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A RAPTOR SURVEY OF THE
PROPOSED NORTHWEST ALASKAN PIPELINE COMPANY GAS PIPELINE ROUTE:
THE U.S.-CANADA BORDER TO PRUDHOE BAY, ALASKA
31 MAY TO 7 JUNE AND 7 JULY 1979

A FINAL REPORT

Prepared For & Funded By
NORTHWEST ALASKAN PIPELINE COMPANY

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ABSTRACT

The proposed NAPline gas pipeline route in Alaska from Prudhoe Bay to the U.S.-Canada border was surveyed for nesting raptors with the aid of a light helicopter. The purpose of the survey was to determine the current occupancy of previously reported nesting sites and to locate and determine the current occupancy of any additional nesting sites that might occur along the proposed pipeline alignment. In addition, other locations were investigated for the occurrence of both reported and unreported potential nesting habitat.

Survey efforts were directed at locating cliff-nesting raptors, two species of large tree-nesting raptors, and Common Ravens (*Corvus corax*). Emphasis was placed on documenting the current nesting status of Peregrine Falcons (*Falco peregrinus*) in the vicinity of the proposed pipeline alignment.

Information is given for 281 historical, previously reported and current raptor and Common Raven nesting locations, in addition to 51 other locales that offer varying degrees of nesting potential for various species. Forty-seven of the 281 locations represent sites of some historical significance to Peregrine Falcons or sites used by this endangered species. All 332 locations are shown on 1:63,360 USGS topographic maps.

TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
OBJECTIVES	2
METHODS	4
RESULTS	8
Endangered Species	8
Non-Endangered Species	20
DISCUSSION	21
Endangered Species	21
Franklin-Sagwon Bluffs	22
Mid-Yukon River	22
Tanana River	23
Other Specific Areas	23
Potential Areas	24
Non-Endangered Species	24
Sagavanirktok River	24
Brooks Range	25
Fairbanks-South Including the Tanana River Drainage	25

LIST OF TABLES

TABLE		PAGE
1	The Status of Peregrine Falcon Nest Sites Located Along the Proposed Northwest Alaskan Pipeline Company Gas Pipeline Route, U.S.-Canada Border to Prudhoe Bay, Alaska, 1979.	9
2	The Status of Non-endangered Raptor and Raven Nest Sites Located Along the Proposed Northwest Alaskan Pipeline Company Gas Pipeline Route, U.S.-Canada Border to Prudhoe Bay, Alaska, 1979.	10
3.	Raptor Species Associated with Individual Alignment Sheets Depicting the Proposed Northwest Alaskan Pipeline Company Gas Pipeline Route, U.S.-Canada Border to Prudhoe Bay, Alaska, 1979.	15

LIST OF FIGURES

FIGURE		PAGE
1	The Proposed NAPline Alignment in Alaska, and the General Route Surveyed for Nesting Raptors During Late May - Early June, 1979.	5

LIST OF APPENDICES

APPENDIX		PAGE
1	Sources Reviewed Prior to Raptor Surveys Along the Proposed Northwest Alaskan Pipeline Company Gas Pipeline Route, U.S.-Canada Border to Prudhoe Bay, Alaska, 31 May - 7 June and 7 July 1979.	28
2	Raptor Nest Sites Along the Proposed Northwest Alaskan Pipeline Company Gas Pipeline Route, U.S.-Canada Border to Prudhoe Bay, Alaska, 31 May - 7 June and 7 July 1979.	31
3	Miscellaneous Locations of Interest Observed During Raptor Surveys Along the Proposed Northwest Alaskan Pipeline Company Gas Pipeline Route, U.S.-Canada Border to Prudhoe Bay, Alaska, 31 May - 7 June and 7 July 1979.	73
4	Key to USGS Topographic 1:63,360 Map Series, Raptor Survey: U.S.-Canada Border to Prudhoe Bay, Alaska, 31 May - 7 June and 7 July 1979.	82

INTRODUCTION

Northwest Alaskan Pipeline Company has proposed to build a large-diameter, chilled-gas pipeline from Prudhoe Bay, Alaska, to the midwestern United States. The Alaskan segment of the proposed alignment parallels the now-existing Trans-Alaska Pipeline System (TAPS) between Prudhoe Bay and Delta Junction. At Delta Junction, the proposed gas pipeline alignment diverges southeastward to follow the Alaska Highway and nearby (currently decommissioned) Haines oil pipeline right-of-way to the U.S.-Canada border.

The proposed gas pipeline route in Alaska traverses a wide range of known and potential nesting habitat for raptorial birds. During the spring of 1979, a survey to locate nesting raptors along the general route of the proposed gas pipeline was initiated. This survey was based on previous information obtained by other investigators (see Appendix 1, Sources Reviewed) along the TAPS route between Prudhoe Bay and Delta Junction, and along the Tanana River drainage. Previously reported nesting sites and potential nesting habitat were reinvestigated, and other areas in general proximity to the proposed gas pipeline route were searched for additional nest sites and any other potential nesting habitat.

OBJECTIVES

The objectives of the spring 1979 raptor survey along the proposed gas pipeline route in Alaska were

1. to determine current occupancy of all historical and known Peregrine Falcon nesting sites in the general proximity of the proposed route,
2. to determine current occupancy of all other reported raptor nest sites in the general proximity of the proposed route,
3. to determine the status of reported potential raptor nesting habitat in the general proximity of the proposed route and to locate any nest sites that may exist in those habitats, and
4. to investigate other potential raptor nesting habitat for undiscovered or unreported nest sites with particular emphasis on the proposed segment between Delta Junction and the U.S.-Canada border.

Emphasis was placed on cliff-nesting species and on Bald Eagle (*Haliaeetus leucocephalus*) and Osprey (*Pandion haliaetus*) tree-nesting sites; however, all other species were noted whenever they were encountered.

