

SUS 377 2

# AN ATLAS TO THE FISH AND WILDLIFE RESOURCES ELEMENT FOR THE SUSITNA AREA PLANNING STUDY



SUS 377

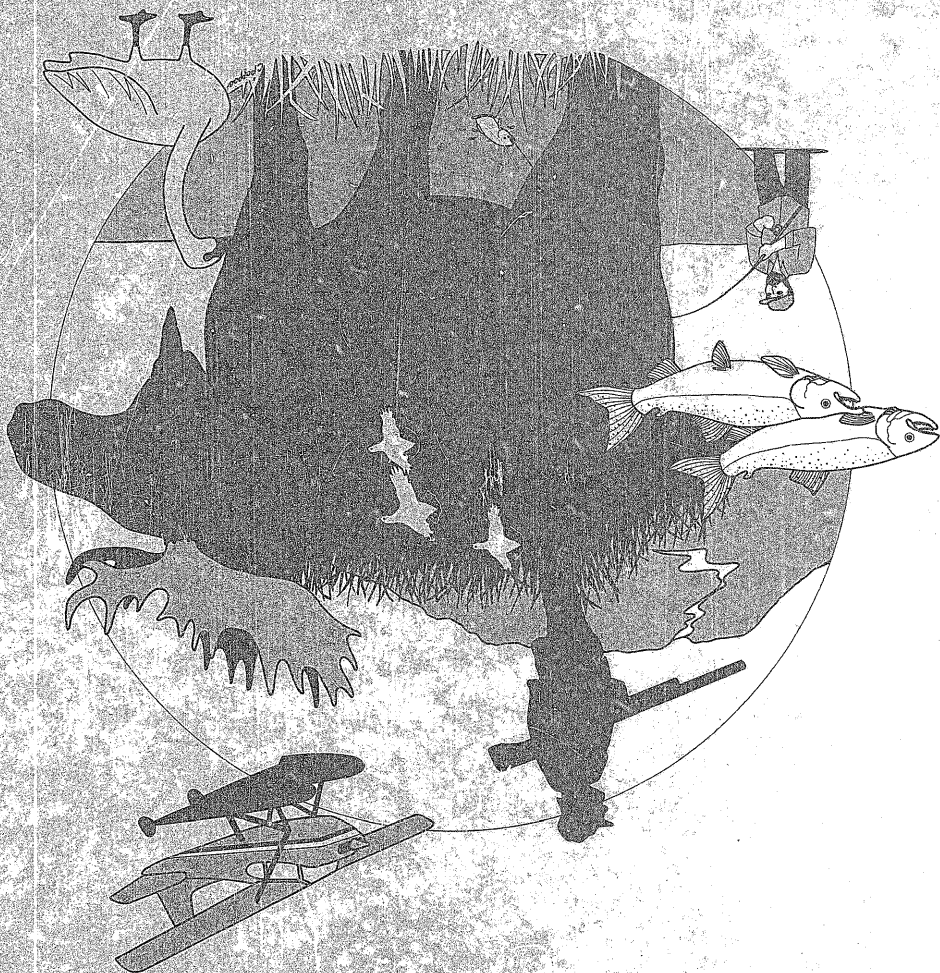
prepared by  
The Alaska Department of Fish & Game  
Habitat Division



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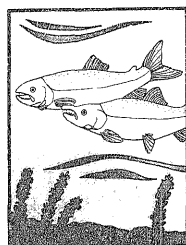
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# Map B10 MOOSE ENHANCEMENT SUITABILITY POTENTIAL

(This map has been deleted due to a copyright issue in the database.)



# Map B11 WILDLIFE DIVERSITY (SPECIES RICHNESS)

Diversity of species, or species richness, is one index by which ecologists rank importance of various habitats. Lands can be managed for just one wildlife species (key species), or they can additionally be managed for many plant and animal species. Habitats with diverse species component support stable and productive ecosystems. Numbers of individuals in each species are not addressed in this diversity map.

The species diversity map was constructed using wildlife habitat relationships based on information from scientific literature and from species experts with field experience in the planning area. A list was made of all birds and mammals inhabiting each vegetation cover type, and then the types were ranked by number of species. From this ranking, three distinct groups of vegetation cover types were identified: High species diversity (with 61 to 91 species), Moderate species diversity (with 38 to 60 species), and Low species diversity (with one to 37 species of animals). An example of a habitat type supporting no species would be glaciers.

# Map B12 RIPARIAN LANDS

Riparian lands are defined as the ecosystem including the streambank and associated floodplain. Riparian lands are important for high abundance, diversity and production of wildlife. Floodplains provide important habitat for moose, birds, and fish. Overwinter survival of moose often depends on the availability of riparian vegetation and the associated cover. The riparian vegetation also determines quality of aquatic habitats for fish, and functions as a buffer zone for pollution abatement, flood and erosion control, stream bank stabilization, ground water recharge, and maintenance of water quality.

The Riparian Map came from two sources: 1) K. Dean's Stream Corridor Physiograph (1980) and 2) the USDA Soil Conservation Service's Flood Plain Management/Flood Hazard Study (1981, 1982). Dean's study mapped landforms and vegetation within select river corridors in the Susta River basin, by aerial photography, LANDSAT imagery, USGS topographic maps, and ground verification. The purpose of this mapping effort was to 1) identify zones of riverine influence where vegetation and land forms could be affected by seasonal flooding and 2) establish riparian management or buffer zones to protect fish and wildlife dependent on these riparian habitats.

In addition, the Soil Conservation Service mapped Susta River corridor lands subject to flooding by analyzing peak discharges of select rivers. The purpose of this analysis was to identify potential 100-year floodplains so that flood management programs could be implemented.

The Department of Fish and Game has used these floodplain and stream corridor studies on select rivers to identify a zone of riparian influence that could affect distribution, abundance, and productivity of populations of fish and wildlife in the Susta Planning Area.

# Map B13 MOOSE WINTER RANGE AVAILABILITY BASED ON ESTIMATED SNOW ACCUMULATION

Moose behavioral studies have shown that snow depths greater than 36 inches can limit food availability for moose. These potentially limiting snow areas are depicted in Map B13. The vegetation data base correlations with potential carrying capacity for wildlife, maps B9a, B9b, B14a, B14b, do not consider the variable of snowfall. A vegetation type may theoretically support wildlife species, but if it is covered by deep snow, it may be unavailable to those species in the winter. Perhaps more significantly, deep snowfall in an area hinders movement by moose to other areas where food may be available. An attempt by moose to move through deep snow may burn up much needed calories and put them into an energetic stress. The snow accumulation map is an attempt to emphasize the variable of snowfall and to apply availability of vegetation in moose winter range. It illustrates the potential reduction in moose range which can result from snow accumulation.

Evan Merrill, SCS (USDA) developed a snow model which correlated annual snowfall with annual precipitation. From this, isovetial lines indicating mean annual snow accumulation areas by ten inch increments were mapped. In addition, 10-year high snow accumulations were mapped. The accuracy of this model was later verified by SCS, by analysis of snow accumulation records from field stations.

The theoretical carrying capacity for moose, of various vegetation and cover types, was determined from known moose forage consumption rates and from annual forage production of the vegetation type. The planning area's potential carrying capacity of vegetation, knowing caloric values of vegetation, caloric needs of moose, moose consumption rates, cover type composition and distribution of cover types throughout the planning area, the theoretical number of moose that can be supported per square mile can be estimated.

The value of theoretical moose carrying capacity directly from vegetation cover types is another approach to identifying wildlife habitat relationships such as was used in the Habitat Evaluation Procedures Suitability Index ranking (refer to maps B9a and B9b). This latter approach reflects only relative carrying capacities, by a suitability index, for species such as moose, by considering food and cover. The carrying capacity model considers only total, by estimating actual numbers of moose that the environment could theoretically support.

# Maps B14a and B14b THEORETICAL EXISTING AND POTENTIAL CARRYING CAPACITY FOR MOOSE

The theoretical carrying capacity for moose, of various vegetation and cover types, was determined from known moose forage consumption rates and from annual forage production of the vegetation type. The planning area's potential carrying capacity of vegetation, knowing caloric values of vegetation, caloric needs of moose, moose consumption rates, cover type composition and distribution of cover types throughout the planning area, the theoretical number of moose that can be supported per square mile can be estimated.

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Estimated carrying capacities for moose in the SCS/USFS database parts of the planning area were calculated by vegetation cover type, by averaging known vegetation by area, and by seasonally different vegetation that would grow back if the areas were logged or burned. Cover types were grouped into five categories (high, medium, low, very low, unknown) depending on how many moose each could theoretically support.

# Map B15 VEGETATION COMMUNITY TYPES

The coniferous forest habitat is dominated by white and black spruce and mountain hemlock. While spruce can be found at various elevations in mixed stands or isolated pockets, often in association with areas dominated by aspen/willows, grassland or open mixed stands. Open short stands are often the transitional vegetation type between closed forest and high elevation coniferous areas. Black spruce usually found in association with bog types. The understory is usually a thick moss and/or sedge mat. Some stands are mixed with scattered birch. Mountain hemlock, rare in the study area, is found in stringers and mixed with other local types in the Tyeon area.

Examples of species typically found in this habitat are moose, lynx, wolf, weasels, mink, black bears, wolves, voles, squirrels, shrews, sparrows, crossbills, redpolls, warblers, thrushes, chickadees, woodpeckers, owls, grouse and goshawks.

**Deciduous Forest Habitat**

The deciduous forest habitat is dominated by birch, aspen and cottonwood. Birch and aspen stands usually have some spruce (see Map B Forest). Cottonwoods are usually found in wet or riparian areas, point bars of rivers, oxbows, or alluvial soils. In the older closed stands, aspen, devil club, and willow are found in the understory. Birch, aspen, spruce or grass compose the understory of more open stands. Other cottonwood stands are found among low shrubs at treeline just above the elevation of all white spruce.

Species typically found in this habitat are moose, lynx, and otters, weasels, mink, bears, wolves, beavers, shrews, sparrows, thrushes, kinglets, thrushes, robins, creepers, jays, goldfinches, woodpeckers, and owls.

**Mixed Forest Habitat**

The mixed forest habitat contains both coniferous and deciduous trees. Birch or aspen usually are the deciduous trees, while white and black spruce are the primary conifers. The proportion of spruce becomes greater the older the stand. Understory components are usually Calamagrostis (bluegrass) and alders. As the elevation of the forest type increases, the proportion of spruce increases. Mixed forests generally would have examples of species from both the coniferous and deciduous habitats.

**Shrubland Habitat**

The shrubland habitat can be divided into three major community types: 1) tall shrub alder, which grows in dense thickets, often at treeline, associated with grasses, ferns, forbs

and devil's club; 2) stream side willow alder vegetation, often mixed with cottonwood; and 3) willow herb birch found in draws at higher elevations of mountainous terrain, at the higher shrubland interface.

Species typical of the shrubland habitat are moose, and otters, weasels, bears, wolves, mink, beavers, pikas, shrews, squirrels, juncos, shrikes, warblers, thrushes, wrens, flycatchers, grouse, ptarmigan and finches.

**Grassland Habitat**

The grassland habitat lacks woody plants. Annual herbaceous plants are abundant and dominant. Calamagrostis (bluegrass) dominates this habitat, and various low-growing herbs are also present. Grasslands are often found between more open forest types, and are often associated with alder shrubland habitats.

Species typical of grasslands vary in the study area depending on what kind of habitat that grassland adjoins.

**Alpine Tundra**

The alpine tundra habitat type consists mainly of herbaceous or low shrubby vegetation above treeline, usually in mountainous areas, with no large woody species present. Types of tundra are sedge-grass, herbaceous, shrub and mixed sedge-grass. The alpine tundra is relatively flat and level. Most of the tundra is dominated by rooted forbs such as crowberry, heather, and by lichens and grasses. Shrub tundra, characterized by dwarf shrubs, birch and other shrubs, and is found below herbaceous tundra, which is often mixed with rock outcroppings.

Species typical of alpine tundra are mountain goats, Dall sheep, caribou, weasels, mink, brown bears, lemmings, voles, ground squirrels, marmots, pikas, snow buntings, kinglets, sparrows, redpolls, "curlew" birds, ptarmigan, swallows, ptarmigan, and some hawks.

**Tidalmarsh/Wetland Habitat**

The tidalmarsh/wetland habitat is characterized by abundant water and has relatively homogeneous vegetation consisting mainly of low herbaceous plants. Sphagnum moss and shrub bogs are included in the habitat, as are sedge-grass dominated tidal wet meadows, and "sweet" grass. Typical dominant tidal marsh plants are these areas often fluctuate seasonally as well as daily.

Many species inhabit wetland habitats including kinglets, members of the wading family, kinglets, loons, grebes, loons, grebes, quills, shorebirds, ducks, geese, swans, herons, grebes and loons.



# Human Use of Fish and Wildlife

# Map C1 MODES OF USER ACCESS

The modes of user access are important because they reflect user distribution patterns and density of use by consumptive and nonconsumptive users alike. Accessibility often means availability of fish and wildlife to the user.

The Modes of User Access map shows how access into the Planning Area is gained by various means: boat corridor, trail, road, highway, and airstrip. Lakes that are known to be big enough for boat planes, all airstrips, and river and lake boat pull-ins and put-outs are also shown. Sources for this map are: 1) the Susta Basin Land Use/Recreation Atlas (ADNR 1980), 2) the Northern Public Use Area Map (ADFG's unpublished Game Division), and 3) the Federal Aviation Administration Aeronautical Sectional, 1983.

# Maps C2a, b, c HUNTING EFFORT FOR MOOSE, CARIBOU, AND SHEEP IN THE SUSTINA PLANNING AREA, 1981

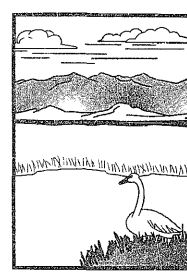
The locations in the planning area where Dall sheep, moose and caribou are hunted are depicted in Map C2a. The map shows the number of hunters for each species (see also Maps A3a, b, c). The Department has compiled information, by these code units, on number of hunters and number of hunter days. The units were ranked for each species by hunter days to determine those most heavily used. For each species, the top 70% most used units, 2) the top 80% most used units, and 3) the top 90% most used units. Each addition of a new shade conveys an additional 10% increment of the total days of hunter use per year. In general, the more accessible an area, the more use it gets by hunters.

# Map C3 SPORT FISHING - LOCATION, ACCESS, AND EFFORT

Map C3 depicts the angler days an important stream in the planning area. These streams are grouped into the following five general categories of fishing effort: 1) 0-500 angler days, 2) 501-1,000 angler days, 3) 1,001-5,000 angler days, 4) 5,001-10,000 angler days, and greater than 10,000 angler days. This specific number of days listed per selected stream can be found in Table 22 in Chapter 10, the Fish and Wildlife Element. The important streams depicted on the map were selected from those delineated by annual Sport Fish survey data and from Sport Fish Division area staff. Access to streams by different transportation methods is also depicted in Map C3.

# Map C4 LOCAL COMMUNITY RESOURCE USE AREAS

The ADF&G Planning Team was interested in the needs of all users in the planning area. One important group is the rural resident who hunts, traps, and fishes for personal consumption. For the user group, a significant portion of their livelihood is derived from fish and wildlife resources. The Subsistence Division has mapped Local Community Resource Areas (e.g. hunting, trapping, fishing, berry picking) of specific parts of the planning area. These areas are displayed in Map C4.

