to the Fortymile herd, given evidence that overgrazing has occurred on current core upland tundra habitat. Because of the projected importance of this portion of the historic Fortymile herd calving/postcalving range and the importance of this herd to subsistence hunters across the planning area, indirect impacts from exploration and development in the area may significantly restrict subsistence use by impacting abundance of Fortymile caribou. Additionally, when considered with decisions in the Draft RMP/EIS Alternative D for the Steese and Fortymile subunits and the cumulative case, significant restrictions on customary and traditional (subsistence) use may also occur.

The increased access from roads and pioneered trails in the area may shift the distribution of hunters but is not expected to reduce the availability of caribou for subsistence hunters across the planning area.

Spawning areas for Chinook salmon have been identified in Ophir Creek and rearing areas include Ophir and Nome Creek. Other undocumented spawning areas are likely to occur in other tributaries to Beaver Creek. Ophir Creek has been identified as an area with high development potential for gold and would be open to placer mining development under Alternative D. Impacts to this population of spawning salmon are likely to be direct, indirect and long-term and could contribute to the larger Yukon River drainage decline in Chinook salmon for subsistence use (see section M.3.2.2 Fish and Aquatic Species and Cumulative Impacts Findings of this supplemental analysis).

Evaluation of the Availability of Other Lands

In Alternative D the BLM would manage to optimize resource use and development, with the fewest restraints of all alternatives on commercial activity (leasable minerals and forest products) and the fewest limitations on travel management and recreation activity of the action alternatives. Other federal lands in the subunit are managed under USFWS planning documents and as conservation system units. Other BLM lands in the state are managed by current planning documents that allow a mixture of development and conservation following BLM's multiple-use mission, or are currently being evaluated through the planning process. State of Alaska and Native corporation lands cannot be considered in a BLM plan and BLM-managed lands outside of Alaska are not considered under ANILCA.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate the use of public lands needed for subsistence use and resources include the three action alternatives (Alternatives B, C, and D) that are presented and analyzed in Chapters 2 and 4 of the Eastern Interior RMP/EIS (BLM 2012a). These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Alternative D with the addition of leasing of known mineral deposits as analyzed in this supplement may significantly restrict subsistence use of Fortymile caribou by communities in or near the planning area. Upland habitat quality in the current Fortymile caribou herd calving/postcalving and autumn range has been documented as declining and this upland portion of the former range is increasingly important to continued herd growth and stability. Fortymile caribou, which have not occupied the area since the 1960s, were documented in the eastern White Mountains NRA in 2011, indicating movement to the area may be beginning. Should the amount of hardrock mineral leasing development expand beyond that anticipated in the RFD, this finding may need to be revised to take into account impacts to the White Mountains caribou herd and other subsistence resources and uses that cannot be mitigated.

M.5.3. White Mountains Cumulative Case

The goal of the cumulative analysis is to evaluate the incremental impact of the current action in conjunction with all past, present, and reasonably foreseeable future actions in or near the planning area. The cumulative analysis considers in greatest detail activities that are more certain to happen, and activities that were identified as being of great concern during scoping. Actions considered in the cumulative analysis include, but are not limited to the following (BLM 2012a section 4.2.4 Cumulative Effects):

Development of minerals will occur on state and private lands in the subunit. Effects will be similar to those described for activities on BLM lands, except that the level of activity is expected to be higher due to higher development potential, particularly on state lands.

Military aircraft use is allowed in Military Operation Areas over much of the White Mountains Subunit and is likely to increase. Impacts to wildlife resources important to subsistence could potentially occur. Current practices by the military to avoid exercises during caribou calving and implementing minimum ceilings have reduced but not eliminated impacts to caribou.

Research, monitoring and other land management activities will continue on all lands in the subunit and include access to remote areas by fixed and rotary wing aircraft, snowmobiles and other OHVs. Disturbance from these activities is localized and temporary.

Climate change will benefit some subsistence resources and negatively affect others. Changes in species distribution and vegetation communities in subarctic areas are predicted to occur by 2040. Frequency and severity of natural wildland fire in Interior Alaska are predicted to increase and result in shifts to deciduous and shrub-dominated landscapes, which may benefit moose and some furbearers but not caribou. Predicted increases in water temperatures would alter chemical

and biotic conditions to the detriment of subsistence fish diversity and abundance. Increases in soil temperatures would result in drying of lakes and ponds.

The population of Fairbanks and the surrounding area is predicted to increase by about 10 percent from the 2000 census to the 2020 census. Development of a gas line or other projects may boost the population beyond the estimate. Demands for recreation and subsistence resources are predicted to increase between 10 and 15 percent over the next 20 years. With the management emphasis on recreation in the White Mountains Subunit, increased use would be expected in this area.

Conveyance of remaining selected lands to the state and Native corporations is ongoing. Planning area wide, about 1.1 million acres are in selection by Native corporations (ANCSA 1971) and 1.4 million acres are in selection by the State of Alaska. Fish and wildlife management of harvest would be predicated on state regulations. Based on joint state/federal harvest management of White Mountains caribou herd in the subunit, no impacts to subsistence uses would be expected to occur. Impacts to use of fish and other wildlife may occur if state harvest regulations are more restrictive than federal regulations on those lands.

Alternative B would best protect subsistence resources in concert with actions occurring adjacent to BLM-managed lands in the White Mountains Subunit. Alternative C would somewhat increase impacts to subsistence resources and uses collectively with actions by other land managers adjacent to BLM-managed lands. Alternative D would potentially have the greatest impacts on subsistence resources and uses when added to decisions by adjacent land managers. Alternative A would have slightly less impacts from management prescriptions than Alternative D.