The presence or absence of nests of other raptor species (i.e., those that nest in trees and those that nest on the ground) commonly found in the boreal regions of Alaska is often difficult to assess from either the air or the ground. Habitat preferences of some species in northern regions and conditions of nest site selection are only now being investigated in some detail (e.g., Sharp-shinned Hawk, *Accipiter striatus*) and those of other species are still poorly understood (e.g., Merlins, *Falco columbarius*). With few exceptions, surveys other than those of a site-specific nature for many of those species are generally impractical and often non-productive. However, from what is known, suitable nesting habitat for most of these species

is available over a major portion of the state and the potential loss of this habitat resulting from the construction of the proposed pipeline would represent a relatively small proportion of the total. In general, nesting habitat appears to be less limiting for these species than for those that nest on cliffs or for Bald Eagles and Ospreys. Nesting cliffs and Bald Eagle and Osprey nests in trees are relatively uncommon and are known to be used for many years in succession. If these trees are removed or destroyed, many years are required for their replacement. Losses of some specific nest sites for many of the ground and tree-nesting raptors may not be as significant to their populations because of shorter replacement times and a broader range of acceptable nesting site locations. In addition, some forms of habitat modification (e.g., brush clearing, cut-lines) may enhance nesting habitat for some of the tree- and ground-nesting raptors in boreal regions. Therefore, a survey to locate the nesting sites of many of the ground and tree-nesting raptor species in interior Alaska was given a lower priority at this time along the proposed NAPline corridor.

METHODS

As shown in Figure 1, surveys for nesting raptors were conducted between Fairbanks and the U.S.-Canada border and between Fairbanks and Prudhoe Bay on 31 May-7 June 1979 with the aid of a Bell 206B helicopter. A brief revisit to Franklin and Sagwon bluffs occurred on 7 July 1979.

Standard aerial techniques for surveying raptors were used to check nest site locations of most species (i.e., those listed as non-endangered). Two experienced observers, one seated in the left front and one seated in the rear, conducted the initial late May-early June investigation. The rear observer was capable of changing positions from right to left as required, but this observer generally scanned terrain to the right of the aircraft's flight path unless specific cliff sites were being approached from the left.

These surveys generally covered a corridor several miles wide. Deviations were commonly made from a given survey flight path to check large stands of spruce and poplar trees, river cliffs, river bluffs, hillside outcrops and other suitable raptor nesting habitat located on either side of the proposed pipeline route.

General flight paths followed the TAPS alignment from Fairbanks to Delta Junction, the Alaska Highway and Haines oil pipeline route from Delta Junction to the Gerstle River, the Alaska Highway, Haines oil pipeline route and Tanana River course from the Gerstle River to the vicinity of Cathedral Bluffs. The flight path then followed the Alaska Highway and Haines oil pipeline from near Cathedral Bluffs to Tok, the Alaska Highway and Haines oil pipeline route from Tok to the U.S.-Canada border, the Chisana and Tanana river courses from the U.S.-Canada border to Fairbanks, and the TAPS alignment and Elliott Highway-Prudhoe Bay Haul Road to Deadhorse. Throughout the Brooks Range section, both the east and west side of the Koyukuk, Dietrich, Chandalar and Atigun river valleys were surveyed at varying elevations to check both low and high rock outcroppings, and

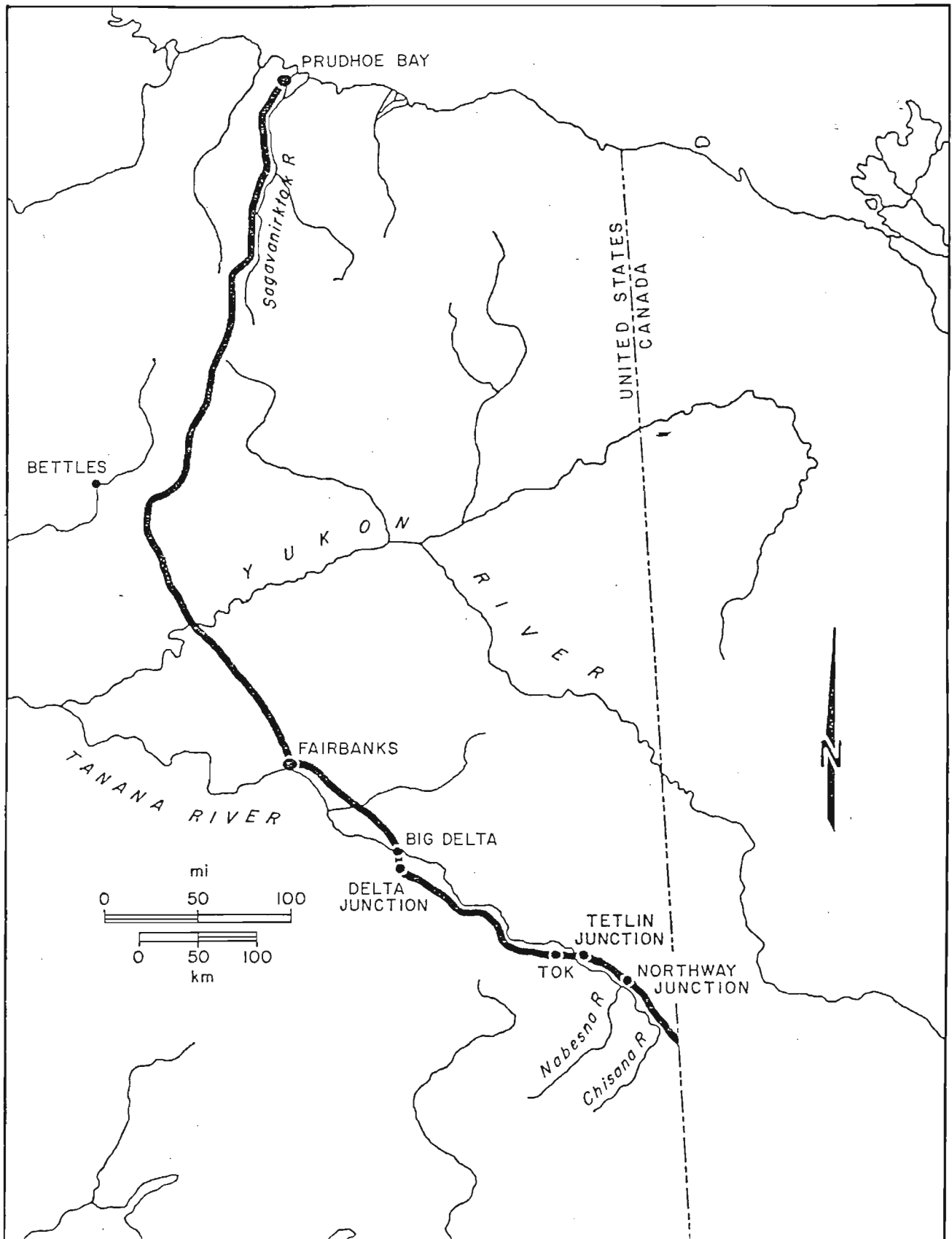


FIGURE 1. The Proposed NAPline Alignment in Alaska, and the General Route Surveyed for Nesting Raptors During Late May - Early June 1979.

to check the lower portions of most side valleys. North of the Brooks Range, the pipeline corridor and the Sagavanirktok River drainage were surveyed.