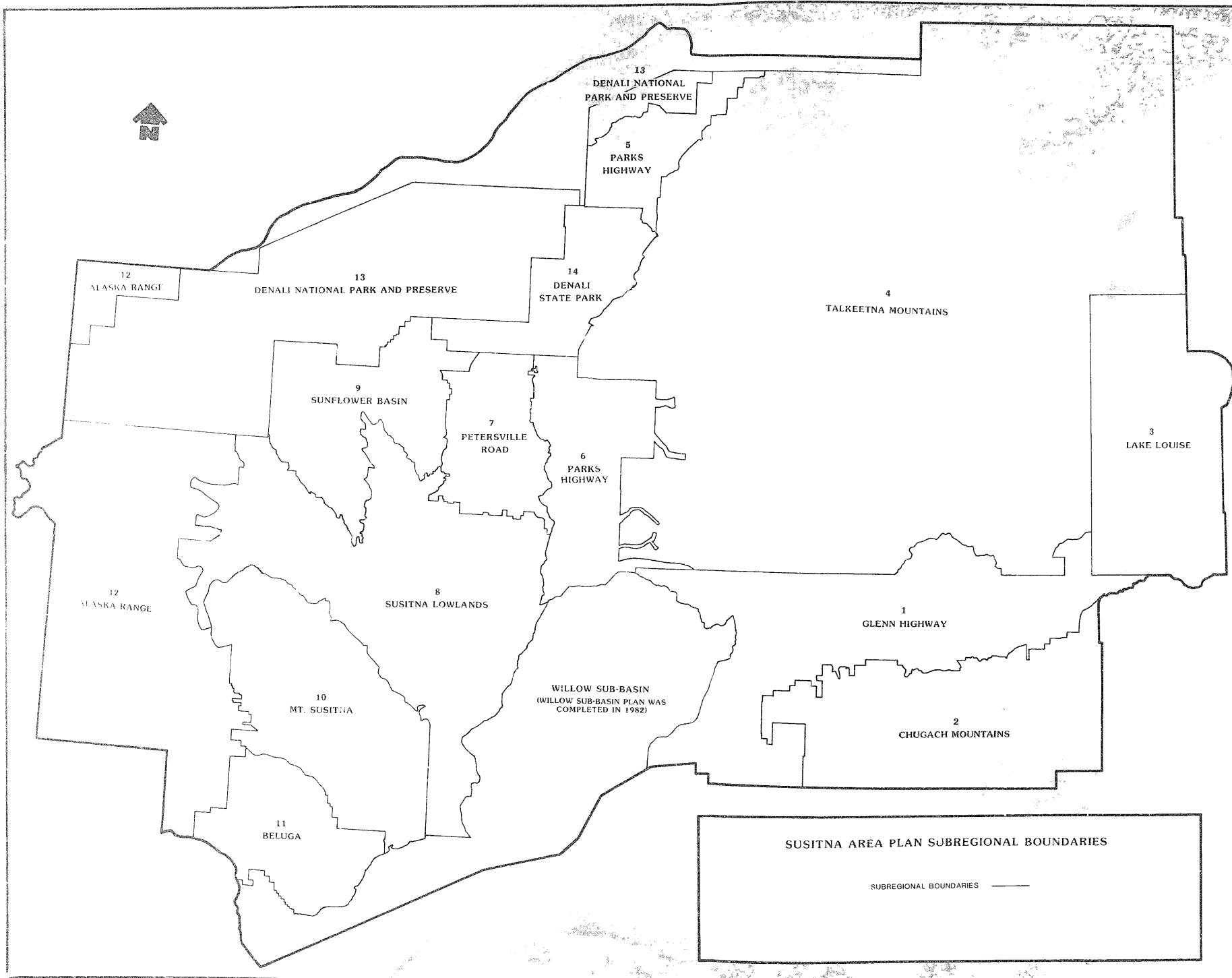


# Recommended Land Allocations Map C5 FISH AND WILDLIFE HABITAT LANDS

Fish and wildlife habitat lands are lands designated by the Department to be managed primarily or co primarily for wildlife. A) lands. All other lands can be managed for other or many purposes (B) lands, but with the interests of fish and wildlife taken into consideration. There are four categories of A) lands. A1 lands are most sensitive to disturbance, and their management should be restricted to single use for fish and wildlife. Examples of these lands are nesting sites of raptors and trumpeter swans, brown bear dens, and caribou calving areas. A2 habitat consists of lands that are to be managed primarily for wildlife, with only a few other uses, such as recreation, being compatible. Examples of these lands are caribou and moose summer range, and habitat with moderate species diversity. A3 lands are lands that, if logged or burned, will allow easier successional stages of vegetation to grow that are important for moose forage. These lands are to be managed co primarily for wildlife, with additional uses being compatible. Class B) lands are lands that have low to moderate fish and wildlife habitat values. Multiple use is emphasized in B) lands, provided these uses follow the recommended ADF&G guidelines and best wildlife management practices.

# Map C6 FISH AND WILDLIFE AREAS MERITING LEGISLATIVE CONSIDERATION FOR SPECIAL MANAGEMENT

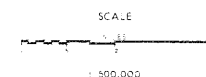
Ten stream corridors and nine wildlife land units were considered to be the most important areas by the ADF&G for special legislative designation. These areas represent 1) habitats which support one or more necessary functions in the life cycle of valued species, 2) areas which have a present or historical abundance of fish and wildlife and which are heavily used by the public, 3) corridors of land or water which support high amounts of public use, 4) areas where manipulation of the habitat could maintain or increase fish and wildlife populations, 5) areas needing protection to preserve the existing abundance and/or distribution of an uncommonly large or unique assemblage of wildlife, 6) areas that need protection or restoration in order to propagate fish and wildlife species which are in danger of extinction, now, or in the future.



# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

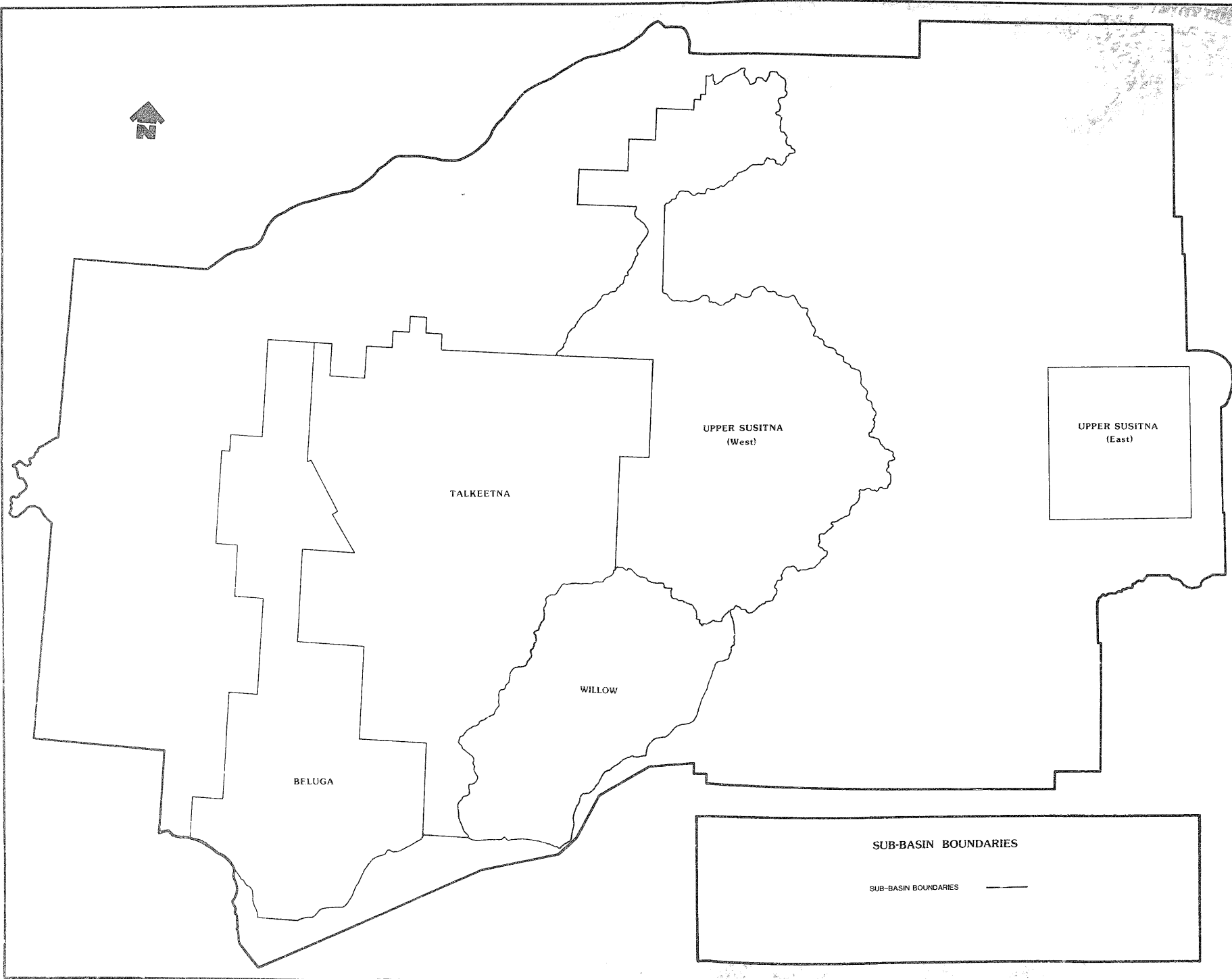
Based on USGS 25 and 100 foot  
Aerial Photographs, 1978-1980



## SOURCES

ALASKA DEPARTMENT OF NATURAL RESOURCES  
Division of Land and Water Management, 1983

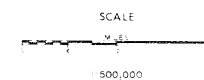
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# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS and USFS maps  
of vertical, horizontal, and vertical projection



## SOURCES

U.S. DEPT. OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
(SUSITNA BASIN STUDY 1982)

Reviewed	KAC
Compiled	N/A
Designed	KAC
Approved	KAC
Checked	
Entered	
Reviewed	

DATE	BY

REVISIONS



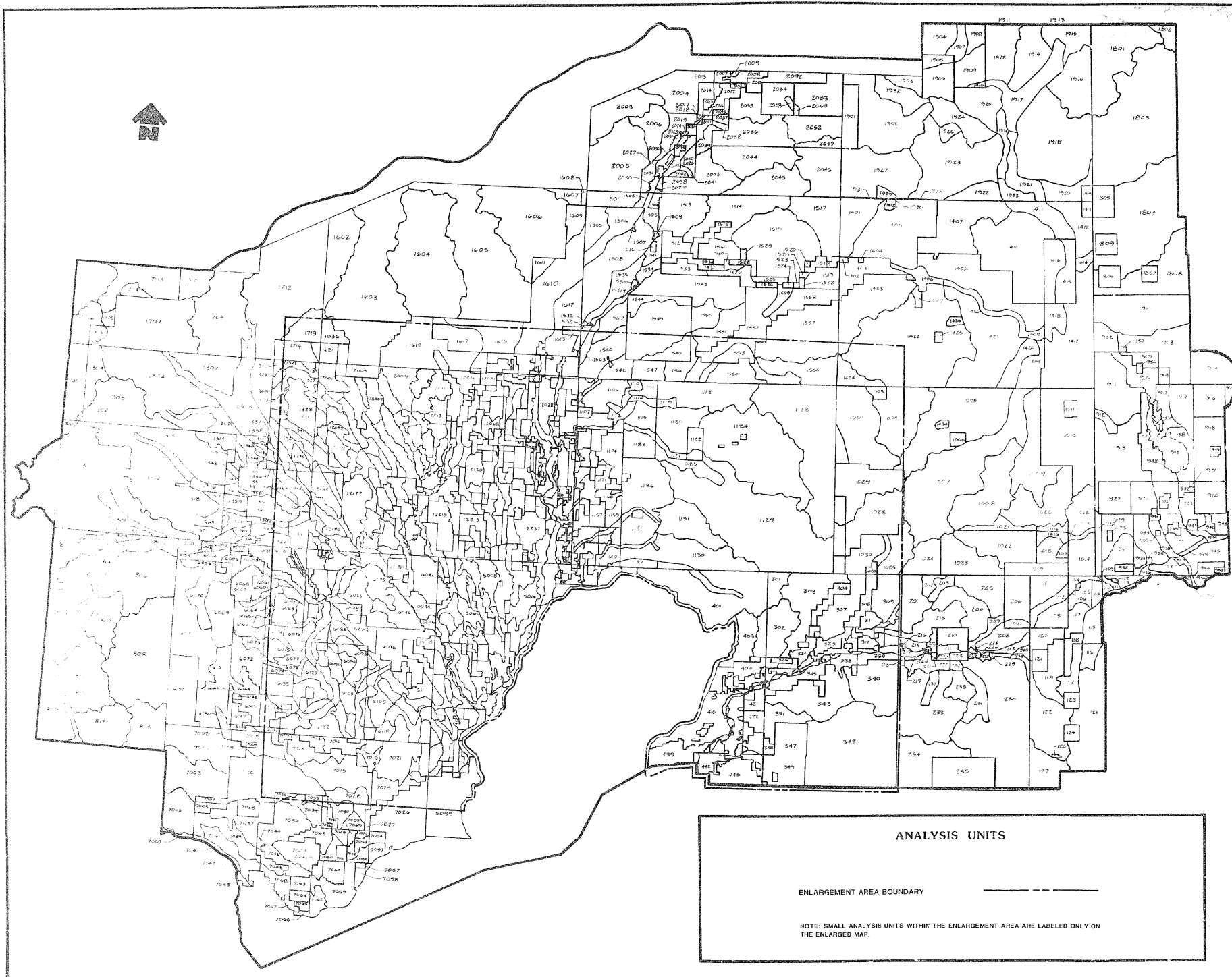
STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
JUNEAU, ALASKA



LOCATION MAP

MAP NO.

A 1b



# SUSITNA BASIN AREA PLAN

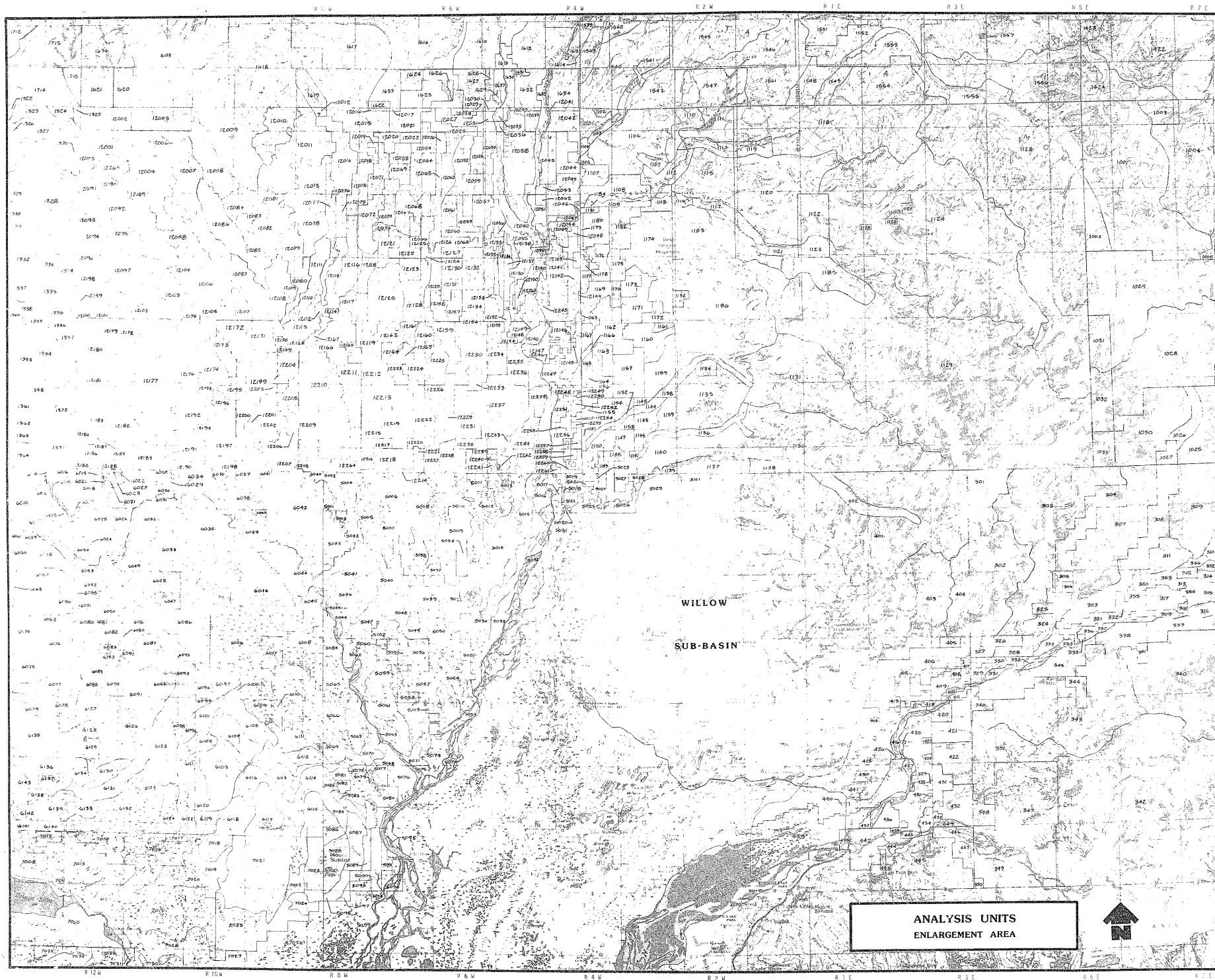
FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 1:50,000 maps  
NATIONAL TRANSDRUSE MEDIATION PROJECT

SCALE  
1:500,000

**SOURCES**  
ALASKA DEPT. OF NATURAL RESOURCES  
DIV. OF RESEARCH AND DEVELOPMENT  
1982

REVISION	DATE	BY
1	3/83	JW
2	4/83	JW
3	5/83	JW
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# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 6.5 and USGS maps.  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE  
MILES  
1: 250,000

## SOURCES

ALASKA DEPT. OF NATURAL RESOURCES  
(DIV. OF RESEARCH AND DEVELOPMENT, 1982)

Requested	RLC	DATE	BY
Compiled			
Drafted			
Approved			
Digitized			
Edited			
Archived			
BY			
REVISIONS			



STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
JUNEAU, ALASKA



MAP NO.  
A 2b

ANALYSIS UNITS  
ENLARGEMENT AREA



# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 7.5' and USGS maps.  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE  
MILES  
1:500,000

## SOURCES

INTERPRETATION OF ALPHABETICAL LISTING  
OF MOOSE HARVEST REPORT CODE UNITS  
(STATISTICS SECTION, GAME DIVISION,  
INTERPRETATION BY DIMITRI BADER,  
GREG BOB, AND JACK DORRICKSON, 1983)

Requested	ALC	DATE	BY
Compiled	HB PR/GTD		
Drafted	FR		
Approved	ALC		
Digitized			
Edited			
Archived			
	BY		REVISIONS



STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
JUNEAU, ALASKA



MAP NO.