Evaluation of the Effects of Use, Occupancy, or Disposition

According to the analysis of fish and aquatic resources and wildlife resources in Chapter 4 of the Eastern Interior Draft RMP/EIS (BLM 2012a) and the Supplement (sections M.3.2.2 and M.3.2.8 of this appendix), the combination of ongoing locatable mineral development occurring on state, federal and private lands in the subunit combined with future uses and development projected for the subunit could result in cumulative impacts on subsistence resources that use the White Mountains Subunit. The privatization of State of Alaska or Native corporation lands could lead to additional development but is not expected to have cumulative impacts within the subunit.

Evaluation of the Availability of Other Lands

The Cumulative Case, as presented in the supplemental planning document, contains information on reasonably foreseeable activities that could have an effect on the management decisions being analyzed as part of the Hardrock Mineral Leasing Supplement. The purpose of the Cumulative Case is to present known ongoing activity by all entities on all lands near or within the planning area, as well as those activities that have been proposed for the future and are likely to occur. The Cumulative Case is not an implementable alternative that specifies land uses and management, and instead is a discussion of impacts that could affect the management decisions contained within Alternatives A through D. As such, no other lands are evaluated under the Cumulative Case.

Evaluation of Other Alternatives

Alternatives that would reduce or eliminate the use of public lands needed for subsistence include the three action alternatives that are presented and analyzed in Chapters 2 and 4 of the

Eastern Interior Draft RMP/EIS (BLM 2012a), as well as Alternative A. These alternatives were created to represent a wide-range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives considered, but not analyzed in detail, are also discussed in Chapter 2.

Findings

Hardrock mineral leasing will add to the cumulative impacts from exploration and development of locatable and leasable minerals and other uses in the planning area allowed on BLM-managed lands, other federally managed lands, and state and private lands. The cumulative case, as presented in this analysis, may result in significant restrictions on subsistence use of Chinook salmon and Fortymile caribou in, adjacent to, and downstream from the planning area. Chinook salmon are an extremely important subsistence resource. The numbers of Chinook salmon have been declining throughout the Yukon River drainage over the past two decades, which increases the importance of each spawning population in the system. The infusion of genetic diversity from these small stocks, such as the Ophir Creek population, is extremely important for resiliency of the Yukon River Chinook salmon stocks. Additionally, when considered with decisions in the Draft RMP/EIS Alternative D for the Steese and Fortymile subunits and the cumulative case, significant restrictions on subsistence use of Fortymile caribou may also occur.

M.5.4. Notice and Hearings

The ANILCA Sec. 810(a) provides that no "withdrawal, reservation, lease, permit, or other use, occupancy or disposition of the public lands which would significantly restrict subsistence uses shall be effected" until the federal agency gives the required notice and holds a hearing in accordance with ANILCA Sec. 810(a)(1) and (2). The BLM will provide notice in the *Federal Register* that it has made positive findings pursuant to ANILCA Sec. 810 that the following alternatives or the cumulative case presented in the Draft RMP/EIS meets the "may significantly restrict" threshold: White Mountains Subunit, Alternative D; White Mountains Subunit, Alternative D in combination with the Cumulative Case. As a result, public hearings will be held in the potentially affected communities. Notice of these hearings will be provided by way of the local media, including the newspaper and the local radio station, with coverage to many villages in Eastern Interior Alaska.

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Acronyms

µg/m3:	micrograms per cubic meter
AAC:	Alaska Administrative Code
ACEC:	Area of Critical Environmental Concern
ADCRA:	Alaska Department of Community and Regional Affairs
ADEC:	Alaska Department of Environmental Conservation
ADF&G:	Alaska Department of Fish and Game
ADLWD:	Alaska Department of Labor and Workforce Development
ADNR:	Alaska Department of Natural Resources
AFB:	Air Force Base
AKEPIC:	Alaska Exotic Plants Information Clearinghouse
ALCAN:	Alaska-Canada Highway
AML:	Abandoned mine land
ANCSA:	Alaska Native Claims Settlement Act
ANILCA:	Alaska National Interest Lands Conservation Act
AO:	Authorized Officer
AS:	Alaska Statute
ATV:	All terrain vehicle
BLM:	Bureau of Land Management
BPIF:	Boreal Partners in Flight
C&T:	Customary and Traditional
CEQ:	Council on Environmental Quality
CFR:	Code of Federal Regulations
CSU:	Conservation System Unit [as defined by ANILCA]
DOI:	U.S. Department of the Interior
EA:	Environmental Assessment
EDRR:	Early Detection and Rapid Response, used in management of non-native invasive species.
EFH:	Essential Fish Habitat

EI:	Eastern Interior
EIS:	Environmental Impact Statement
EO:	Executive Order
EPA:	Environmental Protection Agency
ESA:	Endangered Species Act
FAA:	Federal Aviation Administration
FCH:	Fortymile caribou herd
FLPMA:	Federal Land Policy and Management Act
FRCC:	Fire Regime Condition Class
GSA:	General Services Administration
GVWR:	Gross Vehicle Weight Rating
HUC:	Hydrologic Unit Code
IM:	Instruction Memorandum
LTC:	Long-term camp or Long-term camping
MFP:	Management Framework Plan
mmb:	Million barrels
MOA:	Memoradum of Agreement
NAAQS:	National Ambient Air Quality Standards
NEPA:	National Environmental Policy Act
NIS:	non-native invasive species
NMFS:	National Marine Fisheries Service
NOA:	Notice of Availability
NOAA:	National Oceanic and Atmospheric Administration
NOI:	Notice of Intent
NP:	National Preserve [Yukon-Charley Rivers National Preserve]
NPS:	National Park Service
NRA:	[White Mountains] National Recreation Area
NRCS:	Natural Resources Conservation Service (U.S. Department of Agriculture)
NSO:	No Surface Occupancy