During aerial reconnaissance of the nest sites and nesting habitat of non-endangered species, survey altitudes were dependent upon the terrain features, type of habitat, and presence of other wildlife. Survey altitudes varied between about 150 and 500 feet above ground level (AGL). Most rock outcrops, cliffs, and bluffs were checked in one or two (occasionally three) slow passes. Typical observational distances at cliff sites were about 100-150 feet above ground level (AGL). Bald Eagle and Osprey tree nesting sites were usually detected at distances of up to 1/2 mile due to their often conspicuous nature and prominent location in large trees along the edges of river and stream courses, sloughs and lakes. This was particularly true of occupied sites, where one member of the pair was often perched prominently nearby.

Known Peregrine Falcon (*F. p. anatum* and *F. p. tundrius*) nest site locations were checked from the ground. The following procedures were adopted as the survey team approached a peregrine nest site. Each site was flown over at an altitude higher than 1500 feet above ground level to determine the most suitable landing location. The survey team was landed approximately 1 mile from the site and approached on foot to check for the presence or absence of peregrines. Occupancy of a site by peregrines was determined by observations (20-30 minutes or more) of the cliff area through a spotting scope and binoculars, and by listening for calling birds. The presence of the observers near the nest sites, or a few vocal shouts ("HO!") by the observers, elicited a response that indicated whether or not peregrines were present. In only one instance was a vocalization necessary to arouse a pair that were resting out of sight (male behind a rock, female brooding on a hidden ledge). In all other instances, peregrines were readily evident; they were observed perching, flying or brooding as the observers neared the nest site.

North of the Brooks Range, peregrine nest sites on Franklin Bluffs were checked. Several northern cut-banks were investigated during the evening of 5 June. On the morning of 6 June, the observers were landed east of the southern end of Franklin Bluffs. The tops of the bluffs were surveyed to a point about due west of the Vertical Altitude Bench Mark (VABM) Bruce, where it became possible to continue north along the bases of the bluffs. The observers were picked up at the end of the day near the north end of the bluffs. Raptor nest sites, including those of peregrines, were checked concurrently at Sagwon Bluffs by a two-man BLM/USFWS survey team (B. Durtsche and R. Ambrose) on 5-6 June. Those bluffs were surveyed with the aid of an inflatable raft (B. Durtsche personal communication).

All late May-early June data were immediately recorded in the field on USGS 1:250,000 and 1:63,360 scale topographic maps and were subsequently transferred to new 1:63,360 scale topographic maps and to pipeline alignment sheets. During all days of the survey, weather was excellent, except on 2 June when some light rain was encountered. On 4-5 June, easterly winds created some turbulence in the Brooks Range; those winds prevented surveys of some side-canyons. Most of the important habitat not surveyed on 4-5 June was surveyed on 7 June.

On 7 July, four active peregrine nest sites at Franklin and Sagwon bluffs were revisited in the following sequence: 220, 194, 211, and 223. In each instance, the helicopter was landed 1 mile or more from the known location of the nest site. The nest was then approached on foot for the purpose of documenting hatching success and to collect any eggs that may have failed to hatch.*

* All egg material that was collected during this study has been submitted to the USFWS Patuxant Wildlife Research Center in Maryland. Egg tissues will be analyzed for various chlorinated hydrocarbons and polychlorinated biphenals (p, p'-DDE, and Dieldrin levels will be of particular interest). Aliquots of egg contents and all eggshells will be sent to the University of California Bodega Marine Laboratory for additional analyses and intercalibration of results. Eggshells will ultimately be sent to the Western Foundation of Vertebrate Zoology, Los Angeles, for shell thickness determinations.

RESULTS

The results of the raptor nest site survey are reported in Appendices 2 and 3 and on the accompanying USGS 1:63,360 scale topographic map series (Maps No. 1 through 61, U.S.-Canada border to Prudhoe Bay). Appendix 4 is a symbol key to this map series. Peregrine Falcon nest sites are summarized in Table 1 and nest sites of other non-endangered species are summarized in Table 2.

Nest sites and potential nesting habitat found within 1 to 1-1/2 miles either side of the proposed alignment also have been indicated on a separate set of reduced alignment sheets, accompanied by Attachment A, a list of areas to be avoided. Table 3 provides a list of these alignment sheets and of the species that occur on or near them.

Endangered Species

Eight pairs of nesting peregrines were located during the initial late May-early June survey. In addition, two single peregrines were found occupying two other small cliffs.

Two pairs of peregrines were present along the northern portion of Franklin Bluffs (sites 220 and 223). Two additional pairs of peregrines were occupying the Sagwon Bluffs area--one at the northern end of a small cliff series along the east limit of the Sagavanirktok ("Sag") River (site 211) and one at the southern end of Sagwon Bluffs proper (site 194) along the west limit of the river (B. Durtsche personal communication).

South of the Brooks Range a pair of peregrines occupying a high outcrop on a hillside just northeast of Mile 39 Elliott Highway (site 86) was of major interest. The pair was situated only a short distance upslope of an active Alaska Department of Transportation (ADOT/PF) gravel pit. This site is atypical of nearly all other known interior Alaska peregrine nesting sites in that it is not associated with a major river or stream drainage and is located on a hillside in a large wooded area of interior uplands. The rock

TABLE 1. The Status of Peregrine Falcon Nest Sites Located Along the Proposed Northwest Alaskan Pipeline Company Gas Pipeline Route, U.S.-Canada Border to Prudhoe Bay, Alaska, 1979.