A3a

## MOOSE HARVEST REPORT CODE UNITS (1980)

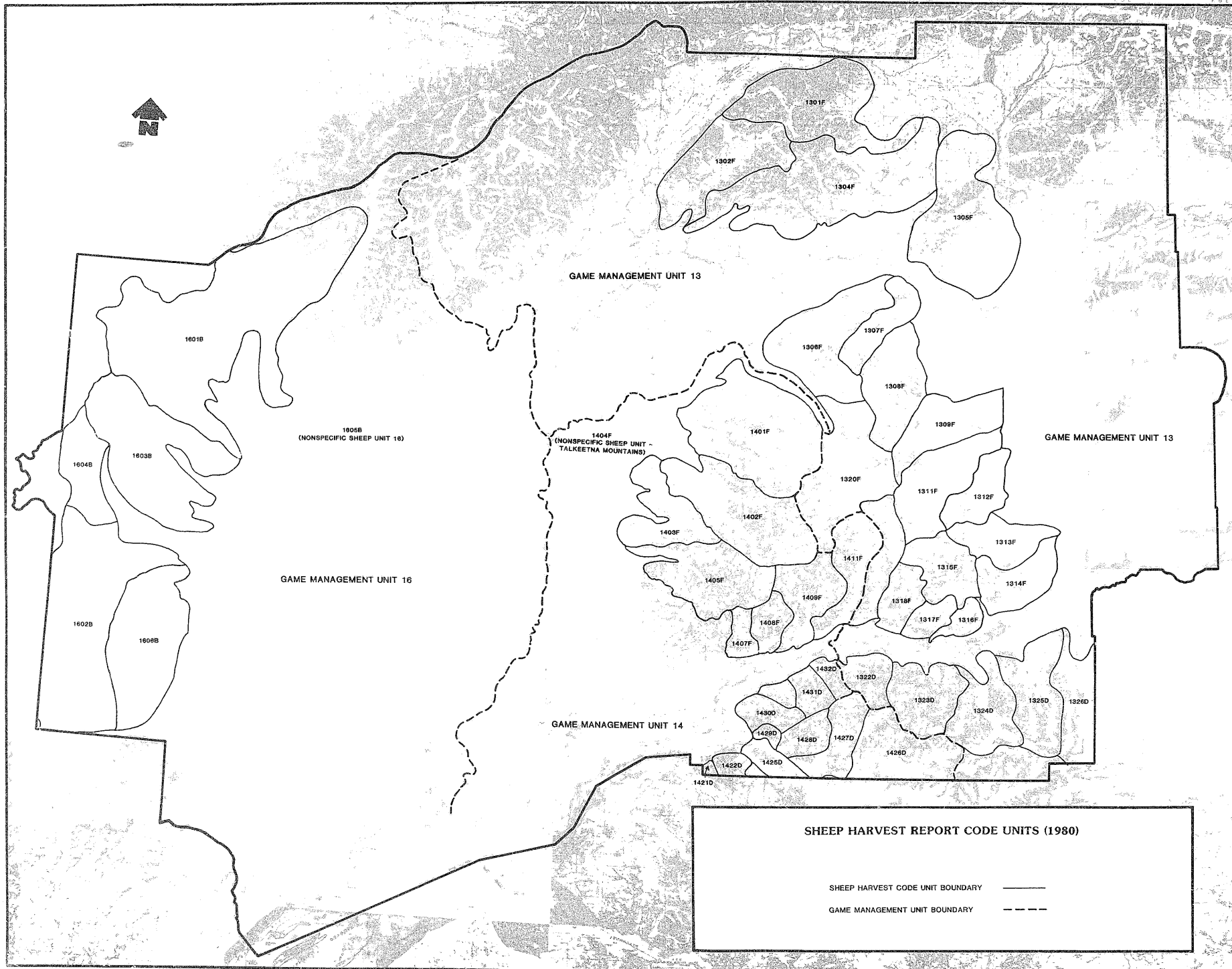
MOOSE HARVEST REPORT CODE UNITS BOUNDARY

\* NO HARVEST REPORT UNIT CODES ASSIGNED

BOUNDARIES FOR MOOSE HARVEST CODE UNITS IN GAME MANAGEMENT UNIT 13 WERE BASED ON  
CARIBOU HARVEST CODE UNIT BOUNDARIES FOR GAME MANAGEMENT UNIT 13.

WILLOW SUB-BASIN





# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 6 & 7.5 and USGS maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE  
0 5 10 20  
MILES  
1:500,000

## SOURCES

INTERPRETATION OF ALPHABETICAL LISTING  
OF SHEEP HARVEST REPORT CODE UNITS  
(STATISTICS SECTION, GAME DIVISION,  
INTERPRETATION BY DIMITRI BADER AND  
GREG BGS-1983)

Requested *RLC*  
Compiled *DB, GB*  
Drafted *FRI*  
Approved *RLC*  
Digitized  
Edited  
Archived

DATE	BY

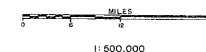
REVISIONS



MAP NO.  
**A3c**

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

SCALE



ALASKA'S WILDLIFE AND HABITAT  
(STATE OF ALASKA DEPT. OF FISH AND GAME  
1974)  
(DIMITRI BADER PARTIALLY REVISED  
INFORMATION FROM MAPS IN  
ALASKA'S WILDLIFE AND HABITAT, 1983.)

Requested	RLC	DATE	
Compiled	FRI		
Drafted	FRI		
Approved	RLC <i>copy</i>		
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Edited			
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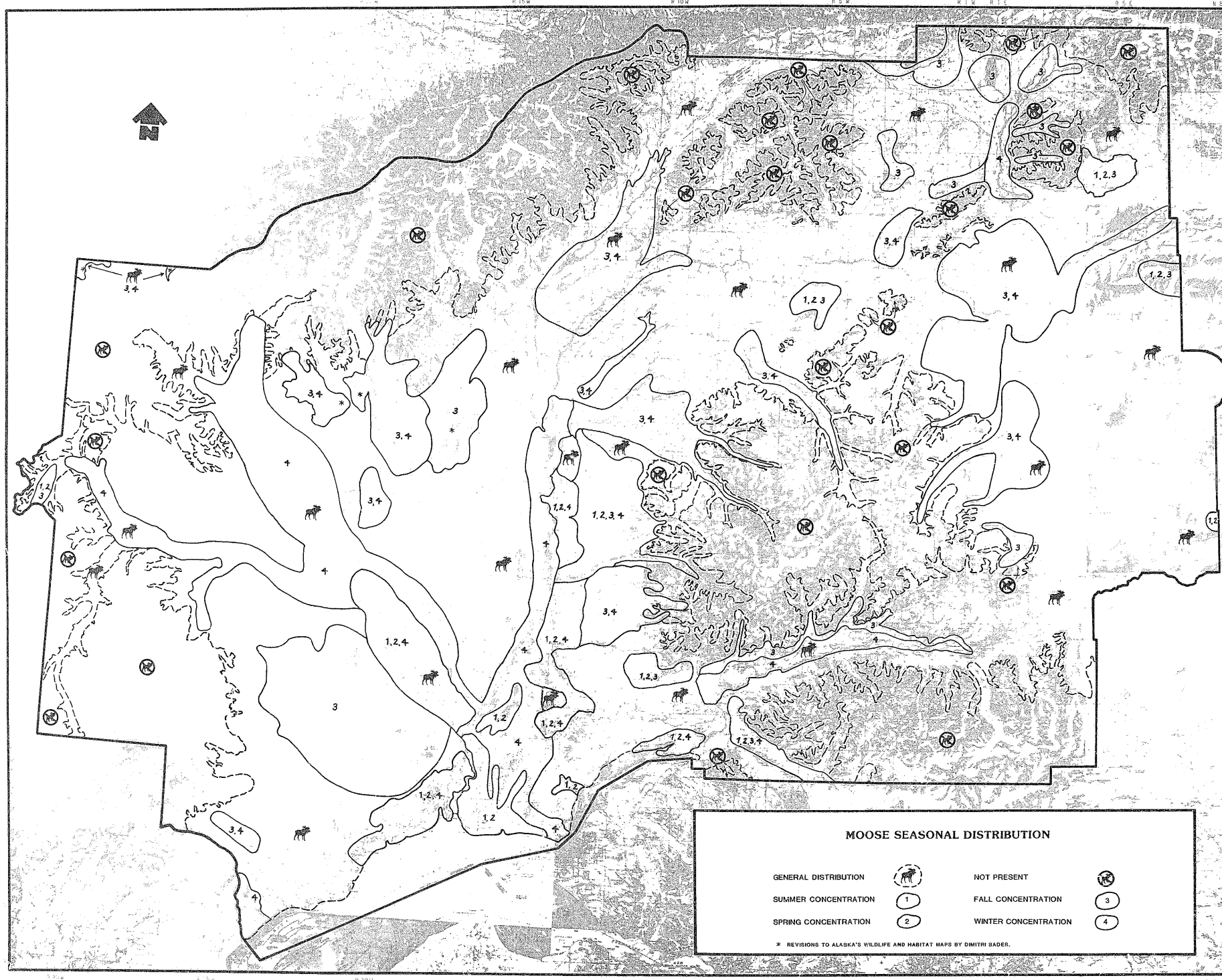


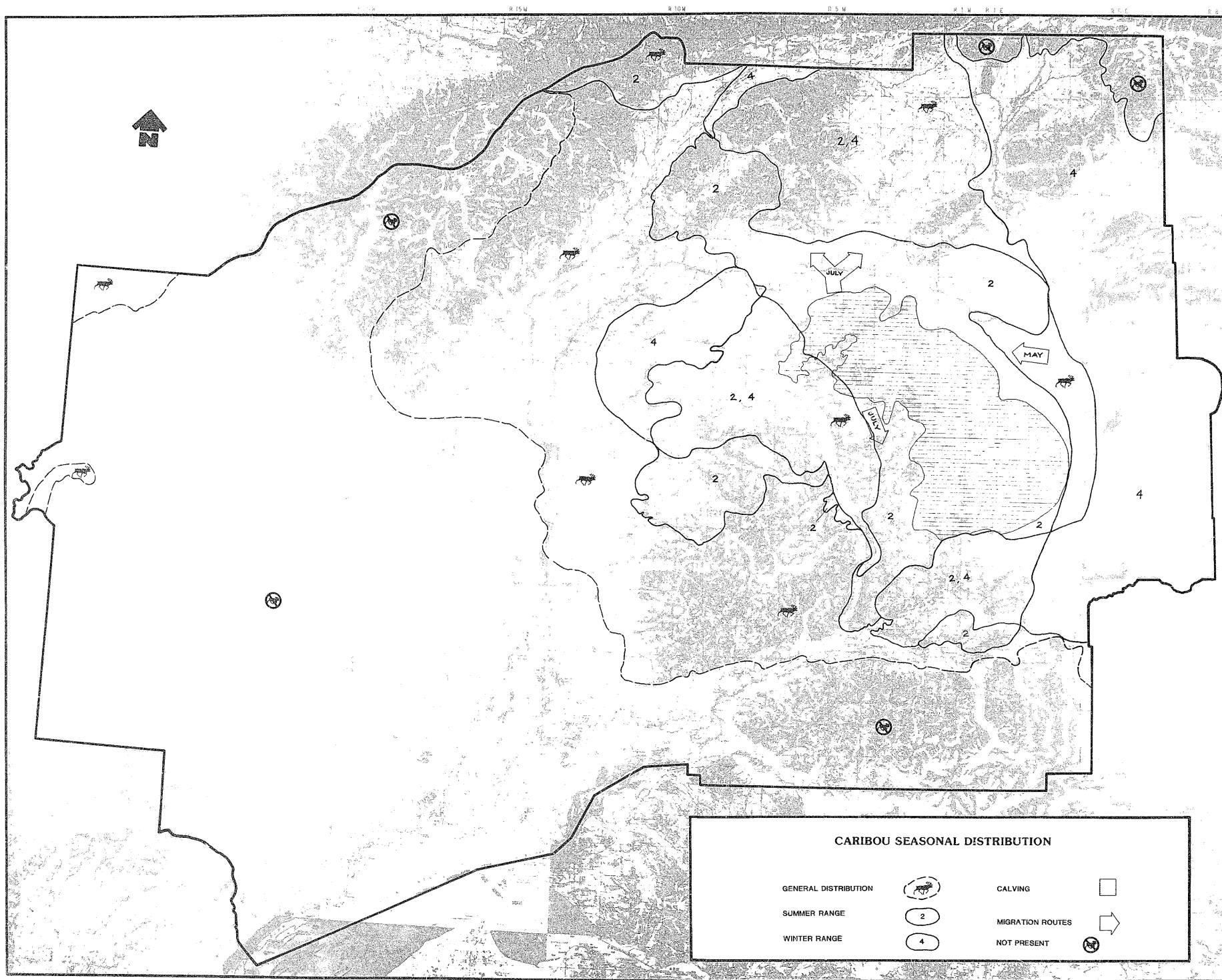
STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
JUNEAU, ALASKA



MAP NO.

B 1





# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS & CS and USGS maps.  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE  
MILES  
1:500,000

## SOURCES

ALASKA'S WILDLIFE AND HABITAT  
(STATE OF ALASKA DEPT. OF FISH AND GAME  
1974)

Requested	<i>RIC</i>	DATE	BY
Compiled	<i>CP</i>		
Drafted	<i>CP</i>		
Approved	<i>RIC</i>		
Digitized	<i>CP</i>		
Edited			
Archived			
	BY		
REVISIONS			



STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
JUNEAU, ALASKA



LOCATION MAP

MAP NO.

B2

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 1:50,000 and 1:25,000 maps  
NAD83, UTM, U.S. BASE MEASUREMENT PROJECTION

SCALE

YES

1:500,000

## SOURCES

ALASKA'S WILDLIFE AND HABITAT  
STATE OF ALASKA DEPT OF FISH AND GAME  
1974)

Dec-01/92 RLC  
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C... CP  
C... RLC  
C...  
C...  
C...  
C...