NWR:	National Wildlife Refuge
NWSR:	National Wild and Scenic Rivers System
OHV:	Off-highway Vehicle
ORV:	Off-road Vehicle [old terminology used in chapter 3]
ORV:	Outstandingly remarkable value [pertaining to wild and scenic rivers]
P.L.:	Public Law
PFC:	Proper Functioning Condition
PLO:	Public Land Order
PM2.5:	A measure of fine particles in the air
POL:	Petroleum, oils, and lubricants
R:	Range
R&PP:	Recreation and Public Purposes [Act]
RAC:	Alaska Resource Advisory Council (BLM Alaska)
RAC:	Federal Subsistence Regional Advisory Council (Federal Subsistence Management Program)
RAMP:	Recreation Activity Management Plan
RAWS:	Remote Automated Weather Stations
RCA:	Riparian Conservation Area
RCT:	Rosgen Channel Type [type of stream channel as defined by Rosgen]
RFD:	Reasonable Foreseeable Development
RMP:	Resource Management Plan
RNA:	Research Natural Area
ROD:	Record of Decision
ROP:	Required Operating Procedure
ROW:	Right-of-way
RSC:	Recreation setting character
RY:	Regulatory year
Sec.:	Section
SRMA:	Special Recreation Management Area

SRP:	Special Recreation Permit
T:	Township
T&E:	Threatened and Endangered [species]
TAPs:	Trans-Alaska Pipeline
TAS:	Tanacross Airfield Site
tcf:	Trillion cubic feet
TMP:	Travel Management Plan
UAF:	University of Alaska Fairbanks
Unit:	Game Management Unit
USC:	U.S. Code
USDA:	United States Department of Agriculture
USFWS:	U.S. Fish and Wildlife Service
USGS:	U.S. Geological Survey
UTV:	Utility Terrain Vehicle
VRI:	Visual Resource Inventory
VRM:	Visual Resource Management
WAMCATS:	Washington-Alaska Military Cable and Telegraph System
WMCH:	White Mountains caribou herd
WMP:	Watershed Management Plan
WSR:	Wild and Scenic River [Fortymile WSR]
WSR Act:	Wild and Scenic Rivers Act

Glossary

17(d)(1) withdrawal:
A withdrawal made under the authority of section 17(d)(1) of the Alaska Native Claims Settlement Act for study to determine the proper classification of the lands and to determine the public values of the lands which need protection.

aircraft:
Fixed-wing and rotary wing aircraft.

Alaska National Interest Lands Conservation Act (ANILCA):
A law passed in 1980 designating 104 million acres for conservation by establishing or expanding national parks, wildlife refuges, wild and scenic rivers, wilderness areas, forest monuments, conservation areas, recreation areas, and wilderness study areas to preserve them for future generations.

Alaska Native Claims Settlement Act (ANCSA):
A law passed by Congress in 1971 to settle aboriginal land claims in Alaska. Under the settlement the Natives received title to a total of over 44 million acres, to be divided among some 220 Native villages and 12 Regional Corporations established by the act. The corporations shared in a payment of $962,500,000.

all-terrain vehicle (ATV):
A wheeled vehicle other than a snowmobile that is defined as having a curb weight of 1,000 pounds or less, maximum width of 50-inches or less, steered using handlebars, travels on three or more low-pressure tires, and has a seat designed to be straddled by the operator.

anadromous:
Anadromous fish are those which live most of their lives in the sea, but return to fresh water to spawn. Anadromous streams are those which support fish species that migrate between freshwater and marine waters, such as salmon.

anthropogenic:
Effects, processes, objects, or materials are those that are derived from human activities, as opposed to those occurring in natural environments without human influences.

Arctic Circle:
The invisible circle of latitude on the earth's surface at 66°33' north, marking the southern limit of the area where the sun does not rise on the winter solstice, December 21 or set on the summer solstice, June 21.

Area of Critical Environmental Concern (ACEC):
An area within the public lands where special management attention is required to protect important historic, cultural, or scenic values, fish and wildlife or natural systems or processes, or to protect life and safety from natural hazards.

artifact:
An object that was made, used, and/or transported by humans that provides information about human behavior in the past. Examples include pottery, stone tools, and bones with cut marks.

avoidance, mitigation:
Avoiding the impact altogether by not taking a certain action or parts of an action. (40 CFR 1508.20) (e.g. May also include avoiding the impact by moving the proposed action to a different time or location.)

best management practices (BMP):
A suite of techniques that guide, or may be applied to, management actions to aid in the achieving of desired outcomes.

casual use (recreation):
Noncommercial or nonorganized group or individual activities on public land. Casual use does the following: complies with land use decisions and designations, does not award cash prizes, is not publicly advertised, poses minimal risk for damage to public land or related water resources, and generally requires no monitoring.

cave:
A cave is defined as any naturally occurring void, cavity, recess, or system of interconnected passages occurring beneath the surface of the Earth or within a cliff or ledge large enough to permit an individual to enter, whether or not the entrance is naturally formed or human-made (FCRPA, Sec. 3(1)).

Code of Federal Regulations (CFR):
A codification of the general and permanent rules published in the *Federal Register* by the Executive Departments and agencies of the federal government. The Code is divided into 50 titles which represent broad areas subject to federal regulation. Each volume of the Code is revised at least once each year and issued on a quarterly basis.

commercial recreational use:
Recreational use of public lands and related waters for business or financial gain. When any person, group, or organization makes or attempts to make a profit, receive money, amortize equipment, or obtain goods or services, as compensation from participants in recreational activities occurring on public lands, the use is considered commercial. An activity, service, or use is commercial if anyone collects a fee or receives other compensation that is not strictly a sharing of, or is in excess of, actual expenses incurred for the purpose of the activity, service or use (such as guides, outfitters, and air taxi operators).

compensatory mitigation:
Compensating for the impact by replacing or providing substitute resources or environments. (40 CFR 1508.20)

compensatory mitigation projects:
Specific, on-the-ground actions (mitigation measures) to improve habitats (e.g., chemical vegetation treatments)

compensatory mitigation sites:
The durable areas where compensatory mitigation projects will occur.