Active Nest Sites				Unoccupied Nest Sites		Nest Sites Status Unknown		Total Sites
Pairs present		Single birds present						
<i>site number</i>	<i>total sites</i>	<i>site number</i>	<i>total sites</i>	<i>site number</i>	<i>total sites</i>	<i>site number</i>	<i>total sites</i>	
21a		50		16a		84		
29b		61		19a				
73b				25				
86				34a				
194				35a				
211				35b				
220				38a				
223				41a				
				42a				
				47a				
				48a				
				55*				
				60a				
				63				
				63.1				
				68a				
				69a				
				74a				
				79				
				80				
				95a				
				106				
				183a				
				190.1				
				196				
				201				
				205				
				206				
				208a				
				212				
				215a				
				216				
				221				
				222				
				224				
				225				
8		2		36		1		47

*Site 55 includes a series of seven stick nests. Some information suggests that peregrines have used a site in the past in this locality, but the exact site is unknown. Because the area has historical significance to this species, it is listed here; however, since these nests were built by undetermined species (other than peregrines) and since they occur on several closely associated river bluffs that could support more than one pair of raptors at a time, it is also listed in Table 2 under unknown species.

TABLE 2. The Status of Non-endangered Raptor and Raven Nest Sites Located Along the Proposed Northwest Alaskan Pipeline Company Gas Pipeline Route, U.S.-Canada Border to Prudhoe Bay, Alaska, 1979.

Species	Active Nest Sites		Unoccupied Nest Sites		Nest Sites Status Unknown*		Total Sites
	site number	total sites	site number	total sites	site number	total sites	
Goshawk (<i>Accipiter gentilis</i>)	77.1 82.1		20.1 69.2				4
		2		2			
Sharp-shinned Hawk (<i>Accipiter striatus</i>)	11.1 69.1						2
		2					
Harlan's Hawk/ Red-tailed Hawk (<i>Buteo jamaicensis</i>)	3.1 3.4 96a		40 81				5
		3		2			
Rough-legged Hawk (<i>Buteo lagopus</i>)	187a 189 190a 191 193 195 197 199 202 202.1 203 207 209 213 214 217 218 219		185 186 188 192 193.1		183b		
		18		5		1	24

TABLE 2. Continued

Species	Active Nest Sites		Unoccupied Nest Sites		Nest Sites Status Unknown*		Total Sites
	<i>site number</i>	<i>total sites</i>	<i>site number</i>	<i>total sites</i>	<i>site number</i>	<i>total sites</i>	
Golden Eagle (<i>Aquila chrysaetos</i>)	19b		16b		22		
	27		18b		92		
	32		21		110		
	107		26		111		
	108		38c		115		
	113		41b		118		
	128		42c		134		
	132		49		135		
	136		78		137		
	139		87		160		
	143a		88		161		
	151		93				
	153		94				
	168		96b				
	173		99				
			100				
			109				
			112				
			114				
			116				
			119				
			121				
			123				
			126b				
			127				
			129				
			131				
			140				
			141b				
			142				
			144				
			145				
			147				
			148				
			150				
			154				
			155				
			156				
			157				
			158				
			159				
			162a				
			162c				
			163				

TABLE 2. Continued

Species	Active Nest Sites		Unoccupied Nest Sites		Nest Sites Status Unknown*		Total Sites
	<i>site number</i>	<i>total sites</i>	<i>site number</i>	<i>total sites</i>	<i>site number</i>	<i>total sites</i>	
Golden Eagle (continued)			164 165 167 171 172 175 176 177 178 181 182 184				
		15		56		11	82
Bald Eagle (<i>Haliaeetus</i> <i>leucocephalus</i>)	1 3 5 6 10 13 14 17 28 46 53 59 64 66 75 82 83		2 4 8 9 30 54 57 58 65 71		4 11 33 51 56 85		
		17		10		6	33
Osprey (<i>Pandion</i> <i>haliaetus</i>)	12 39 43		37				
		3		1			4

TABLE 2. Continued

Species	Active Nest Sites		Unoccupied Nest Sites		Nest Sites Status Unknown*		Total Sites
	<i>site number</i>	<i>total sites</i>	<i>site number</i>	<i>total sites</i>	<i>site number</i>	<i>total sites</i>	
Gyr Falcon (<i>Falco rusticolus</i>)	187b 190b 198 204 208b		102 120 162b 174 180 184		101 183d		
		5		6		2	13
Merlin (<i>Falco columbarius</i>)	3.3						
		1					1
Great Horned Owl (<i>Bubo virginianus</i>)	3.2 37 40.1 67 98 141a						
		6					6
Common Raven (<i>Corvus corax</i>)	15 18a 21b 23 29a 31 34b 38b 42b 45 48b 52 60b 62 70 73a 95b 106 117 126a 138		38c 90 97 130 133 140 141b				

TABLE 2. Continued

Species	Active Nest Sites		Unoccupied Nest Sites		Nest Sites Status Unknown*		Total Sites
	<i>site number</i>	<i>total sites</i>	<i>site number</i>	<i>total sites</i>	<i>site number</i>	<i>total sites</i>	
Common Raven (continued)	143b 183c 200 210 215b						
		26		7			33
Unknown			20 24 35b 36 44 47b 55† 68b 69b 70.1 74b 103 104 122 149 169 179		72 76 76.1 77 89 91 105 124 125 152		
				17		10	27
TOTAL SITES		98		106		30	234

*These are pre-1979 sites whose current status is unknown.

†Site 55 includes a series of seven stick nests that were constructed by unknown species; however, the "site" has also been included in Table 1 as an historical peregrine location because some information suggests that peregrines have used a site in this locality (though the exact site could not be determined) and it is possible that more than one species could be present at one time at this site.

TABLE 3. Raptor Species Associated with Individual Alignment Sheets
 Depicting the Proposed Northwest Alaskan Pipeline Company Gas
 Pipeline Route, U.S.-Canada Border to Prudhoe Bay, Alaska, 1979.