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REVISION

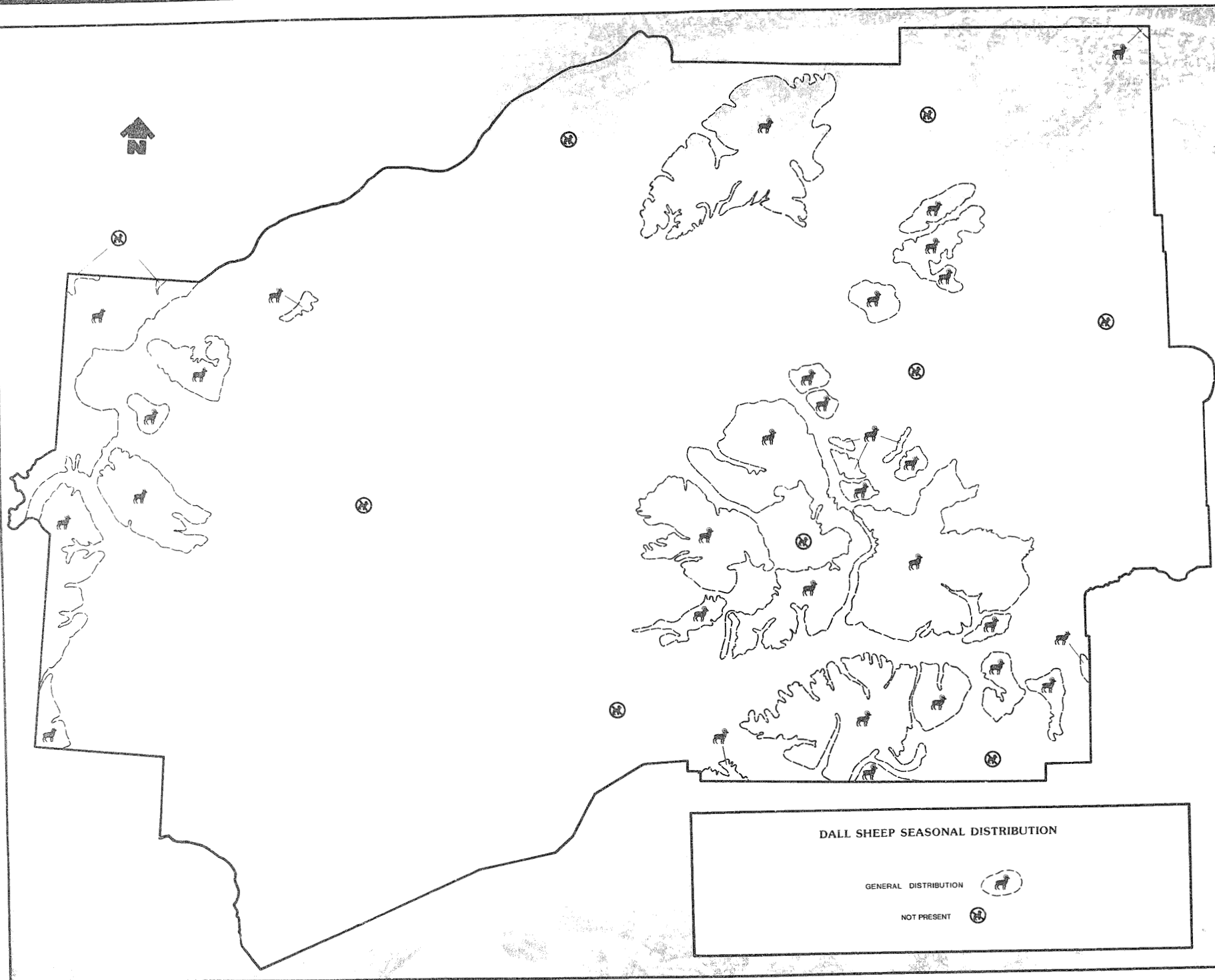


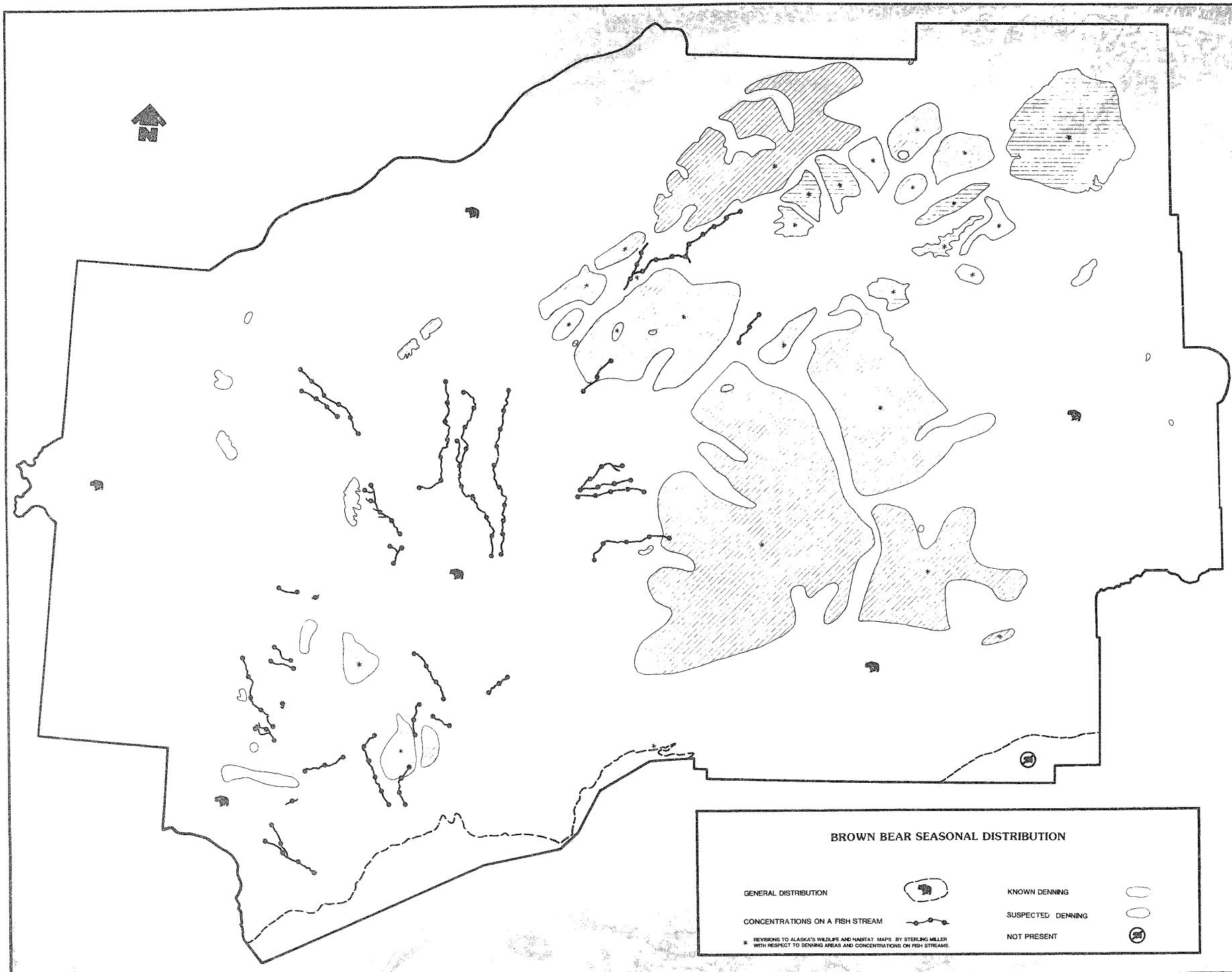
STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
Juneau, Alaska



MAP NO.

B 3





# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 60 and 100 maps  
1:50,000, TRANSPOSE PROJECT, INC.

SCALE  
0 10 20  
1:500,000

## SOURCES

ALASKA'S WILDLIFE AND HABITAT  
(STATE OF ALASKA DEPT. OF FISH AND GAME,  
1974)  
(STERLING MILLER PARTIALLY REVISED  
INFORMATION FROM MAPS BY ALASKA'S  
WILDLIFE AND HABITAT WITH RESPECT  
TO DENNING AREAS AND CONCENTRATIONS  
ON FISH STREAMS, 1983)

Received	ARC	DATE	BY
Compiled	ARC		
Checked	ARC		
Reviewed	ARC		
Digitized	ARC		
Entered	ARC		
Approved	ARC		
REVISIONS			



MAP NO.

B4

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

SCALE



1: 500.000

ALASKA'S WILDLIFE AND HABITAT  
(STATE OF ALASKA DEPT. OF FISH AND GAME,  
1974)  
(STERLING MILLER PARTIALLY REVISED  
INFORMATION FROM MAPS IN ALASKA'S  
WILDLIFE AND HABITAT WITH RESPECT TO  
INTENSIVE USE AREAS, 1943.)

Received *RAC*  
Comp ed *CP*  
Drafted *CP*  
Approved *RAC* *LM*  
Dated  
Entered  
Archived

DATE BY

1. The first step is to identify the key components of the system. This includes understanding the hardware, software, and data involved. The next step is to define the requirements for the system, including performance, security, and scalability. Once the requirements are defined, the next step is to design the system architecture. This involves determining the overall structure of the system, including the components and their interactions. The final step is to implement the system, which involves writing the code and configuring the hardware. Once the system is implemented, it is important to test it thoroughly to ensure it meets the requirements and is secure.

## REVISIONS

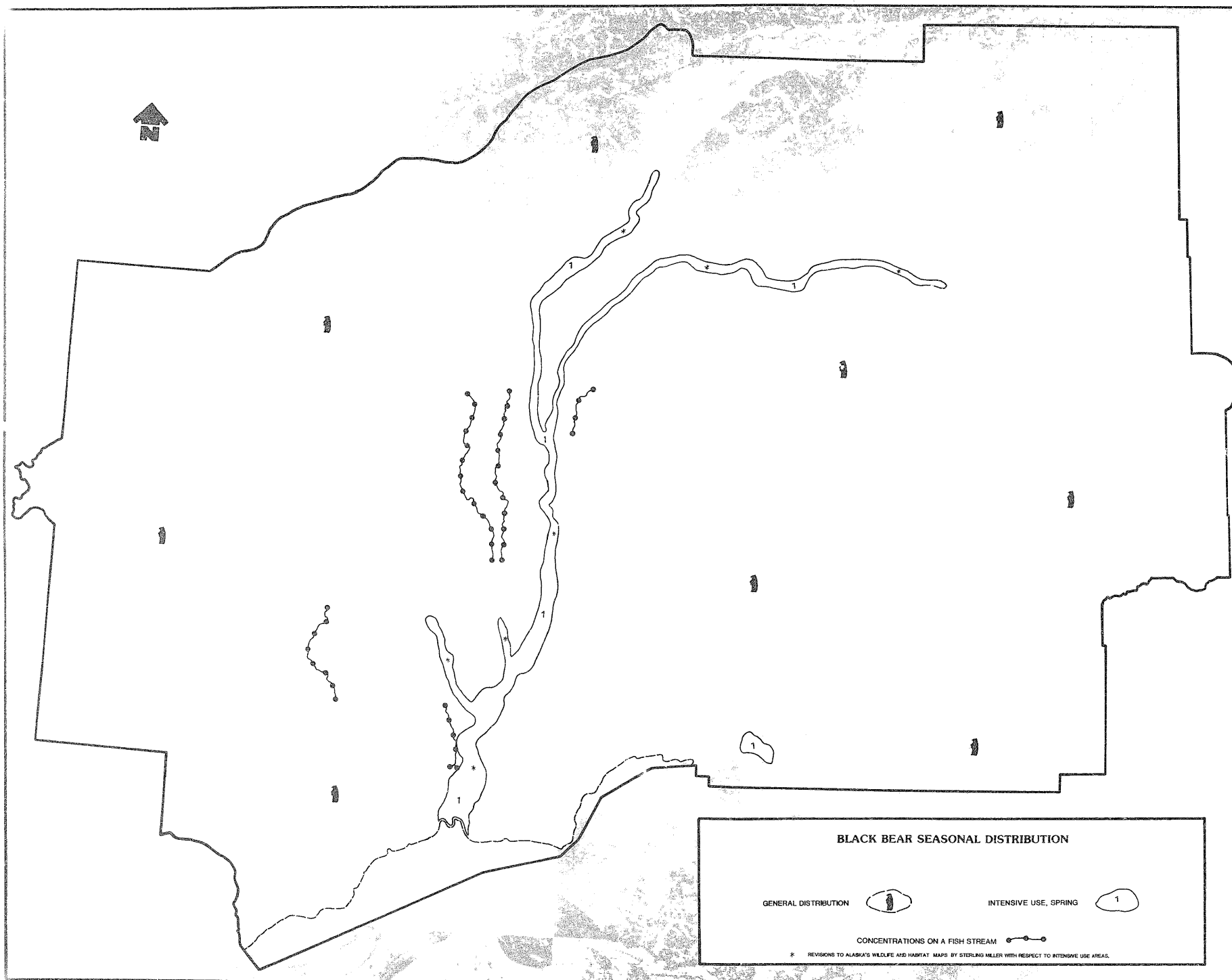


STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
JUNEAU, ALASKA



MAP NO.

B5



# SUSITNA BASIN AREA PLAN

## FISH AND WILDLIFE ELEMENT JUNE 1983

Based on USGS and USGS maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECT ON

SCALE  
MILES  
0 10 20  
1:500,000

### SOURCES

ALASKA'S WILDLIFE AND HABITAT VOL. I & II  
(STATE OF ALASKA DEPT. OF FISH AND GAME, 1974)  
CATALOG OF ALASKAN SEABIRD COLONIES  
FISH AND WILDLIFE SERVICE, DEC. 1979  
FISH AND WILDLIFE RESOURCES IN THE PROPOSED  
LEASING AREA IN SO ALASKA DEPT. OF FISH  
AND GAME, HABITAT DIVISION, MARINE AND  
COASTAL HABITAT MANAGEMENT, DEC. 1982  
FIELD NOTES (RICHARD MUESSER, 1978-1982)  
TECHNICAL REPORT WILDLIFE OPERATIONS  
(U.S. FISH AND WILDLIFE SERVICE,  
INTERWANDER AND PATTEN, 1983)  
INFORMATION PAMPHLET ST. MAT-SU AUDUBON  
SOCIETY, MICHAEL BRONSON, 1982  
D. BERGEN MEMO, 1983

Requested R.C.  
Compiled P.B. FR.  
Drafted F.B.  
Approved P.B. DEARY  
Digitized  
Edited  
Archived B.