Conservation System Unit (CSU):
ANILCA defines CSU as any Alaska unit of National Park System, National Wildlife Refuge System, National Wild and Scenic Rivers Systems, National Trails System, National Wilderness Preservation System, or a National Forest Monument. Within the planning area,

CSUs managed by the BLM include Birch Creek, Beaver Creek, and the Fortymile wild and scenic rivers.

conservation watershed:
A watershed in which processes and functions occur in a relatively undisturbed and natural landscape setting.

continental-subarctic:
North of the humid continental climate, from about 50 to 70 degrees North, in a broad swath extending from Alaska to Newfoundland in North America and from northern Scandinavia to Siberia in Eurasia, lie the continental subarctic climates. These are regions dominated by the winter season, a long, bitterly cold period with short, clear days, relatively little precipitation (mostly in the form of snow), and low humidity. Mean monthly temperatures are below freezing for six to eight months, with an average frost-free period of only 50-90 days per year, and snow remains on the ground for many months. Summers are short and mild, with long days and a prevalence of frontal precipitation associated with maritime tropical air within traveling cyclones. Annual precipitation totals are mostly less than 50 centimeters (20 inches), with a concentration in the summer.

conveyed:
Title to land was transferred from one party to another. The United States conveys title to land to Native corporations by patent and interim conveyance (IC) and to the State of Alaska by patent and tentative approval (TA).

curb weight:
The weight of a vehicle with a full tank of fuel and all fluids full, but with no people or cargo loaded. “Curb weight” is synonymous with “wet weight” and “operating weight”.

designated trail:
A narrow section of developed linear travel way, with an approved designation for traversing by means of human-powered, stock, or off-road vehicle forms of transportation. Travel on designated trails allows a 100 foot wide travel way (50 foot either side of center line of trail). Motor vehicle designations include parking along designated routes and at facilities associated with designated routes when it is safe to do so and when not causing damage to resources. This provision recognizes that from a practical standpoint, one vehicle width from the edge of the route surface may be necessary to park a vehicle, allow another party to pass, perform a repair, to allow dispersed camping off the trail, and to allow enough area to navigate around obstacles until a trail can be repaired.

dispersed recreation:
Recreation activities of an unstructured type which are not confined to specific locations such as recreation sites. Example of these activities may be hunting, fishing, off-road vehicle use, hiking, and sightseeing.

dry weight:
The total weight of the vehicle without fluids.

endangered species:
An animal or plant species designated by the U.S. Fish and Wildlife Service to receive federal protection status because the species is in danger of extinction throughout all or a significant portion of its natural range.

environmental impact statement (EIS):
A detailed statement of a given project's environmental consequences, including unavoidable adverse environmental effects, alternatives to the proposed action, the relationship between local short-term uses and long-term productivity, and any irreversible or irretrievable commitment of resources.

environmental justice:
The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies.

Essential Fish Habitat (EFH):
Essential Fish Habitat means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. EFH is defined by the Magnuson-Stevens Fishery Conservation and Management Act (Public Law 94-265).

executive order:
A rule or order issued by the President and having the force of the law.

Federal Land Policy and Management Act (FLPMA):
A law passed in 1976 to establish public land policy, guidelines for its administration, and provide for the management, protection, development, and enhancement of the public lands.

***Federal Register*:**
A daily publication that reports Presidential and federal agency documents.

fire frequency:
The reoccurrence of wildland fire in a given area over time. Also referred to as fire cycle.

fire regime:
A description of the patterns of wildland fire occurrences, frequency, size, severity, and, sometimes, vegetation and fire effects, in a given area or ecosystem. A fire regime is a generalization based on wildland fire histories at individual sites. There are five standard fire regimes:

- Fire Regime I, with a fire frequency of 0-35 years, surface fire to mixed fire type.
- Fire Regime II, with a fire frequency of 0-35 years frequency, stand replacement fire type.
- Fire Regime III, with a fire frequency of 35-100+ years, with a mixed fire type.
- Fire Regime IV, with a fire frequency of 35-100+ years, with a stand replacement fire type.
- Fire Regime V, with a fire frequency of 100+ years, with a stand replacement fire type.

Fire Regime Condition Class (FRCC):
(1) An interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels, and disturbance regimes. Assessing FRCC can help guide management objectives and set priorities for treatments.

(2) A classification of the amount of departure from the natural fire regime, based on a relative measure describing the degree of departure from the historical natural fire regime. This departure results in changes to one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g., insect and disease mortality, grazing, and drought).

- Condition Class 1: Within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.
- Condition Class 2: Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.
- Condition Class 3: High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.

fire return interval:
The number of years between two successive wildland fire events for a given area.

fire severity:
The degree to which a site has been altered or disrupted by wildland fire; loosely, a product of fire intensity and residence time. In Alaska, fire severity refers to the amount of organic layer removed by a wildland fire event.

game retrieval:
Retrieval of legally harvested big game animals off of a designated trail is allowed within designated areas (Frontcountry and Middlecountry Zones only) and within the OHV limitations for the area. Individuals must have a punched harvest ticket. Up to 3 ATVs may participate in the retrieval of the legally harvested big game. Retrieval of big game may not exceed one mile from the designated trail. Legally harvested big game must be retrieved within 24 hours.

gross vehicle weight rating (GVWR):
The total weight of the vehicle plus the maximum loaded carrying capacity of the vehicle as specified by the manufacturer (i.e., GVWR = weight of vehicle + fuel + passengers + cargo, as per manufacturers limitations). Pull-behind trailers are not included in the GVWR calculation for the vehicle.