Alignment Sheet Number	Species* and/or Information Indicated
4680-11-00-B-C-005	P
-006	P, RLH
-007	P, RLH
-008	P, RLH
-012	R, P, GYR, RLH
-013	RLH, P, R, GYR
-014	RLH
-015	RLH
-016	P
-017	RLH, GYR
-018	Nest sites (species unknown) and/or habitat
-019	Nest sites (species unknown) and/or habitat
-020	RLH
-022	P, RLH, GYR, R
-026	Nest sites (species unknown) and/or habitat
-027	GYR
-028	GE, Nest sites (species unknown) and/or habitat
-029	GE
-030	GE
-032	Nest sites (species unknown) and/or habitat
-033	GE
-034	GE, Nest sites (species unknown) and/or habitat
-035	GE, Nest sites (species unknown) and/or habitat
-036	GE, Nest sites (species unknown) and/or habitat
-037	GE, Nest sites (species unknown) and/or habitat
-038	GE
-039	GE, R, GH0, Nest sites (species unknown) and/or habitat
-040	GE, R
-041	R, Nest sites (species unknown) and/or habitat
-045	Nest sites (species unknown) and/or habitat
-046	GYR, GE
-047	GE, Nest sites (species unknown) and/or habitat
-048	GE
-051	Nest sites (species unknown) and/or habitat
-052	GYR
-054	Nest sites (species unknown) and/or habitat
-055	GE
-056	Nest sites (species unknown) and/or habitat
-061	GH0
-064	P, R
-067	GE
-071	R

TABLE 3. Continued.

Alignment Sheet Number	Species* and/or Information Indicated
4680-11-00-B-C-075	P, GE
-085	GOS
-089	P, GE
-090	HH
-096	P, R
-098	Nest sites (species unknown) and/or habitat
-103	P, BE, Nest sites (species unknown) and/or habitat
-104	R, OS, GE, P, Nest sites (species unknown) and/or habitat
-105	GHO, GE, P
-106	P, GE, R, GHO
-109	P
-110	P, R
-111	GOS, Nest sites (species unknown) and/or habitat
-112	P, GE
-114	BE
-122	BE, SSH
-123	BE, Nest sites (species unknown) and/or habitat
-125	BE
-127	HH, GHO, M
-129	HH
-131	BE

Total number of alignment sheets = 63

*Key to species:	BE - Bald Eagle	M - Merlin
	GE - Golden Eagle	OS - Osprey
	GHO - Great Horned Owl	P - Peregrine Falcon
	GOS - Goshawk	R - Common Raven
	GYR - Gyrfalcon	RLH - Rough-legged Hawk
	HH - Harlan's Hawk	SSH - Sharp-shinned Hawk

outcroppings at this vicinity (known as "Castle" or "Grapefruit" Rocks) have a long history of documented use by Golden Eagles (*Aquila chrysaetos*) and no records exist to suggest that this site has been used by peregrines in the past.

The remaining peregrines were located along the course of the Tanana River. Three pairs of peregrines were occupying sites along this river that were also used by successful pairs in 1978 (sites 21a, 29b, and 73b; R. Hemmen personal communication). A fourth site (35a or 34b) that was occupied by peregrines during 1978 (adults deserted and young died; R. Hemmen personal communication) supported an active Common Raven nest during 1979. Two single peregrines were also observed along the upper Tanana River. These two individuals each appeared to be occupying a small river cliff that had no documented history of use by this species (sites 50 and 61). Peregrines were never observed at these locations in the late 1960's and 1970's (J. Haugh personal communication). Both sites (50 and 61), although small and non-classic cliffs, appear to be capable of supporting nesting peregrines. Some evidence suggested that those single birds had been perching about their respective cliffs fairly regularly; however, they may not have been exclusively and strongly associated to those particular sites and may have wandered somewhat along those general sections of the river.

All but one pair of peregrines located during the late May-early June survey effort exhibited "normal" behavior at the nest site and appeared to be breeding successfully. The exception occurred at site 73b on the Tanana River. This site was approached on foot and both adults were discovered perched in trees above the cliff. As the birds were approached closer, the male exhibited brief, very weak defensive behavior before flying off, and the female did not exhibit any defensive behavior, nor did she exhibit any inclination to attend a nest ledge (see Appendix 2). All evidence suggested that this nesting attempt had failed by 2 June.

During the late May-early June survey, peregrine nests were not directly visited and therefore no data were obtained on clutch size.

On 7 July, the Franklin Bluffs and Sagwon Bluffs nests were revisited to obtain more specific information on hatching success.

Nest site 223 (Franklin Bluffs) contained four downy young estimated to be 2 to 4 days old. The adult female returned to brood the young within 4 to 5 minutes of first leaving the nest (and while the departing investigators were still only about 25 yards from the nest). One-half of one eggshell was located and collected for chemical analysis and eggshell thickness determination. The adult male was not present but was observed later at a point about 1 mile to the south as he returned to the nest site.

Nest site 220 (Franklin Bluffs) contained two downy young estimated to be 4 to 5 days old. Both adults were present. No sign of unhatched eggs could be found. Portions of shell membranes were collected for analysis. The adult female returned to brood within 5 to 6 minutes of first leaving the site (and when the departing investigators were about 150 yards from the nest).

Nest site 211 (Sagwon Bluffs area) contained three downy young estimated to be 8 to 9 days old. The site was easily viewed from a nearby point and no evidence of any additional eggs could be seen. The site, therefore, was not investigated from a closer distance. Both adults were present and the female returned to the nest site within 10 minutes of initially leaving it (and when the investigators were about 150-200 yards from the nest).

Nest site 194 was found to be unoccupied. As the site was approached, the birds were not evident and a search south and north confirmed that peregrines were no longer present in the area. A careful search ensued and eventually the nesting scrape was located under a tilted rock slab as was described earlier in the season (B. Durtsche personal communication). Four eggs were present; they were scattered along the scrape area over a space of 12-14 inches (photo documentation available). All eggs were well-bleached by the sun; the degree of bleaching strongly suggested that they had been abandoned at least 2 weeks and perhaps as much as 3 weeks previous

to 7 July. The degree of bleaching suggested that two of the eggs may have been incubated for a longer time than the other two. All four eggs were collected for chemical analysis and eggshell thickness determination.