DATE BY  
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REVISIONS

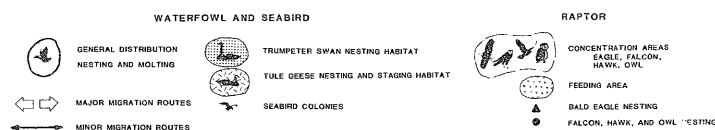


STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
JUNEAU, ALASKA



MAP NO.  
**B 6**

### WATERFOWL, SEABIRD, AND RAPTOR SEASONAL DISTRIBUTION

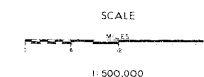




# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 7.5 and 15 minute maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION



## SOURCES

ANADROMOUS WATERS CATALOG 1983  
(ALASKA DEPARTMENT OF FISH AND GAME,  
1983)

Reviewed RIC  
Compiled CP  
Digitized CP  
Revised RIC  
Digitized  
Entered  
Approved

DATE	BY

REVISIONS



STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
ANCHORAGE, ALASKA



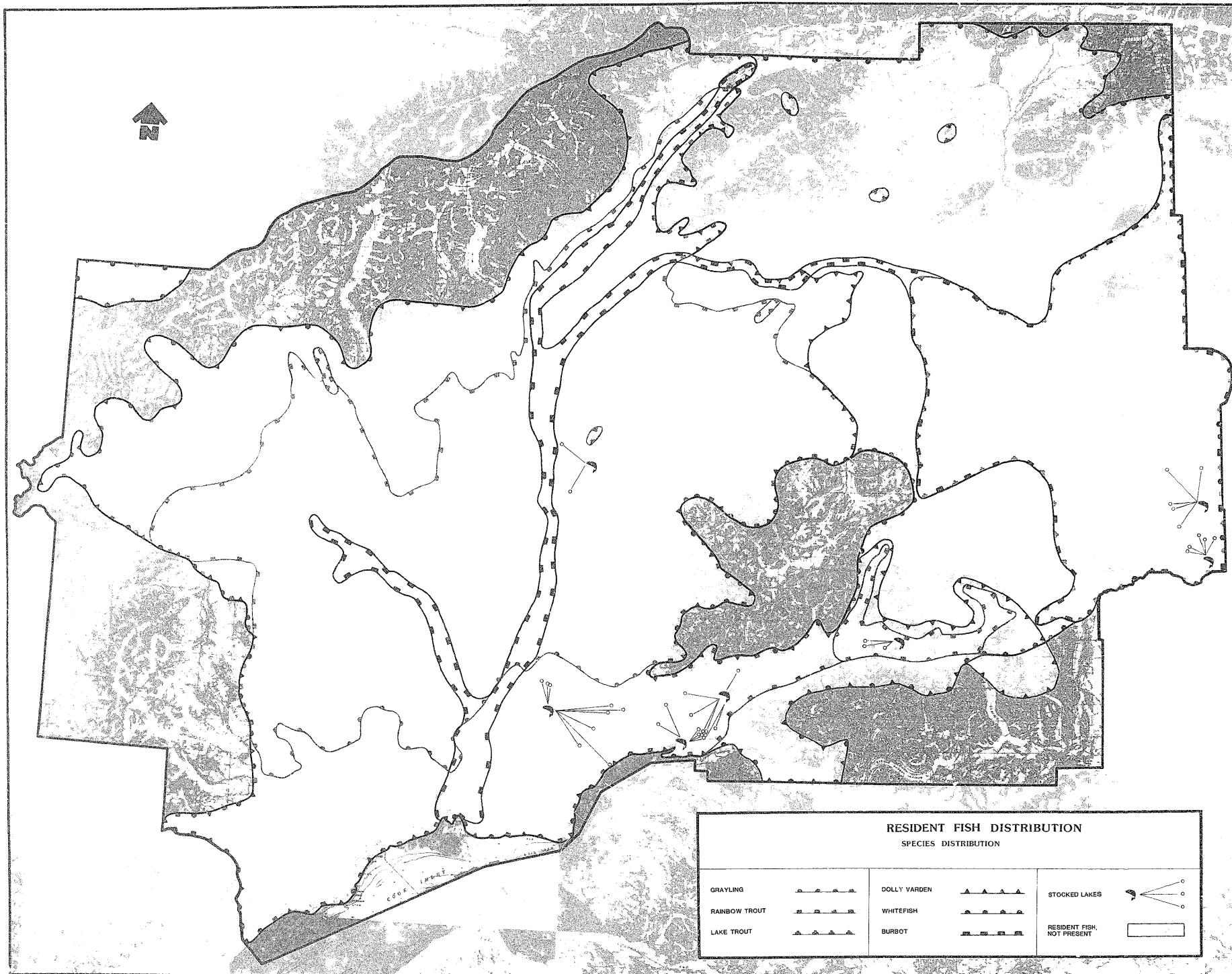
MAP NO.

**B7**

## ANADROMOUS FISHERIES

GENERAL DISTRIBUTION

SHOWING SPAWNING, REARING, AND MIGRATION OF:  
DOLLY VARDEN, ARCTIC CHAR, SHEEFISH, WHITEFISH, CUTTHROAT TROUT, STEELHEAD TROUT AND  
SOCKEYE, KING, COHO, PINK, AND CHUM SALMON.



# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 7.5' and 15' maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE  
0 5 10 15 20 24  
MILES  
1:500,000

## SOURCES

ALASKA'S FISHERIES ATLAS, VOLUME II  
(ALASKA DEPT. OF FISH AND GAME, 1978)  
(DELANEY, K.J., PLRS COMM, 1983)

Reviewed	DATE	BY
Completed	6/1/83	...
Digitized	...	...
Approved	6/1/83	...
Digitized	...	...
Entered	...	...
Completed	6/1/83	...
REVISIONS		



STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
HABITAT DIVISION  
ANCHORAGE, ALASKA



MAP NO.

B8

## RESIDENT FISH DISTRIBUTION SPECIES DISTRIBUTION

GRAYLING



RAINBOW TROUT



LAKE TROUT



DOLLY VARDEN



WHITEFISH



BURBOT



STOCKED LAKES



RESIDENT FISH  
NOT PRESENT



# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 7.5 and 15 minute maps  
TRANSVERSE MERCATOR PROJECTION

SCALE



1:500,000

## SOURCES

U.S. FISH AND WILDLIFE SERVICE,  
WESTERN ALASKA ECOLOGICAL SERVICES  
(ANN RAPPOPORT, UNPUBLISHED REPORT, 1981)  
U.S. FISH AND WILDLIFE SERVICE  
(GREG KONKEL et al, 1979,  
HABITAT EVALUATION PROCEDURES)  
SOIL CONSERVATION SERVICE  
(DEVONY LEHNER, PERSONAL  
COMMUNICATION, 1983)

Requested	DATE	BY
Completed		
Drafted		
Approved		
Digitized		
Edited		
Approved		
REVISIONS		

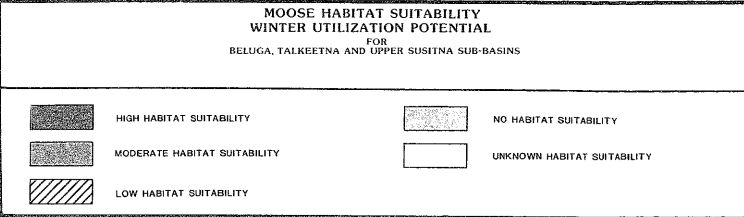
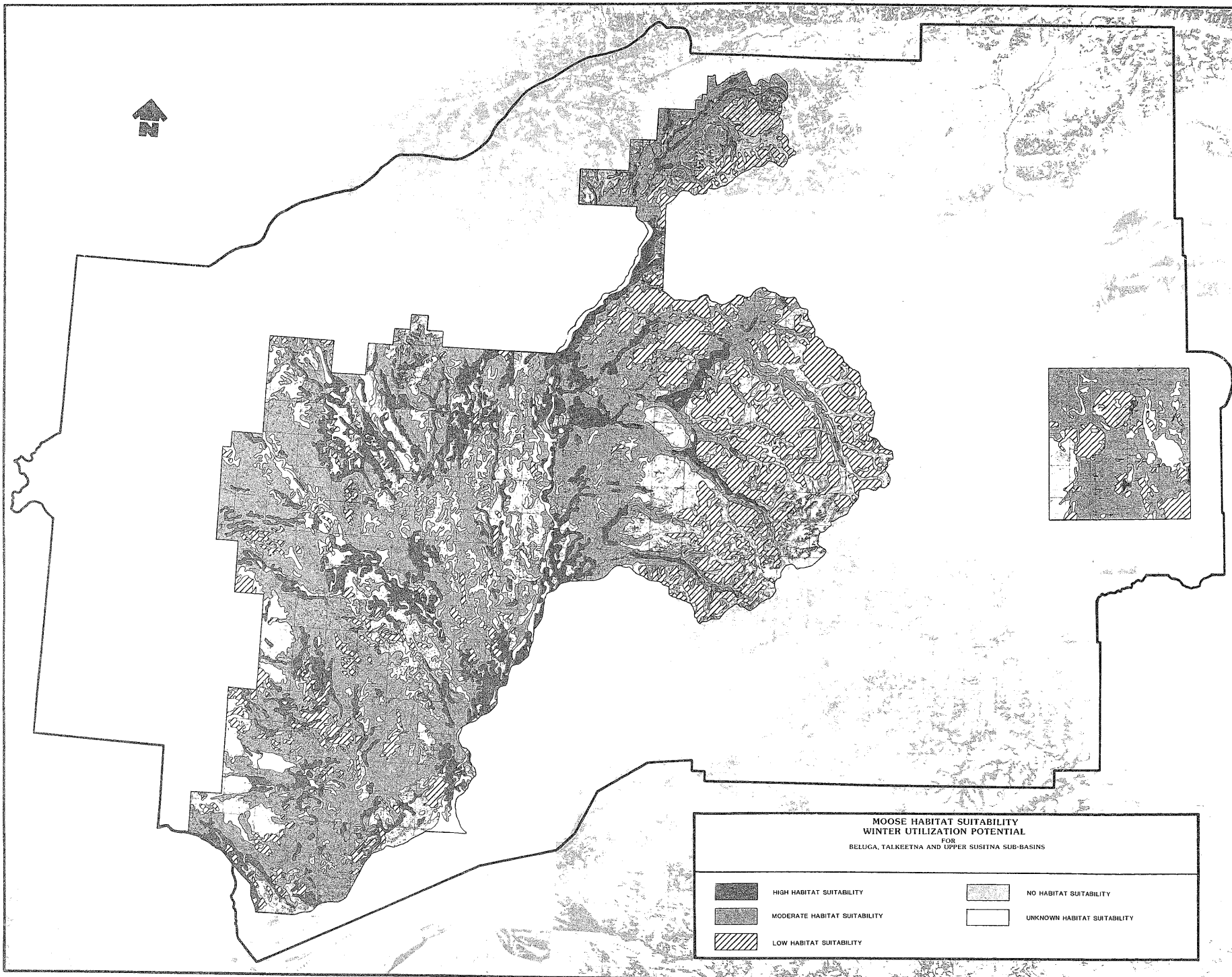


MAP NO.

B 9a

## MOOSE HABITAT SUITABILITY SPRING, SUMMER AND FALL UTILIZATION POTENTIAL FOR BELUGA, TALKEETNA AND UPPER SUSITNA SUB-BASINS

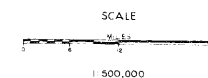




# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS and USFS maps  
INVERTED TRANSVERSE MERCATOR PROJECTION



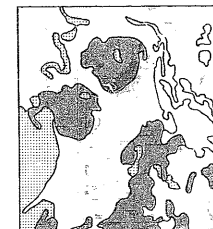
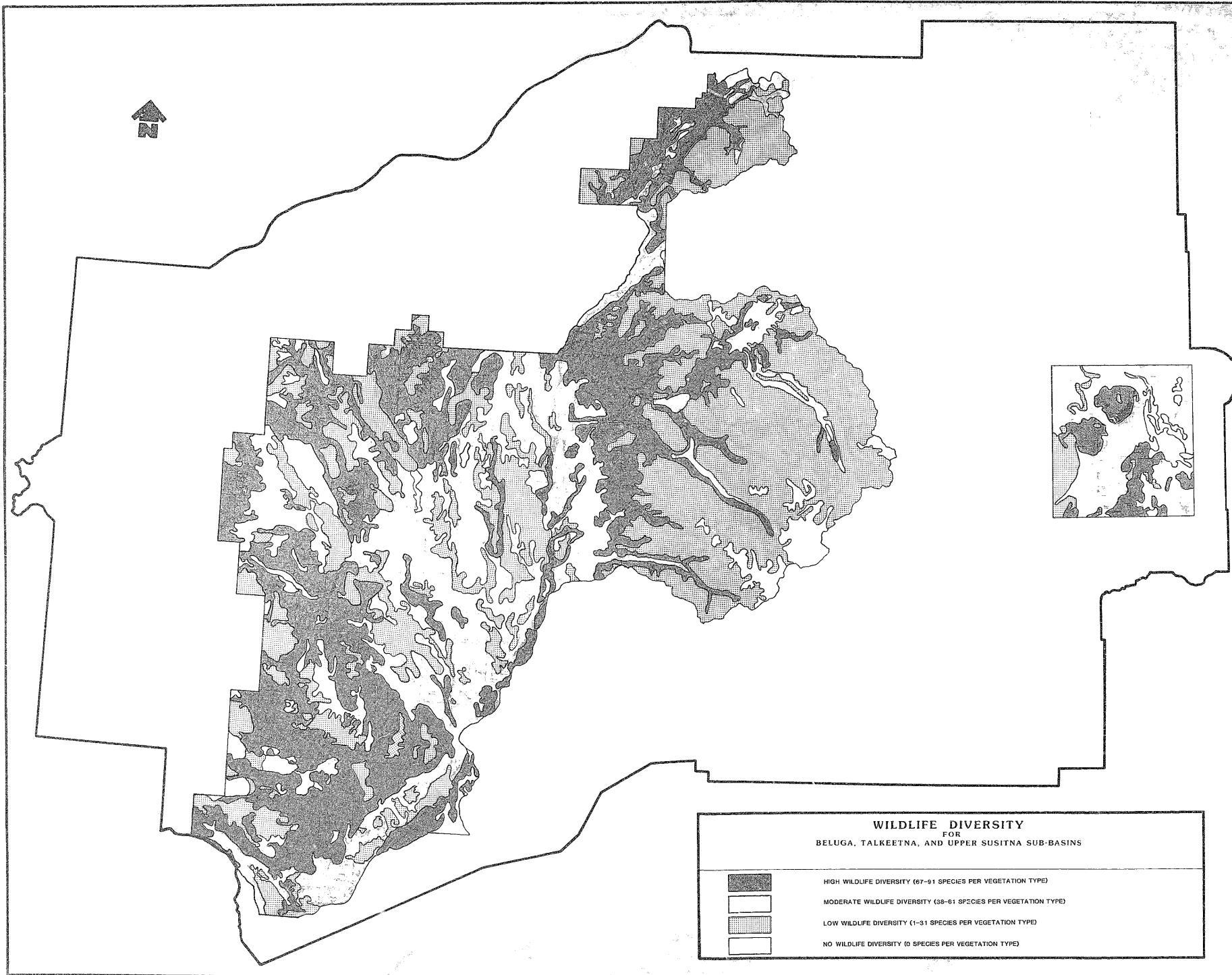
## SOURCES

U.S. FISH AND WILDLIFE SERVICE,  
WESTERN ALASKA ECOLOGICAL SERVICES  
(ANN HAPFORD, UNPUBLISHED REPORT, 1981.)  
U.S. FISH AND WILDLIFE SERVICE  
(GREG KONKEL, et al, 1979,  
HABITAT EVALUATION PROCEDURES.)  
SOIL CONSERVATION SERVICE  
(DEVON LEHNER, PERSONAL  
COMMUNICATION, 1983.)

Requested	6/1/83	DATE	BY
Completed			
Drafted	6/1/83		
Approved	6/1/83		
Digitized			
Edited			
Archives			
	BY		
REVISIONS			



MAP NO.  
**B 9b**



# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 7.5 and 15 minute maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE  
Miles  
1:500,000

## SOURCES

PAT BAIRD AND  
DAN ROSENBERG  
HABITAT DIV. 1983  
JOHN WESTLUND  
GAME DIVISION 1983  
PAUL ARMSTRONG  
ALASKA DEPT. OF FISH AND GAME  
ANCHORAGE, ALASKA  
1983  
USDA SOIL CONSERVATION SERVICE, 1982  
BIRDS OF ALASKA BY R. ARMSTRONG, 1960  
BIRDS OF CANADA BY W. EARL GODFREY, 1966  
BIRDS OF ALASKA BY J. A. N. GIBBSON AND  
F. C. LINCOLN, 1985