High Priority Restoration Watershed:
Restoration watersheds that are priority areas for active restoration practices. Management activities in these areas are designed to accelerate the development of self-sustaining, ecologically healthy riparian and aquatic ecosytems.

In-kind, mitigation:
In-kind mitigation is the replacement or substitution of resources or values that are of the same type and kind as those impacted. (e.g. greater sage-grouse winter habitat is lost, and greater sage-grouse winter habitat is enhanced or conserved.).

invasive species:
Organisms that have been introduced into an environment where they did not evolve. Executive Order 13112 focuses on organism whose presence is likely to cause economic harm, environmental harm, or harms to human health. See also noxious weeds.

karst:
A type of topography resulting from dissolution and collapse of limestone, dolomite, or gypsum beds, characterized by closed depressions or sinkholes, caves, and underground drainages.

land status:
The legal standing of land within BLM boundaries. Land status includes private, military, State, State-selected, Native, Native-selected, and unencumbered public lands.

leasable minerals:
Minerals subject to exploration and development under leases, permits, and licenses under various mineral leasing acts. Leasable minerals include oil, gas, and coal.

lease:
A means of allowing long-term use of public lands without transferring ownership of that land.

locatable minerals:
Minerals subject to appropriation under the mining laws and 43 CFR 3809. Locatable minerals include base metals (e.g., copper, lead, and zinc), noble metals (e.g., silver and gold), nickel, iron, platinum group elements, bentonite, gem and semiprecious gemstones, and nephrite jade. See also leasable minerals.

loess:
Mixure of silt and very fine sand transported by wind from exposed sediment deposits of braided rivers. A wind deposited silt.

management framework plan (MFP):
A planning decision document prepared before the effective date of the regulations implementing the land use planning provisions of FLPMA. The MFP establishes, for a given area of land, land-use allocations, coordination guidelines for multiple-use, and objectives to be achieved for each class of land use or protection.

mechanized travel:
Moving by a mechanical device (e.g., bicycle) not powered by a motor.

Memorandum of Understanding (MOU), Memorandum of Agreement (MOA):
A formal, written agreement between organizations or agencies that presents the relationship between the entities for purposes of planning and management.

metalliferous:
Yielding or containing metal. metalliferous minerals include gold, silver, lead, copper, zinc, and nickel.

minimization, mitigation:
Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (40 CFR 1508.20)

motorcycle:
Motorized vehicles with two tires and with a seat designed to be straddled by the operator. A motorcycle is capable of either on- or off-highway use.

motorized vehicles:
Vehicles that are propelled by motors or engines, such as cars, trucks, off-highway vehicles (OHV), motorcycles, and snowmobiles.

multiple-use:
Management of all the various renewable surface resources so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output. (43 U.S.C. sec. 1702(c)).

National Environmental Policy Act of 1969 (NEPA):
An act mandating an environmental analysis and public disclosure of federal actions.

National Wild and Scenic Rivers System (NWSR):
A system of nationally designated rivers and their immediate environments that have outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, and other similar values and are preserved in a free-flowing condition. The system consists of three types of streams: 1) recreational—rivers or sections of rivers that are readily accessible by road or railroad and that may have some development along their shorelines and may have undergone some impoundments or diversion in the past, 2) scenic—rivers or sections of rivers free of impoundments with shorelines or watersheds still largely undeveloped but accessible in places by roads, and 3) wild—rivers or sections of rivers free of impoundments and generally inaccessible except by trails, with watersheds or shore-lines essentially Primitive and waters unpolluted.

Native-selected:
BLM lands that have been selected by a Native corporation under the ANCSA which gave Alaska Natives an entitlement of 44 million acres to be selected from a pool of public lands specifically defined and withdrawn by the Act for that purpose.

no action alternative:
The most likely condition expected to exist if current management practices continue unchanged. The analysis of this alternative is required for federal actions under the National Environmental Policy Act of 1969 (NEPA).

non-motorized travel:
Moving by foot, stock or pack animal, boat, or mechanized vehicle such as a bicycle.

noxious weed:
A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or nonnative, new, or not common to the U.S. See also invasive species.

off-highway vehicle (OHV):
Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding: 1) any non-amphibious registered motorboat; 2) any military, fire, emergency, or law enforcement vehicle being used for emergency purposes; 3) any vehicle whose use is expressly authorized by the authorizing officer, or otherwise officially approved; 4) vehicles in official use; and 5) any combat or combat support vehicle

when used for national defense (CFR 43 sec. 8340.05(a)). OHVs generally include dirt motorcycles, dune buggies, jeeps, four-wheel drive vehicles, snowmobiles, and ATVs. OHV is synonymous with Off-Road Vehicle (ORV), Utility Type (or Terrain) Vehicle (UTV), and All Terrain Vehicle (ATV). Aircraft are not OHVs.

OHV area designations:

Used by federal agencies in the management of OHVs on public lands. Refers to the land use planning decisions that permit, establish conditions, or prohibit OHV activities on specific areas of public lands. All public lands are required to have OHV designations (43 CFR 8342.1). The CFR requires all BLM-managed public lands to be designated as "open," "limited," or "closed to off-road vehicles," and provides guidelines for designation. The definitions of open, limited, and closed are provided in 43 CFR 8340.0-5 (f), (g), and (h), respectively.