The mean minimum clutch size for these four pairs of Peregrine Falcons at Franklin and Sagwon bluffs during 1979 was 3.3 eggs. This is comparable to a mean in 1974 of 2.8 eggs ($n = 4$) and 1975 of 3.3 eggs ($n = 3$). The mean hatching success in 1979 was 2.3 young per nest compared to 2.0 and 1.7 young per nest during 1974 and 1975, respectively (see Roseneau *et al.* 1976, Appendix 1).

Some subsequent information on several of the peregrine nest sites was obtained at a later date. By mid-August, site 211 (Sagwon Bluffs area), 1 mile across the Sagavanirktok River from Pump Station No. 2, had produced at least one fledged young (C. White personal communication). No other late summer data are available for peregrine sites north of the Brooks Range.

The pair of peregrines at site 86 ("Grapefruit Rocks") produced three young (all subsequently banded) in spite of intense summer activity at the ADOT/PF gravel pit; on 7 September two fledged young were observed flying near the nest site and the third young was suspected to be in the area (R. Ambrose personal communication).

The pairs of peregrines at sites 21a and 29b (Tower Bluffs and Round Lake) on the Tanana River each fledged two young (R. Ritchie personal communication). Ritchie also confirmed that at least two single peregrines inhabited the upper Tanana River course during the summer and that other historical eyries on the upper Tanana were unoccupied. The presence of one of those single birds several miles downstream of sites 34b and 35a (Billy Creek), and some distance upriver from site 50 where a single peregrine was observed during the late May-early June survey, suggests that a third single individual was present during 1979. No subsequent information is available for site 73b.

Additional information on peregrines that inhabited the mid-Yukon River, both upriver and downriver of the Yukon River bridge, became available after mid-July when, under a separate contract with the USFWS, the entire Yukon River between Ft. Hamlin and St. Mary's was surveyed by boat and young were banded. These data will become available after 1 November 1979 when a report of those activities will be submitted to the USFWS. Nesting peregrines were not present closer than 10-12 miles either side of the proposed alignment.

Non-Endangered Species

Ninety-eight active nest sites of ten non-endangered raptor and one corvid species were located in the general vicinity of the proposed NAPline alignment (see Table 2). The most commonly encountered species were Common Ravens (26 sites), Rough-legged Hawks (18 sites), Bald Eagles (17 sites) and Golden Eagles (15 sites). In addition, 106 nest sites of these 11 species were determined to be unoccupied during 1979. At 30 additional locations occupancy by raptors or Common Ravens during 1979 remained undetermined because of various factors including air turbulence, concealment by vegetative cover, the presence of other wildlife and inability to locate certain previously reported sites (see Appendix 2).

DISCUSSION

The proposed NAPline alignment between Prudhoe Bay and the U.S.-Canada border traverses several major physiographic provinces, a variety of land forms, and a wide range of raptor habitat types. Because of the topographical, geological, and ecological diversity encountered along the proposed transportation corridor, a number of all species of raptors common to the Arctic and Subarctic may be expected to occur at some location along the NAPline corridor. However, because each species has certain northern distributional limits, certain nesting requirements and certain nesting preferences, some areas are more important for certain species than for others. A discussion of several geographic areas and the major species found within them, are given here to help present a better perspective of raptor population along the proposed NAPline alignment.

Endangered Species

Both historical and current Peregrine Falcon nesting sites in Alaska are closely associated with several Arctic and Subarctic river systems that flow at levels below approximately 2500 feet ASL.

For the Arctic nesting subspecies, *F. p. tundrius*, the center of nesting habitat lies in the Colville River drainage west of the proposed NAPline alignment. The Sag River offers a small but important concentration of *F. p. tundrius* nesting habitat. East of the Sag River, peregrine nesting habitat becomes less common on the Arctic Slope (see Roseneau *et. al.* 1976, Appendix 1).

For the Subarctic nesting subspecies *F. p. anatum*, six major areas offer or have offered important current or historical concentrations of nesting habitat. These six areas include the upper Yukon River (including the Charley River), the upper Porcupine River, a section of the mid-Yukon River, the lower Yukon River, the Tanana River, and probably the central Kuskokwim River. At present, stable or increasing populations of peregrines exist in the Yukon River drainage with the exception of the Tanana River system. In that system the numbers of peregrines have slowly increased from near

zero a few years ago to the present small number of pairs and single individuals. At least a few pairs of peregrines currently inhabit the central Kuskokwim drainage where historical comparative data on their numbers are lacking (R. Dodson personal communication). The proposed pipeline route parallels two and crosses one of these river systems important to nesting peregrines.

Franklin-Sagwon bluffs

North of the Brooks Range, the Franklin-Sagwon bluffs section* of the Sagavinirktok River contains excellent and important nesting habitat of both historical and current significance for *F. p. tundrius*. The proposed NAPline alignment closely parallels the western portion of this area. The alignment maintains a distance of about 1-1/2 miles west of Franklin Bluffs along the present TAPS haul road. It also passes westward behind most of Sagwon Bluffs at a distance of a mile or more. The alignment approaches the southern end of Sagwon Bluffs to within about 3/4 miles (as does the haul road--see 1:63,360 map series and alignment sheets).

Mid-Yukon River

South of the Brooks Range, the proposed NAPline alignment crosses the Yukon River at a location several miles downstream of Stevens Village. The section of this river between Stevens Village and Tanana contains important historical and current nesting habitat for several pairs of *F. p. anatum*. The crossing at the Yukon River bridge conveniently passes between the two most upstream peregrine sites along this river, thereby avoiding the nearest site (site 95a; shielded by terrain features) by about 1-1/2 air miles and avoiding the farthest (located upstream) by more than 10 miles (see 1:63,360 map series and alignment sheets).

* The USFWS Alaskan Peregrine Falcon Recovery Team (APFRT) has recently selected the Franklin-Sagwon Bluffs and a portion of the Colville River as an "Indicator Area" for monitoring the future status of the *F. p. tundrius* population in Alaska.