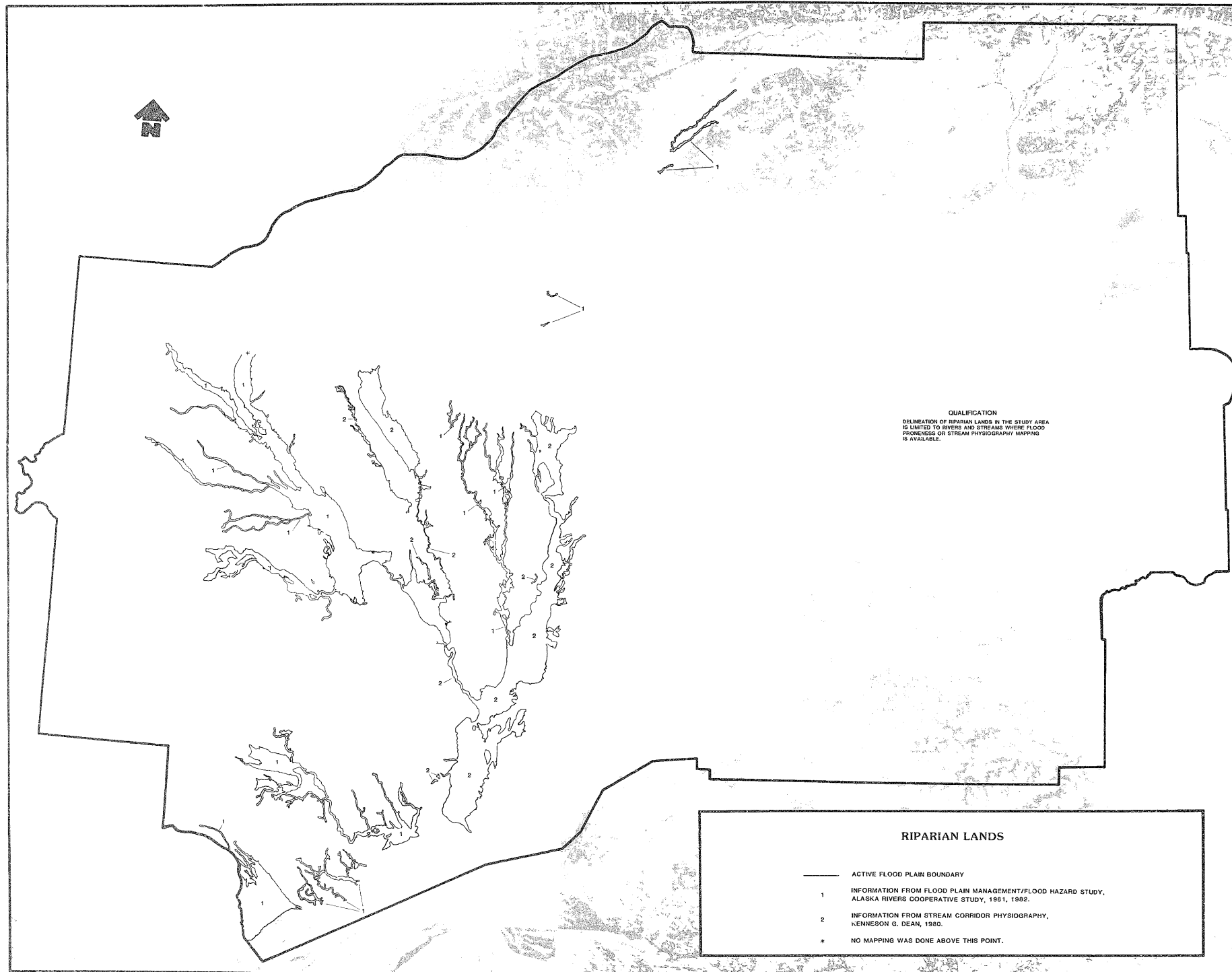
Reviewed	DATE	BY
Completed	18	
Drafted	new	
Approved	18	cmg
Drafted		
Revised		
Approved	81	
REVISIONS		



## WILDLIFE DIVERSITY FOR BELUGA, TALKEETNA, AND UPPER SUSITNA SUB-BASINS

	HIGH WILDLIFE DIVERSITY (67-91 SPECIES PER VEGETATION TYPE)
	MODERATE WILDLIFE DIVERSITY (38-61 SPECIES PER VEGETATION TYPE)
	LOW WILDLIFE DIVERSITY (1-31 SPECIES PER VEGETATION TYPE)
	NO WILDLIFE DIVERSITY (0 SPECIES PER VEGETATION TYPE)

MAP NO.  
B 11



# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 8 1/2 inch x 11 inch maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE  
1:500,000

## SOURCES

FLOOD PLAIN MANAGEMENT/FLOOD HAZARD STUDY,  
ALASKA RIVERS COOPERATIVE STUDY,  
U.S. DEPARTMENT OF AGRICULTURE,  
SOIL CONSERVATION SERVICE,  
ECONOMIC RESEARCH SERVICE,  
FOREST SERVICE, 1981 AND 1982

STREAM CORRIDOR PHYSIOGRAPHY OF THE  
SUSITNA RIVER VALLEY, ALASKA  
(KENNEDY G. DEAN, 1980)

DATE	BY
Revised 1/83	
Completed 4/83	FR1
Drafted 4/83	FR1
Approved 4/83	WLF, CWF
Drafted 4/83	
Edited 4/83	
Reviewed 4/83	

REVISIONS



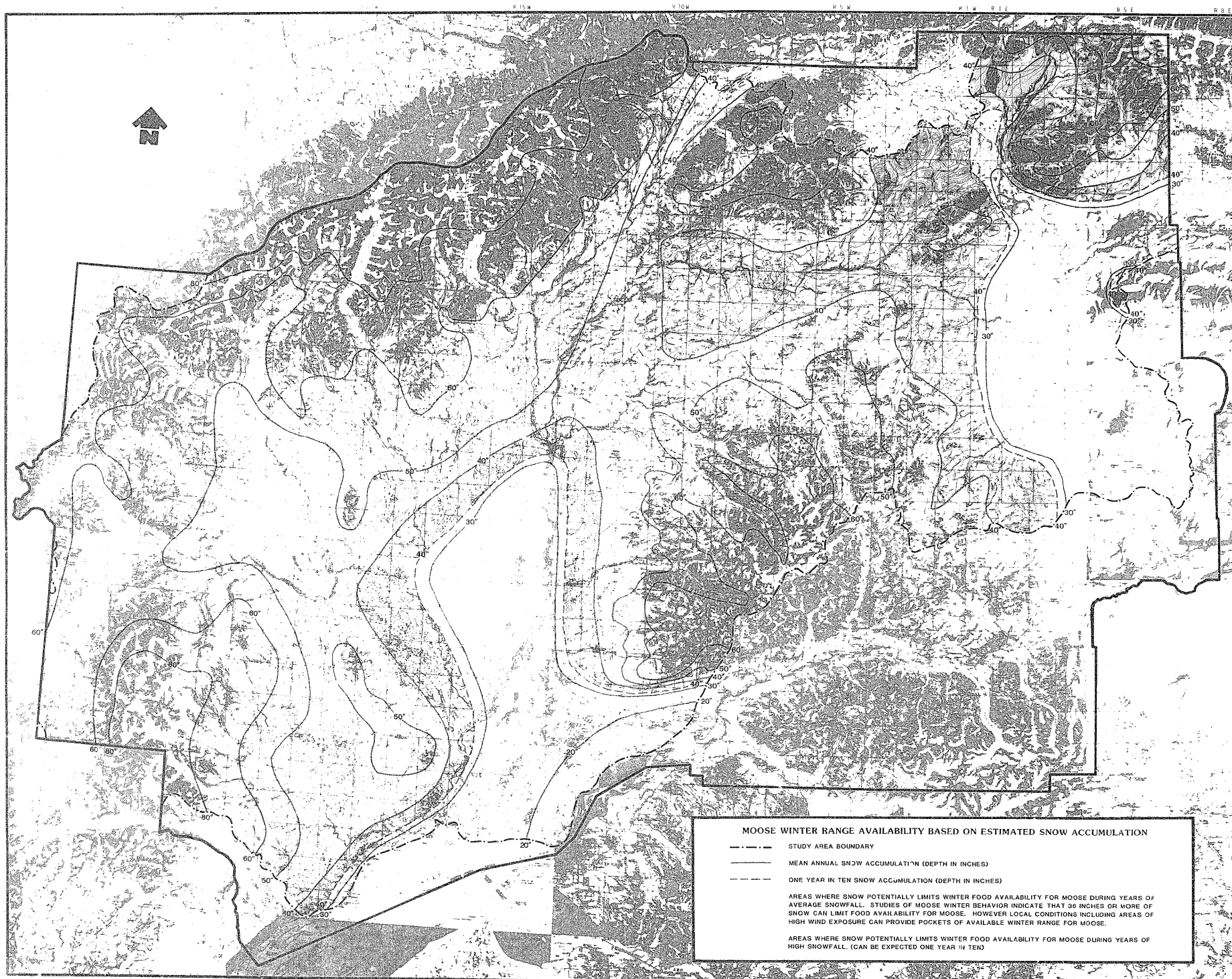
LOCATION MAP

MAP NO.

B 12

## RIPARIAN LANDS

- ACTIVE FLOOD PLAIN BOUNDARY
- 1 INFORMATION FROM FLOOD PLAIN MANAGEMENT/FLOOD HAZARD STUDY,  
ALASKA RIVERS COOPERATIVE STUDY, 1981, 1982.
- 2 INFORMATION FROM STREAM CORRIDOR PHYSIOGRAPHY,  
KENNEDY G. DEAN, 1980.
- \* NO MAPPING WAS DONE ABOVE THIS POINT.



# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS and USGS maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE

1:500,000

## SOURCES

U. S. DEPT. OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
J. EVAN MERRILL, HYDRAULIC ENGINEER  
INFLUENCE OF SNOW ON BEHAVIOR OF MOOSE  
NAT. CAN. 101.117-436. (JOHN COADY, 1974)

Requested	P.C.	DATE	BY
Compiled			
Drafted	FR1		
Approved	P.C.		
Digitized			
Entered			
Archives			
	BY		
		REVISIONS	



HABITAT DIVISION  
JUNEAU, ALASKA



MAP NO.

B13

## MOOSE WINTER RANGE AVAILABILITY BASED ON ESTIMATED SNOW ACCUMULATION

- STUDY AREA BOUNDARY
- MEAN ANNUAL SNOW ACCUMULATION (DEPTH IN INCHES)
- ONE YEAR IN TEN SNOW ACCUMULATION (DEPTH IN INCHES)

AREAS WHERE SNOW POTENTIALLY LIMITS WINTER FOOD AVAILABILITY FOR MOOSE DURING YEARS OF AVERAGE SNOWFALL. STUDIES OF MOOSE WINTER BEHAVIOR INDICATE THAT 36 INCHES OR MORE OF SNOW CAN LIMIT FOOD AVAILABILITY FOR MOOSE. HOWEVER LOCAL CONDITIONS INCLUDING AREAS OF HIGH WIND EXPOSURE CAN PROVIDE POCKETS OF AVAILABLE WINTER RANGE FOR MOOSE.

AREAS WHERE SNOW POTENTIALLY LIMITS WINTER FOOD AVAILABILITY FOR MOOSE DURING YEARS OF HIGH SNOWFALL. (CAN BE EXPECTED ONE YEAR IN TEN)



# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 7.5' and 15' maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE  
0 5 10 15 20  
MILES  
1:500,000

## SOURCES

WAYNE REGLIN  
ALASKA DEPT. OF FISH AND GAME  
GAME DIVISION, FAIRBANKS  
1983

DIMITRI BADER  
ALASKA DEPT. OF FISH AND GAME  
HABITAT DIVISION, ANCHORAGE  
1983

Requested \_\_\_\_\_  
Compiled \_\_\_\_\_  
Designed \_\_\_\_\_  
Approved \_\_\_\_\_  
Digitized \_\_\_\_\_  
Serialized \_\_\_\_\_  
Accession \_\_\_\_\_

DATE BY

DATE	BY

REVISIONS



STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
ANCHORAGE, ALASKA

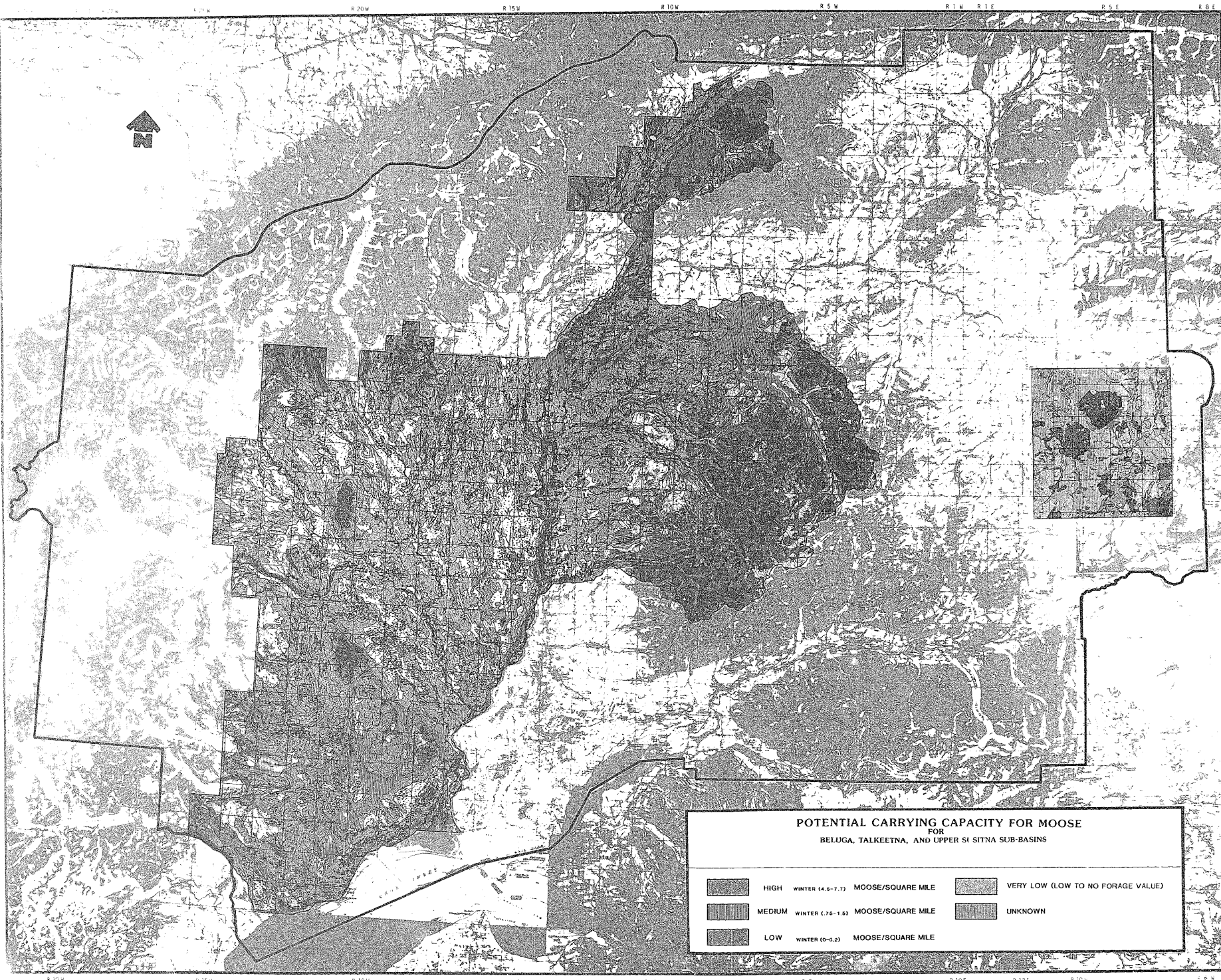


MAP NO.