- Closed: Motorized vehicle travel is prohibited in the area. Access by means other than motorized vehicle is permitted. Areas are designated closed if closure to all vehicular use is necessary to protect resources, promote visitor safety, or reduce use conflicts.
- Open: Motorized vehicle travel is permitted year-long anywhere within an area designated as "open" to OHV use. Open designations are used for intensive OHV use areas where there are no special restrictions or where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel.
- Limited: Motorized vehicle travel within specified areas and/or on designated routes, roads, vehicle ways, or trails is subject to restrictions. The "limited" designation is used where OHV use must be restricted to meet specific resource management objectives. Examples of limitations include: number or type of vehicles; time or season of use; permitted or licensed use only; use limited to designated roads and trails; or other limitations if restrictions are necessary to meet resource management objectives, including certain competitive or intensive use areas that have special limitations.

organic layer, organic mat:

Layer on top of the soil consisting of dead and decaying leaves, branches, wood, and other plant parts.

out-of-kind, mitigation:

Out-of-kind is the replacement or substitution of resources or values that are not the same type and kind as those impacted, but are related or similar. (e.g. greater sage-grouse winter habitat is lost, but new greater sage-grouse nesting habitat is enhanced or conserved.)

outstandingly remarkable value (ORV):

As defined by the Wild and Scenic Rivers Act of 1968, an "outstandingly remarkable value" is the characteristic of a river segment that is judged to be a rare, unique, or exemplary feature that is significant at a regional or natural scale. Values can be recreational, scenic, geological, historical, cultural, biological, botanical, ecological, heritage, hydrological, paleontological, scientific, or research-related.

over-Snow vehicle:

An over-snow vehicle is defined as a motor vehicle that is designed for use over snow that runs on a track or tracks and/or a ski or skis, while in use over snow. An over-snow vehicle does not include machinery used strictly for the grooming of non-motorized trails.

paleontological:
Of or relating to past geological periods. Paleontological resources include fossils of shellfish, swamp forests, dinosaurs, and other prehistoric plants and animals, including both vertebrates and invertebrates, and direct evidence of their presence (tracks, worm burrows, etc).

particulates:
Fine liquid or solid particles such as dust, smoke, mist, fumes or smog, found in the air or emissions. PM2.5 is a measure of fine particles in the air.

permafrost:
Soil, sand, gravel, or bedrock that has remained below 32 degrees F. for two or more years. Permafrost features include: frost boils (accumulation of excess water and mud in subsurface materials during spring thaw which may break through the surface), hummock (a mound of broken ice projecting upward, formed by ice deformation), ice wedge (a build up of ice in frozen soil, that is wedge-shaped in cross-section), ice lenses (accumulation of ice in cavities and hollows in the soil), pingos (an arctic mound or conical hill, consisting of an outer layer of soil covering a core of solid ice), polygonal ground (a type of patterned ground in areas of ice wedges), and solifluction lobes (an isolated tongue-shaped feature formed by rapid solifluction (downhill movement of soil) on a slope).

permit:
A means of authorizing use of public lands in an equitable, safe, and enjoyable manner while minimizing adverse impacts and user conflicts. A permit does not transfer ownership of the land, it simply allows the permittee to use the land in a pre-determined fashion for a set amount of time.

personal watercraft:
An inboard engine vessel, usually driven by a jet-pump, that typically carries one to three persons, and is operated by a person sitting by straddling a seat, standing, or kneeling on the boat, rather than in the conventional manner of sitting below the gunwale of the boat.

pollutants:
Any substance introduced into the environment that adversely affects the usefulness of a resource or the health of humans, animals, or ecosystems.

popcorn:
Small coral-like formations found as a coating on the cave surfaces.

prescribed fire:
A fire purposefully ignited to meet specific objectives. Prior to ignition, a written, approved fire plan must exist and legal requirements must be met.

primitive road:
A linear route managed for use by four-wheel drive or high clearance vehicles. Primitive roads do not normally meet any BLM road design standards.

proper functioning condition (PFC):
Riparian habitats are at PFC when adequate vegetation, land form, or large woody debris is present to: 1) dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality, (2) filter sediment, capture bedload, and aid floodplain development, (3) improve floodwater retention and groundwater discharge, (4) develop root

masses that stabilize streambanks against cutting action, (5) develop diverse ponding and channel characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, and other uses, (6) and support greater biodiversity (BLM 1998)

public land:

FLMPA (43 U.S.C. 1702) defines public land as land or interest in land owned by the U.S. and administered by the Secretary of the Interior through the BLM without regard to how the U.S. acquired ownership, except land located on the Outer Continental Shelf, and land held for the benefit of Native Americans, Aleuts, and Eskimos. ANILCA (43 U.S.C. 1618) defines public lands as land situated in Alaska which, after the date of the enactment of this Act, are federal lands, except a) land selections of the State of Alaska which have been tentatively approved or validly selected under the Statehood act, b) land selections of a Native corporation made under ANCSA which have not been conveyed, unless such selection is determined to be invalid or is relinquished and, c) lands referred to in section 19(b) of ANCSA.

public land order (PLO):

Congressional or secretarial orders defining withdrawals of public lands by statute or secretarial order from operation of some or all of the public land laws.

public use:

This category of cultural resource use may be applied to any cultural property in the planning area found to be appropriate for use as an interpretive exhibit or for related educational and recreational uses by the public. This category may also be applied to historic features such as Fort Egbert Historic Site.