Tanana River

Farther south, the proposed NAPline alignment generally parallels much of the upper Tanana River.* This drainage contains both historical and current *F. p. anatum* nesting sites. In most instances the proposed alignment passes several miles northeast or southwest of all nesting locations. The alignment approaches some nesting habitat at the Salcha River crossing, at the confluence of the Delta and Tanana rivers, at a location between the Little Gerstle River and the Johnson River, at Berry Creek, in the vicinity of the Robertson River and at Cathedral Bluffs. However, the alignment still remains about 1 mile or more distant from the historical and current sites located within these areas with the exception of two historical locations (sites 63, Delta-Tanana River confluence; and site 19a, Cathedral Bluffs). Both of these latter sites are presently subjected to a considerable level of nearby human activity (see 1:63,360 map series and alignment sheets: a major highway bridge, an oil pipeline crossing, human habitation at site 63, the Alaska Highway at site 19a). Neither site appears to have been used since the early to mid-1960's (at site 63, non-use of the site may have been caused by highway realignment and bridge relocation).

Other Specific Areas

Individual Peregrine Falcon nest sites exist at two specific locations near the proposed NAPline alignment. Slope Mountain has historically supported one nest site (site 183a). Peregrines (*F. p. tundrius*) were reported to have nesting at an undetermined location on Slope Mountain in 1963 (C. White, M. Mangus personal communications). From the perspective of all past and current data, the "Grapefruit Rocks" *F. p. anatum* nesting location (site 86), discovered during this survey, is atypical. The Moument Creek peregrine site, located in the mid-Sheenjek River drainage, is the

* The APFRT has recently selected this portion of the Tanana River and a portion of the upper Yukon River drainage as an "Indicator Area" for monitoring the future status of the *F. p. anatum* population in Alaska.

only peregrine nesting location in Alaska that appears to have some characteristics similar to the one at "Grapefruit Rocks". A few isolated peregrine nesting sites in the northern Yukon Territory also may have some similarity with site 86 (D. Mossop personal communication). The occurrence of sites similar to that of site 86 along the proposed NAPline alignment can be considered unusual and the occurrence of additional sites of this nature are unlikely, from the viewpoint of typical peregrine nesting preferences and from the viewpoint that few other similar nesting locations appear to exist.

Potential Areas

Two areas with no documented history of peregrine use occur well away from the proposed NAPline alignment. Both areas may offer limited and more typical potential peregrine nesting habitat. Both areas lie to the west between the Brooks Range and the Yukon River. The first area, the Jim River canyon (site 106, Appendix 2) is a relatively well defined land form. The second "area" encompasses several widely scattered river bluffs and cliffs of the Koyukuk River drainage from Tramway Bar westward. Recent surveys of known primary peregrine nesting habitat in interior Alaska suggest that number of *F. p. anatum* may be increasing. Furthermore, our increased knowledge of peregrine nesting situations indicate that areas such as the Jim River canyon and portions of the Koyukuk River drainage may represent additional important historical Peregrine Falcon nesting habitat.

Non-Endangered Species

Sagavanirktok River

The Sagavanirktok River drainage is clearly important nesting habitat for two non-endangered raptor species, the Gyrfalcon (*Falco rusticolus*) and the Rough-legged Hawk (*Buteo lagopus*). Nesting by these species within the drainage occur most frequently between the vicinity of Slope Mountain and Franklin Bluffs. South of Slope Mountain, fewer Rough-legged Hawks occur; nesting pairs of this species are of little concern south of the Brooks Range. Gyrfalcons

can be expected to occur infrequently within the valleys of the Atigun, upper north fork of the Chandalar, Dietrich and middle fork of the Koyukuk rivers. This species is more commonly encountered between the south fork of the Koyukuk River and throughout the rolling uplands between it and the Yukon River; no concentrations of gyrfalcons appear to exist there, however, and their numbers are low. Along that portion of the proposed NAPline corridor that lies south of the Yukon River, the presence of nesting Gyrfalcons may be considered an unusual occurrence.

The Brooks Range

Although Golden Eagles do occur relatively far north in certain portions of the Arctic Slope, they do not commonly nest along the proposed NAPline alignment north of the Brooks Range. They occur frequently in the Atigun River valley but are most numerous south of the Continental Divide in the valleys of the Dietrich River and middle fork of the Koyukuk River. At these locations, the number of both previously used and currently used nests appear to reach densities as high as (or perhaps higher than) those at any other locations within Alaska (in comparison to those areas where survey data are available). The valleys of the Dietrich River and the middle fork of the Koyukuk River apparently represent the most important Golden Eagle nesting habitat traversed by the proposed NAPline corridor. South of the Koyukuk River region, Golden Eagles occur only occasionally. Frequency of nesting by this species slightly increases northeast of the proposed NAPline alignment--along the course of the upper Tanana River. Within the area of highest nesting concentration (the Brooks Range) the majority of the nests observed occur at elevations that vary between several hundreds and over 1000 feet above the valley floors (see 1:63,360 map series and Appendix 2).

Fairbanks-South Including the Tanana River Drainage

Bald Eagles and Ospreys occur south of the Brooks Range. Few nests of these species occur along the proposed NAPline alignment between the Brooks Range and the Yukon River, or between this river

and Fairbanks. Along the Tanana River drainage, which is first encountered near Fairbanks, both Bald Eagles and Ospreys occur in increasing numbers.

Nests of these species are particularly concentrated along the rivers, streams, and sloughs of the Tanana and Chisana river drainages, and in the extensive area of lakes and ponds in the upper Tanana River basin southeast of Tetlin Junction. At this location, the Tetlin, Nabesna and Chisana rivers flow through an extensive marsh. The majority of prime Bald Eagle and Osprey nesting habitat lies either to the northeast or to the southwest of the proposed NAPline alignment. It was at these locations that both currently occupied and unoccupied nests of these species were either located during the survey or were reported to exist by others. Between Fairbanks and Delta Junction, most nests occurred southwest of the alignment--along the Tanana River. Between Delta Junction and Tetlin Junction, most nests are found to the northeast or to the north of the proposed alignment--along the Tanana River. From Tetlin Junction to the U.S.-Canada border, most nests are located southwest of the proposed alignment. The proposed NAPline alignment more closely approaches raptor nesting areas in the area between the Gerstle River and Tanacross. The alignment then follows the northeastern edge of a large and significant region of raptor nesting habitat that lies between Tetlin Junction and Deadman Lake (see 1:63,360 maps).