B14a

## EXISTING CARRYING CAPACITY FOR MOOSE FOR BELUGA, TALKEETNA AND UPPER SUSITNA SUB-BASINS

	HIGH	WINTER (1.0-3.1)	MOOSE/SQUARE MILE		VERY LOW (LOW TO NO FORAGE VALUE)
	MEDIUM	WINTER (0.5-0.8)	MOOSE/SQUARE MILE		UNKNOWN
	LOW	WINTER (0.2-0.5)	MOOSE/SQUARE MILE		

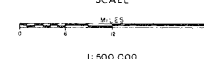


# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS and USFS maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE



## SOURCES

WAYNE REBELIN  
ALASKA DEPT. OF FISH AND GAME  
GAME DIVISION, FAIRBANKS  
1983

DMITRI SADER  
ALASKA DEPT. OF FISH AND GAME  
HABITAT DIVISION, ANCHORAGE  
1983

Requested by: F&W  
Completed: 6/83  
Drafted: J. Baker  
Approved: J. Baker  
Signed: J. Baker  
Archived: 8/83

DATE	BY

REVISIONS



STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
ANCHORAGE, ALASKA



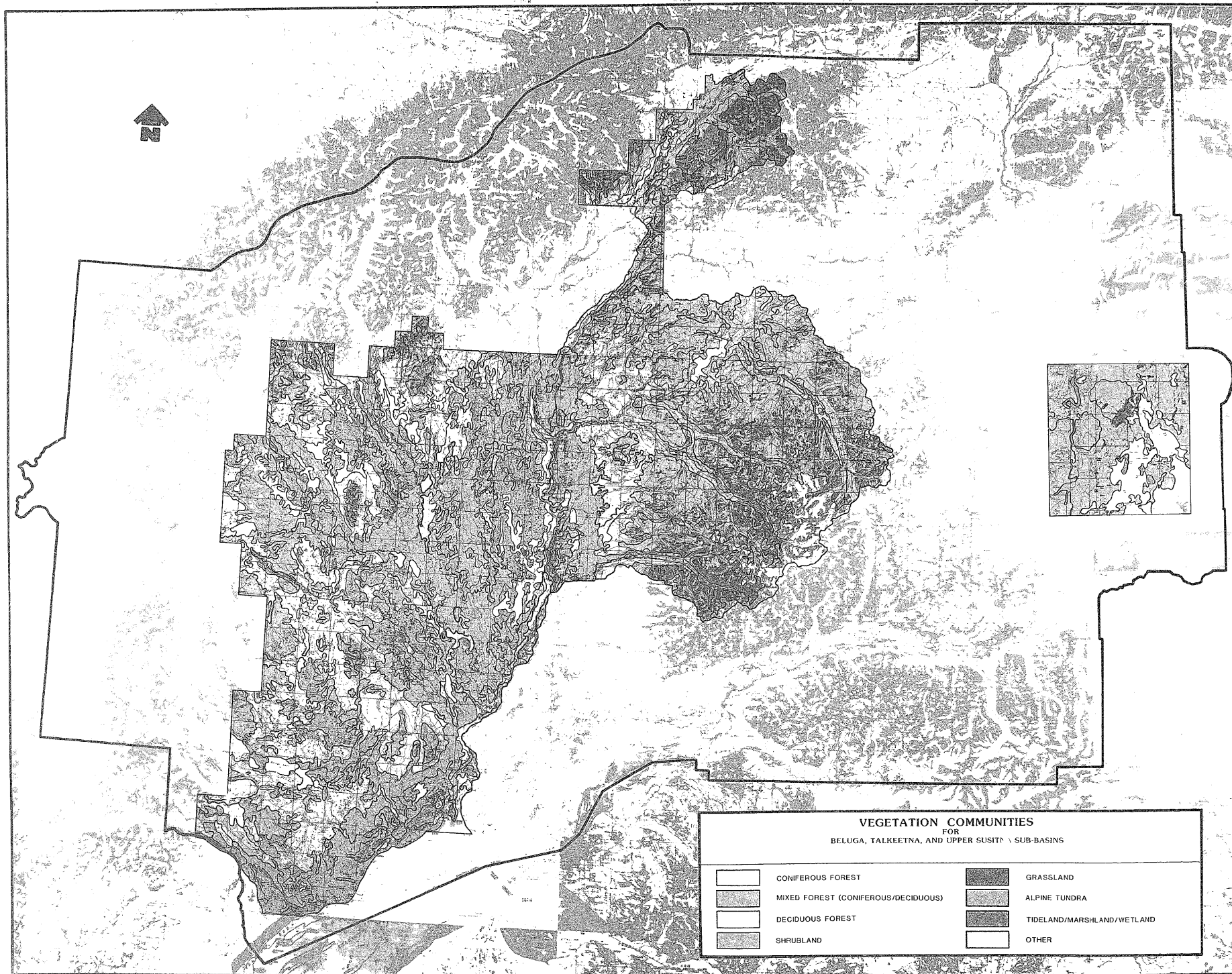
LOCATION MAP

MAP NO.

B14b

## POTENTIAL CARRYING CAPACITY FOR MOOSE FOR BELUGA, TALKEETNA, AND UPPER SUSITNA SUB-BASINS

	HIGH WINTER (4.0-7.7) MOOSE/SQUARE MILE		VERY LOW (LOW TO NO FORAGE VALUE)
	MEDIUM WINTER (1.75-1.5) MOOSE/SQUARE MILE		UNKNOWN
	LOW WINTER (0.0-0.2) MOOSE/SQUARE MILE		



# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS and USFS maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE  
1:500,000

## SOURCES

PAT BAIRD  
ALASKA DEPT. OF FISH AND GAME  
ANCHORAGE, ALASKA  
1983  
USDA  
SOIL CONSERVATION SERVICE  
ANCHORAGE, ALASKA  
1982

Requested	DATE	BY
Completed		
Drafted		
Approved		
Drafted		
Revised		
Approved		
REVISIONS		



STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
ANCHORAGE, ALASKA

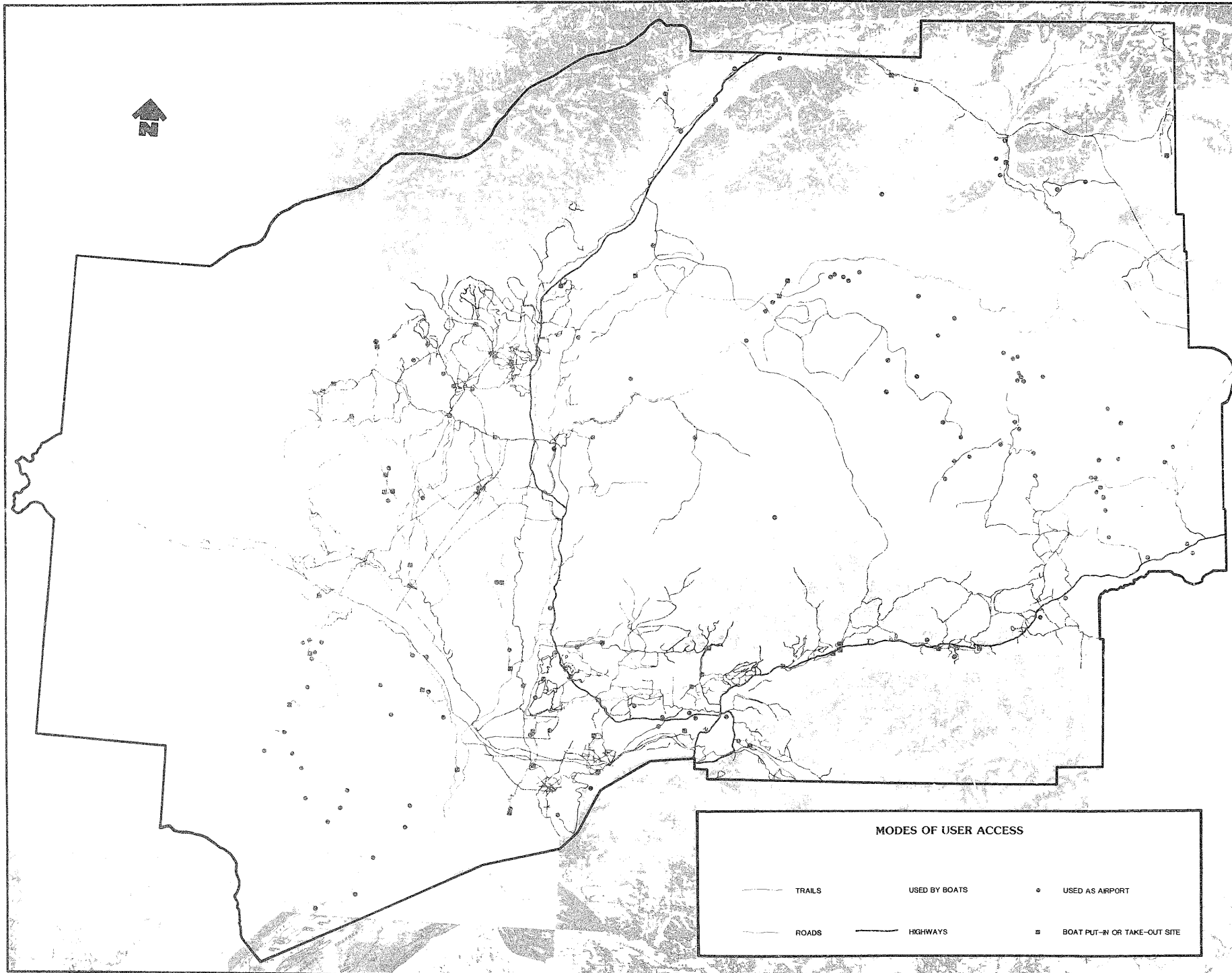


MAP NO.

B 15

## VEGETATION COMMUNITIES FOR BELUGA, TALKEETNA, AND UPPER SUSITNA SUB-BASINS

	CONIFEROUS FOREST		GRASSLAND
	MIXED FOREST (CONIFEROUS/DECIDUOUS)		ALPINE TUNDRA
	DECIDUOUS FOREST		TIDELAND/MARSHLAND/WETLAND
	SHRUBLAND		OTHER



# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Scaled on USGS 7.5 and 15-Min  
Universal Transverse Mercator Projection

SCALE  
MILES  
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24  
1:500,000

## SOURCES

SUSITNA BASIN LAND USE/RECREATION ATLAS  
(ALASKA DEPARTMENT OF NATURAL RESOURCES,  
1980)

FAA, ANCHORAGE SECTIONAL 1983

ALASKA DEPARTMENT OF FISH AND GAME  
GAME DIVISION  
FILE DATA, 1983

Requested *ARC*  
Compiled *GP*  
Drafted *GP*  
Approved *ARC OMA*  
Digitized  
Edited  
Reviewed

DATE	BY

REVISIONS



STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
JUNEAU, ALASKA



LOCATION MAP

MAP NO.

C 1

## MODES OF USER ACCESS

— TRAILS	— USED BY BOATS	• USED AS AIRPORT
— ROADS	— HIGHWAYS	■ BOAT PUT-IN OR TAKE-OUT SITE

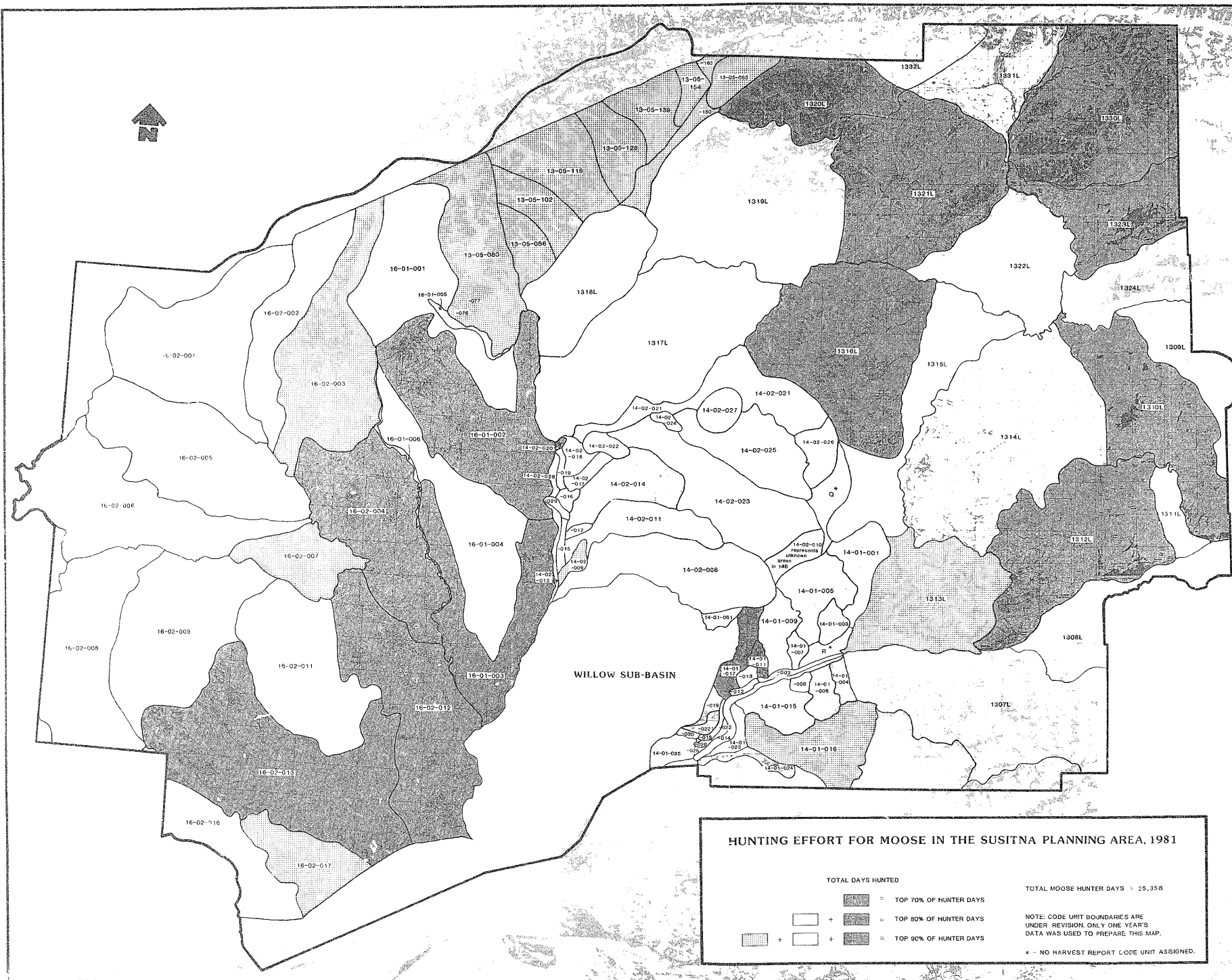
FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

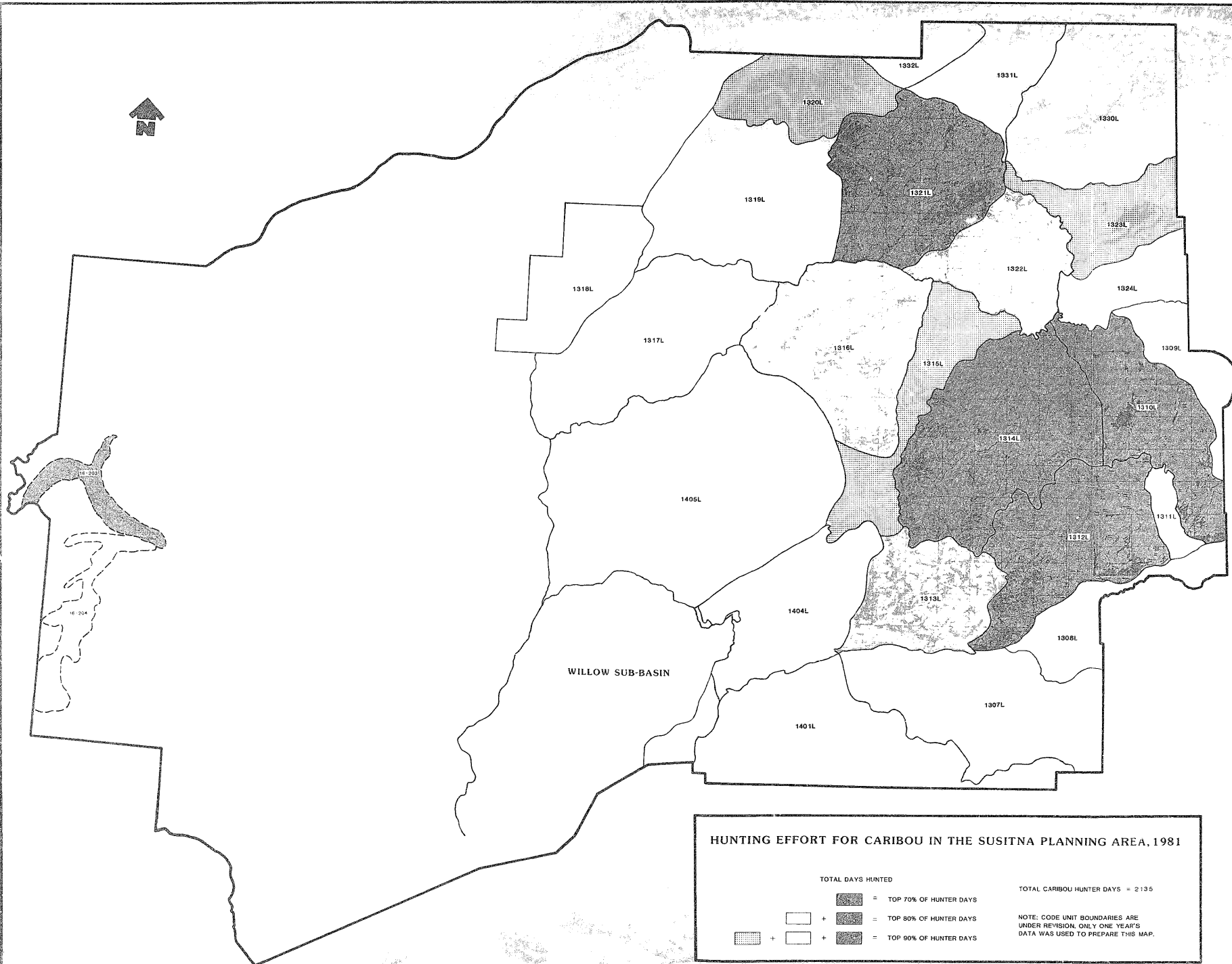
SCALE



INTERPRETATION OF HUNTING EFFORT  
STATISTICS FOR MOOSE HARVEST  
REPORT CODE UNITS (INTERPRETATION  
BY DIMITRI BADER, PAT BAIRD, AND  
GREG ROS.) 1983.