R.S. 2477:

A provision originally part of the 1866 Mining Act that states in its entirety, "The right-of-way for the construction of highways over public lands, not reserved for public uses, is hereby granted." In 1873, the provision was separated from the Mining Act and reenacted as Revised Statute (R.S.) 2477. In 1938, it was recodified as 43 U.S.C. Section 932. FLPMA repealed both the 1866 Mining Act and R.S. 2477, but all rights-of-way that existed on the date of the repeal (October 21, 1976) were preserved under 43 U.S.C. Section 1769. The State of Alaska recognizes approximately 650 R.S. 2477 routes throughout the State. The assertion of these routes has not been recognized and current BLM policy is to defer any processing of R.S. 2477 assertions except where there is a demonstrated and compelling need to make a determination.

R&PP lease:

A lease issued by the federal government under the R&PP Act for use of public lands to serve community and recreational purposes on such as parks and cemetery.

record of decision (ROD):

A public document associated with an Environmental Impact Statement (EIS) that identifies all alternatives, provides the final decision, the rationale behind that decision, and commitments to monitoring and mitigation.

recreation activity management plan (RAMP):

An activity level or step-down plan to develop more specific management guidelines for a special recreation management area.

Recreation and Public Purposes (R&PP) Act:
An act authorizing the sale or lease of public lands for recreational or public purposes to State and local governments and to qualified non-profit organizations.

rectify, mitigation:
Rectifying the impact by repairing, rehabilitating, or restoring the affected environment. (40 CFR 1508.20)

reduce or eliminate over time, mitigation:
Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action. (40 CFR 1508.20)

Research Natural Area (RNA):
An area that is established and maintained for the primary purpose of research and education because the land has one or more of the following characteristics: 1) a typical representation of a common plant or animal association; 2) an unusual plant or animal association; 3) a threatened or endangered plant or animal species; 4) a typical representation of common geologic, soil, or water features; or 5) outstanding or unusual geologic, soil, or water features. Uses of RNAs are defined in 43 CFR 8223.1.

residual impact:
Impacts from a land-use authorization that remain after applying avoidance, minimization, rectification, and reduction/elimination measures; also referred to as unavoidable impacts.

restoration watershed:
A watershed in which biological and physical processes and functions do not reflect natural conditions because of past and long-term human caused land disturbances.

right-of-way (ROW):
The legal right to pass over another owner's land, or the area over which a right-of-way exists.

right-of-way (ROW) avoidance area:
Areas identified in a resource management plan where location of rights-of-way is to be avoided. These areas may be available for location of rights-of-way with special stipulations.

right-of-way (ROW) exclusion area:
Areas identified in a resource management plan which are not available for location of rights-of-way under any conditions.

Riparian Conservation Areas (RCAs):
Riparian conservation areas (RCAs) are specific conservation watersheds that contain the highest fisheries and riparian resource values within the planning area. They are 6th level watersheds that the BLM has identified as priority habitats for fish and aquatic species. These watersheds have processes and functions that occur in a relatively undisturbed and natural landscape setting. Hydrologic function, such as sediment amounts and stream flow regimes resulting from disturbance, are within a natural range of frequency, duration, and intensity. In these watersheds, riparian-dependent resources receive primary emphasis and management activities are subject to specific management decisions.

road:
A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.

scientific use:
This category of cultural resource use may be applied to any cultural property in the planning area available for consideration as the subject of scientific or historical study at the present time, using currently available research techniques. Study includes methods that may result in the property's physical alteration.

scoping:
The process used to determine, through public involvement, the range of issues that the RMP should address.

sensitive species:
Those wildlife, fish, or plant species designated by the BLM Alaska State Director, usually in cooperation with the State agency responsible for managing the species, as sensitive. They are: 1) species under status review by U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service; 2) species whose numbers are declining so rapidly that federal listing may be necessary; 3) species with typically small and widely dispersed populations; or 4) species inhabiting ecological refugia or other specialized or unique habitats.

seral:
Relating to ecological communities where all successional stages of biotic development are represented.

snowmachine, snowmobile:
A motorized vehicle that is designed for use over snow that runs on a track or tracks and uses a ski or skis for steering, has a curb weight of 1,000 pounds or less, maximum width of 50-inches or less, steered using handlebars, and has a seat designed to be straddled by the operator. A snowmobile does not include machinery used strictly for the grooming of non-motorized trails.

special forest products:
Any "non-timber" forest resource. Special forest products may include: bark, boughs, burls, floral greenery, mushrooms, sap, wild berries, and Christmas trees.

Special Recreation Management Area (SRMA):
Areas where the management emphasis is on recreation, though other resource uses and development are allowed.

special recreation permit:
A means of authorizing recreational uses of public lands and waters. Special recreation permits are issued for specific recreational uses as a means to manage visitor use, protect natural and cultural resources, and provide a mechanism to accommodate commercial recreational uses. There are four types of permits: commercial, competitive, organized groups/events, and individuals or groups in special areas.

Special Status Species:
Special Status Species include the following: endangered species, threatened species, proposed species, candidate species, state-listed species, and BLM Alaska sensitive species.

State-selected:
Formerly unappropriated and unreserved public lands that were selected by the State of Alaska as part of the Alaska Statehood Act of 1958 and Alaska National Interest Lands Conservation

Act (ANILCA) of 1980. Until conveyance, State-selected lands outside of National Park system lands or National Wildlife refuges will be managed by the BLM. ANILCA allowed for overselection by the State by up to 25 percent of the entitlement (sec. 906 (f)). Therefore, some State-selected lands will eventually be retained in long-term federal management.

subsistence/subsistence use:
Relying on fish, wildlife and other wild resources for food, shelter, clothing, transportation, handicrafts, and trade. An Alaskan resident living in a rural area may participate in federal subsistence harvest on certain unencumbered BLM lands.

succession:
The replacement in time of one plant community with another. The prior plant community (or successional stage) creates conditions that are favorable for the establishment of the next community.

sustained yield:
The achievement and maintenance in perpetuity of a high-level annual or regular output of the various renewable resources of the national forests without impairment of the productivity of the land. (43 U.S.C. sec. 1702(h)).

thermokarst:
Ground subsidence due to the thawing of permafrost.

threatened species:
A designation by the U.S. Fish and Wildlife Service when a plant or animal is likely to become endangered throughout all or a specific portion of its range within the foreseeable future.

traditional use:
This category of cultural resource use may be applied to any cultural property in the planning area known to be perceived by Alaska Natives as important in maintaining their cultural identity, heritage, or well-being (such as Joseph Village and Cemetery).

trail:
Linear routes managed for human-powered, stock, or off-road vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

Travel Management Area (TMA):
Polygons or delineated areas where travel management (either motorized or non-motorized) needs particular focus. These areas may be designated as open, closed, or limited to motorized use and will typically have an identified or designated network of roads, trails, ways, and other routes that provide for public access and travel across the area. All designated travel routes within TMAs should have a clearly identified need and purpose, and clearly defined activity types, modes of travel, and seasons or times for allowable access or other limitations.

travel management plan (TMP):
The document that describes the decisions related to the selection and management of the Transportation Network. This document can be an appendix to a Resource Management Plan (RMP), incorporated in activity implementation plan (such as a Recreation Implementation Plan), or a stand alone document after development of the RMP.

unencumbered/unencumbered BLM lands:
Public lands that have not been selected by the State of Alaska or Native organizations. These lands will be retained in long-term federal management.

utility type (or terrain) vehicle (UTV):
Any recreational motor vehicle other than an all-terrain vehicle, motorcycle, or snowmobile designed for and capable of travel over unpaved roads, traveling on four or more low-pressure tires, a curb weight of 1,500 pounds or less, and maximum width is 64 inches or less. Utility type vehicles do not include vehicles specially designed to carry a person with disabilities.

visual resource management (VRM):
A means of managing visual resources by designating areas as one of four classes: Class I– maintaining a landscape setting that appears unaltered by humans; Class II– designing proposed alterations so as to retain the existing character of the landscape; Class III– designing proposed alterations so as to partially retain the existing character of the landscape; and, Class IV– providing for management activities which require major modifications of the existing character of the landscape.

Wild and Scenic River, Wild River:
A river that is part of the National Wild and Scenic River System. In Alaska, most Wild and Scenic Rivers (WSR) were designated by ANILCA. There are three of these rivers in the planning area: Beaver Creek, Birch Creek, and Fortymile River. See also National Wild and Scenic Rivers System.

wilderness characteristics:
These attributes include the area's size, its apparent naturalness, and outstanding opportunities for solitude or a Primitive and unconfined type of recreation. They may also include supplemental values.

wildfire:
Unplanned ignitions or prescribed fires that are declared wildfires. Wildfires may be managed to meet one or more objectives as specified in the Resource Management Plan and these objectives can change as the fire spreads across the landscape.

wildland fire:
Any nonstructural fire that occurs in vegetation or natural fuels. Wildland fire includes prescribed fire and wildfire.

withdrawal:
Federal land set aside and dedicated to a present, governmental use; public land set aside for some other public purpose, e.g., pending a determination of how the land is to be used; an action approved by the Secretary or a law enacted by Congress that closes land to specific uses under the public land laws (usually sale, settlement, location, and entry), or limits use to maintain public values or reserves area for particular public use or program, or that transfers jurisdiction of an area to another federal agency. Usually enacted by a public land order or legislation.

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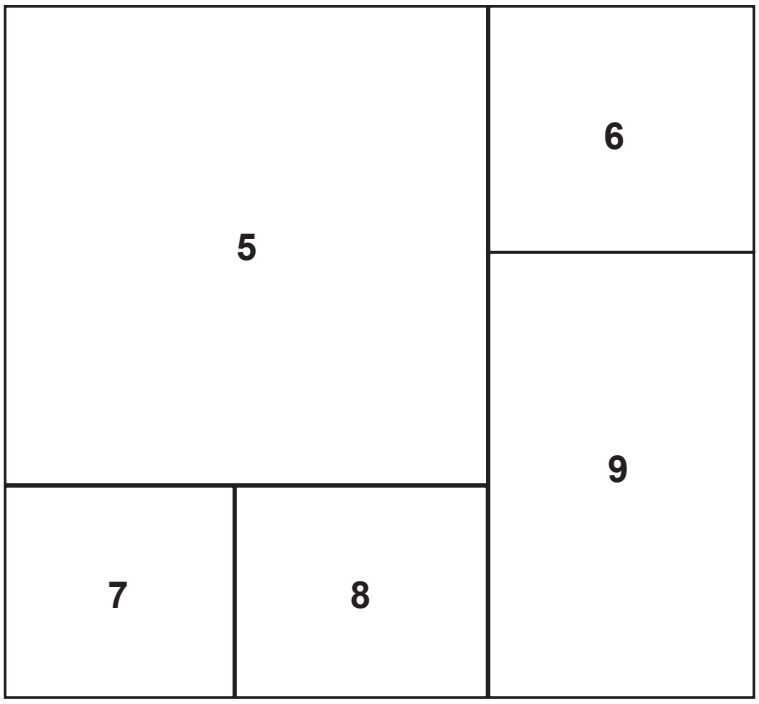
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BLM Back Cover Photos:

5. Two caribou bulls running, Steese National Conservation Area, Alaska.
6. Checking set net near the village of Fort Yukon, Alaska. Photo by Alaska Department of Fish and Game.
7. Arctic Grayling fish assessment, Preacher Creek, Alaska
8. OHV rider on the Quartz Creek Trail, White Mountains National Recreation Area, Alaska.
9. Sled dogs at Caribou Bluff Cabin, White Mountains National Recreation Area, Alaska.