DATE BY

[illegible]



WILLOW SUB-BASIN

#### HUNTING EFFORT FOR CARIBOU IN THE SUSITNA PLANNING AREA, 1981

TOTAL DAYS HUNTED



TOTAL CARIBOU HUNTER DAYS = 2135

NOTE: CODE UNIT BOUNDARIES ARE UNDER REVISION. ONLY ONE YEAR'S DATA WAS USED TO PREPARE THIS MAP.

## SUSITNA BASIN AREA PLAN




FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 7.5 and 15 minute maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE  
1:500,000

#### SOURCES

INTERPRETATION OF HUNTING EFFORT  
STATISTICS FOR CARIBOU HARVEST  
REPORT CODE UNITS (INTERPRETATION  
BY DMITRI BADER, P. BAIRD, AND GREG  
BOS, 1983)

Reviewed:   
Compiled:   
Drafted: FR.  
Approved:   
Digitized:  
Entered:  
Printed: 5\*

DATE BY

REVISIONS



MAP NO.

C 2b

# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 7.5 minute 1:50,000 maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE  
1:500,000

## SOURCES

INTERPRETATION OF HUNTING EFFORT  
STATISTICS FOR SHEEP HARVEST  
REPORT CODE UNITS INTERPRETATION  
BY GIMMIE BAKER, PAT BAIRD, AND  
GREG BOY (1983)

Reviewed: AKC  
Checked: T.D. FR  
Approved: AKC  
Dated: 8/1/83  
By: B

DATE BY  
REVISIONS

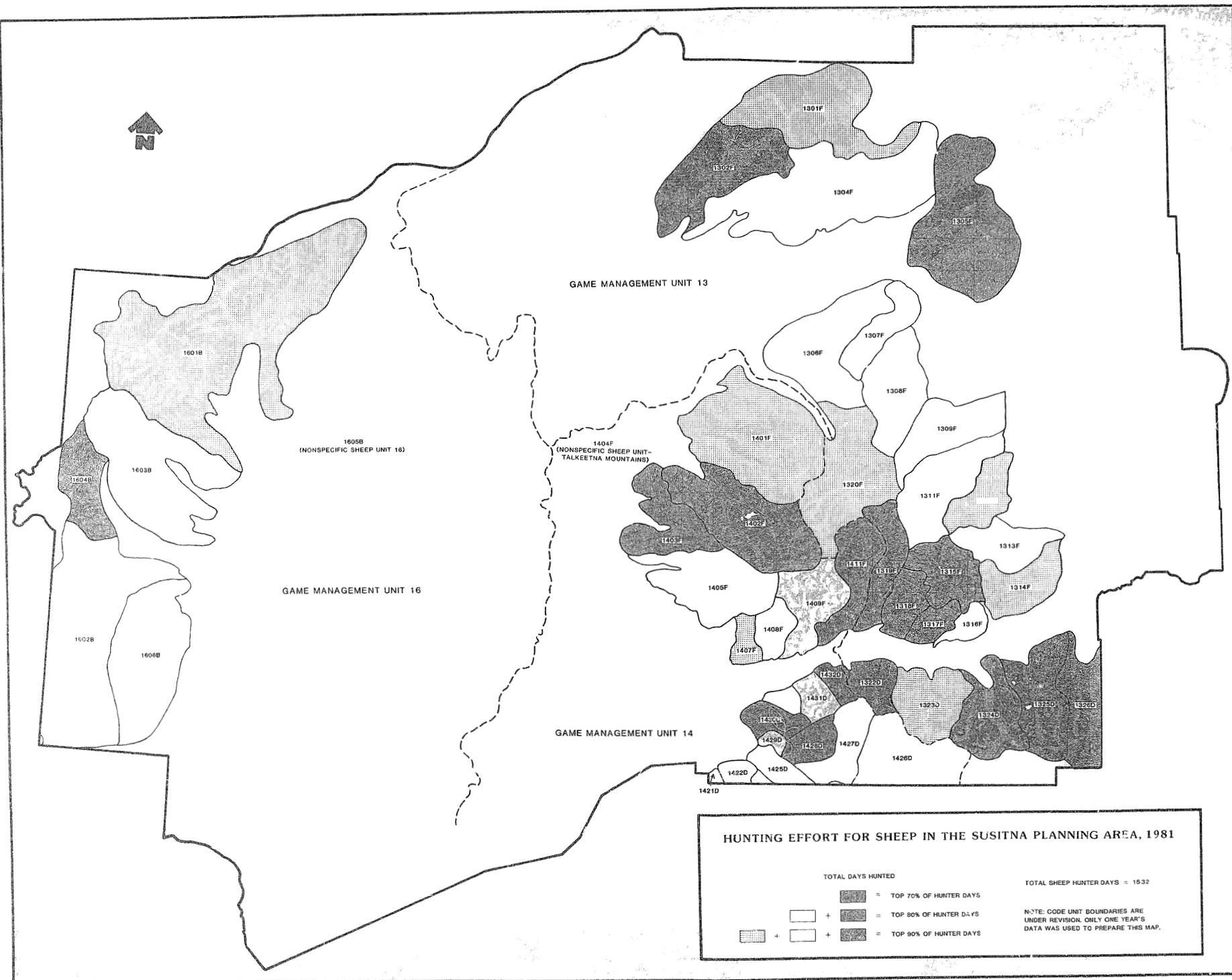


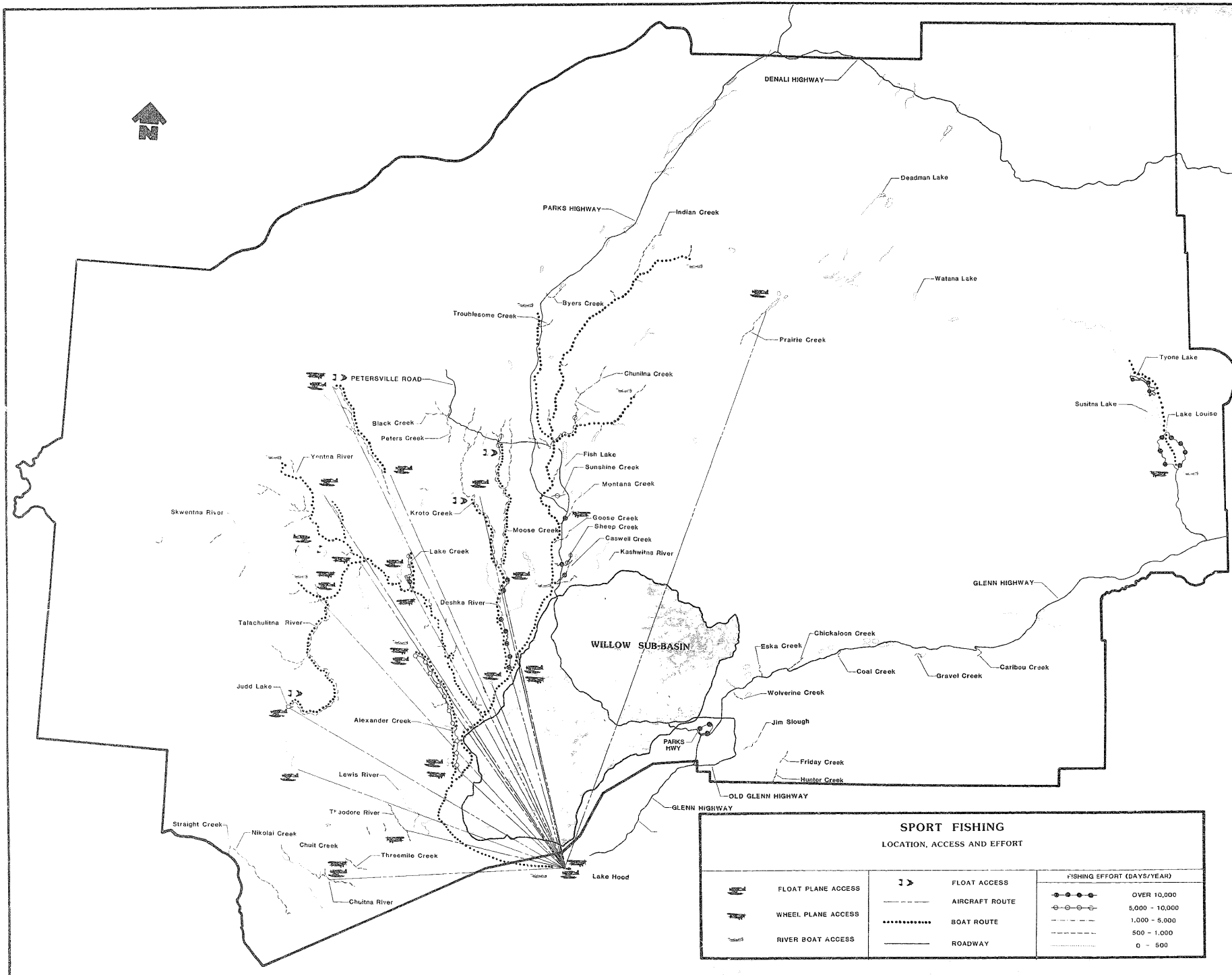
STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
HABITAT DIVISION  
JUNEAU, ALASKA



MAP NO.

C26





# SUSITNA BASIN AREA PLAN

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

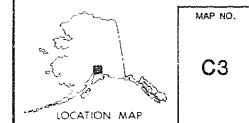
Based on USGS 25 and 1:50,000 maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE  
1:500,000

## SOURCES

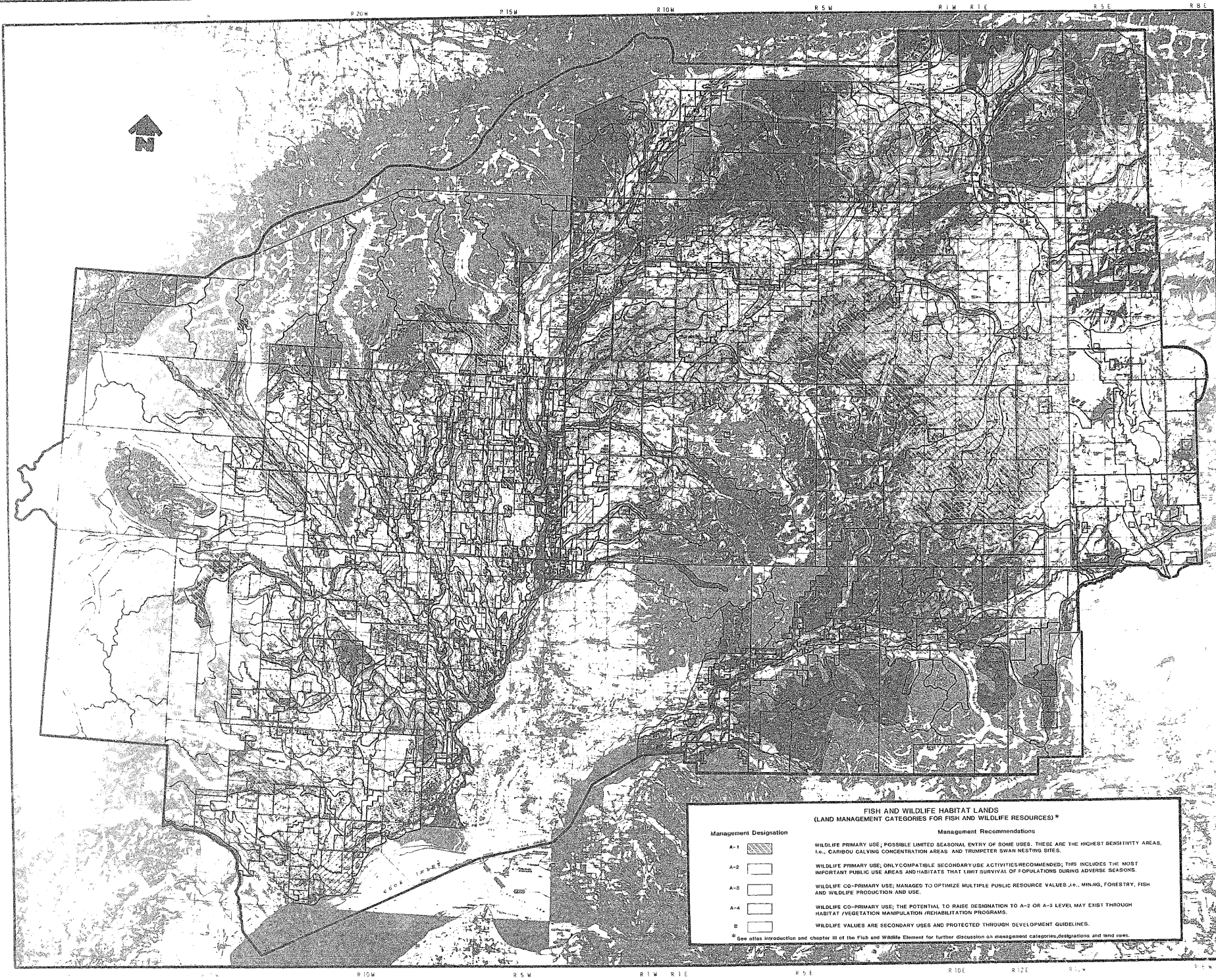
STATEWIDE HARVEST SURVEY  
ALASKA DEPT. OF FISH AND GAME, SPORT FISH DIV.  
SOUTH CENTRAL REGIONAL STAFF, 1983

Reviewed	DATE	BY
Checked		
Approved		
Edited		
Archives		
REVISIONS		



MAP NO.  
C3

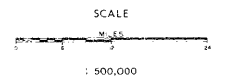




# SUSITNA BASIN AREA PLAN

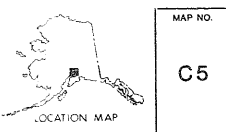
FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS 7.5' and 15' maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION



**SOURCES**  
STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
1983

Reviewed by: J.C.	DATE	BY
Compiled by: J.B.		
Checked by: J.B.		
Approved by: J.B.		
Drafted by: J.B.		
Edited by: J.B.		
Approved by: J.B.		
ST		REVISIONS



MAP NO.  
**C5**

**FISH AND WILDLIFE HABITAT LANDS**  
(LAND MANAGEMENT CATEGORIES FOR FISH AND WILDLIFE RESOURCES) \*


Management Designation	Management Recommendations
A-1	WILDLIFE PRIMARY USE; POSSIBLE LIMITED SEASONAL ENTRY OF SOME USES. THESE ARE THE HIGHEST SENSITIVITY AREAS, I.E., CARIBOU CALVING CONCENTRATION AREAS AND TRUMPETER SWAN NESTING SITES.
A-2	WILDLIFE PRIMARY USE; ONLY COMPATIBLE SECONDARY USE ACTIVITIES RECOMMENDED; THIS INCLUDES THE MOST IMPORTANT PUBLIC USE AREAS AND HABITATS THAT LIMIT SURVIVAL OF POPULATIONS DURING ADVERSE SEASONS.
A-3	WILDLIFE CO-PRIMARY USE; MANAGED TO OPTIMIZE MULTIPLE PUBLIC RESOURCE VALUES I.E., MINING, FORESTRY, FISH AND WILDLIFE PRODUCTION AND USE.
A-4	WILDLIFE CO-PRIMARY USE; THE POTENTIAL TO RAISE DESIGNATION TO A-2 OR A-3 LEVEL MAY EXIST THROUGH HABITAT /VEGETATION MANIPULATION /REHABILITATION PROGRAMS.
B	WILDLIFE VALUES ARE SECONDARY USES AND PROTECTED THROUGH DEVELOPMENT GUIDELINES.

\* See atlas introduction and chapter III of the Fish and Wildlife Element for further discussion on management categories, designations and land uses.

FISH AND  
WILDLIFE  
ELEMENT  
JUNE 1983

Based on USGS and USGS maps  
UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE



1: 500,000

## SOURCES

ALASKA DEPARTMENT OF FISH AND GAME  
HABITAT DIVISION, DIMITRI BADER, 1983

Requested ☒   
 Completed ☒   
 Drafted ☒   
 Approved ☒   
 Digitized ☒   
 Filed ☒   
 Archived ☒

DATE	BY
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REVISION:



STATE OF ALASKA  
DEPARTMENT OF FISH AND GAME  
**HABITAT DIVISION**  
JUL 1 1984



MAP NO.

C6