The dry, wooded uplands of interior Alaska are important nesting habitat for both Goshawks (*Accipiter gentilis*) and Sharp-shinned Hawks. Both of these species occur in these habitats south of the northern edges of the Boreal Forest in the southern Brooks Range and along the remaining length of the proposed NAPline alignment. Much of the proposed alignment between the Brooks Range and the Yukon River passes through coniferous forests (e.g., sections of the Dietrich and Middle Fork of the Koyukuk river valleys), through open and semi-open alpine areas (e.g., Oldman Camp area), or through areas of largely second-growth deciduous forests (e.g., north of the Yukon River). Some nests of both of these species of accipiters undoubtedly occur in

the general vicinity of these portions of the proposed alignment. Suitable Goshawk nesting territories are likely to be widely scattered in stands of larger mature trees, particularly Birch (*Betula* sp.), or in areas of mixed Birch and White Spruce (*Picea alba*). In interior Alaska, Goshawks usually prefer nests in Birch trees. Sharp-shinned Hawks usually construct their nests in White Spruce trees. Sharp-shinned Hawks generally nest in small isolated or semi-isolated clusters of White Spruce trees within larger expanses of deciduous forest (R. Clarke personal communication). South of the Yukon River both Goshawk and Sharp-shinned Hawks become more common. Both species commonly nest in the Fairbanks area. Goshawks become more numerous as populations of Snowshoe Hares (*Lepus americanus*) increase toward a cyclic high (the current condition). Sharp-shinned Hawks apparently nest at relatively high densities wherever suitable habitat exists (R. Clarke personal communication). Particularly suitable nesting habitat for Goshawks and Sharp-shinned Hawks occurs along the section of the proposed NAPline alignment between the Chatanika River and Delta Junction. Accipiter nesting habitat in the area between Delta Junction and the vicinity of the Johnson River is apparently much less suitable along the proposed alignment. Between the Johnson River and the U.S.-Canada border, only occasional potential nesting habitat occurs for accipiters (e.g., at Sheep Creek, Bitters Creek and at other similar wooded stream crossings).

APPENDIX 1. Sources Reviewed Prior to Raptor Surveys Along the Proposed Northwest Alaskan Pipeline Company Gas Pipeline Route, U.S.-Canada Border to Prudhoe Bay, Alaska, 31 May - 7 June and 7 July 1979.

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APPENDIX 2. Raptor Nest Sites Along the Proposed Northwest Alaskan Pipeline Company Gas Pipeline Route, U.S.-Canada Border to Prudhoe Bay, Alaska, 31 May - 7 June and 7 July 1979.

Numbered sites refer to locations where (1) nests were reported to occur, (2) where "new" nests were discovered during the course of the 21 May - 7 June and 7 July 1979 surveys, and (3) where evidence suggested that an active nest may have occurred.

All locations referred to in this Appendix have been marked on USGS 1:63,360 scale topographic maps.

Within this Appendix and on the USGS 1:63,360 maps, all locations that are designated by numbers that are underlined represent previously reported nest sites.

Some commonly used terms include "above sea level" (ASL), "above ground level" (AGL), "Vertical Altitude Bench Mark" (VABM).

NABESNA C-1 (Map No. 1)

1. T10N, R23E, Section 24 1810-1830 ft. ASL
Active Bald Eagle nest in spruce tree on lakeshore; both adults present one adult incubating.
2. T10N, R23E, Section 18 1810-1820 ft. ASL
 Unoccupied and previously used Bald Eagle nest in spruce tree along bank of Scottie Creek.
3. T10N, R22E, Section 1 1810-1820 ft. ASL
Active Bald Eagle nest in spruce tree along lakeshore; one adult incubating, another adult observed flying in area.

NABESNA D-1 (Map No. 2)

- 3.1. T11N, R22E, Section 2-11 boundary 2050 ft. ASL
Active Harlan's Hawk nest in spruce tree next to Haines Pipeline right-of-way; both adults present; nest on top of a dense growth of branches ("witches broom") below top of spruce tree.
- 3.2. T12N, R21E, Section 3 1750 ft. ASL
Probable Active Great Horned Owl nest along Gardiner Creek; actual nest not located, but family group including three fledged young present 17 and 18 June (observation by LGL fisheries biologists); likely that nest located nearby.
- 3.3. T12N, R21E, Section 3 1750 ft. ASL
Possible Active Merlin nest along Gardiner Creek near Haines Pipeline right-of-way; one defensive adult reported 17 June 1979 (R. McMillan personal communication).
- 3.4. T13N, R21E, Sections 28, 29, 32, 33 1750-1800 ft. ASL
Probable Active Harlan's Hawk nest; both adults appeared from trees and were observed soaring above area; nesting this location likely.

NABESNA D-2 (Map No. 3)

4. T13N, R20E, Section 21 1710-1720 ft. ASL
Unoccupied and previously used Bald Eagle nest in a poplar tree that had fallen over along the bank of the Chisana River; one sub-adult Bald Eagle perched and flying nearby.
5. T14N, R19E, Section 25-26 boundary 1690-1700 ft. ASL
Active Bald Eagle nest in a poplar tree along Mark Creek; one adult incubating, one adult soaring nearby.
6. T14N, R19E, Section 34 1690-1700 ft. ASL
Active Bald Eagle nest in a poplar tree on shore of Fish Lake; one adult incubating, one adult perched nearby.
7. T14N, R19E, Section 28 1690-1700 ft. ASL
A reported Bald Eagle nest along shore of Fish Lake; nest not located and does not appear to currently exist; one subadult Bald Eagle flying nearby.
8. T14N, R19E, Section 24 1680-1700 ft. ASL
One previously occupied and fallen-down Bald Eagle nest in poplar tree on bank of Chisana River.

TANACROSS A-3 (Map No. 5)

9. T15N, R18E, Section 8 1690-1700 ft. ASL
Unoccupied, previously used Bald Eagle nest in spruce tree on bank of Tanana River.
10. T15N, R18E, Section 8 1690 ft. ASL
Active Bald Eagle nest in spruce tree on bank of Tanana River; one adult incubating and another adult perched nearby. unoccupied and alternate second nest nearby.
11. T16N, R18E, Section 18 1850 ft. ASL
A reported Bald Eagle nest along Bitters Creek could not be located; a spruce tree near the reported location contained a few sticks and what appeared to be the dried remains of a snowshoe hare.

- 11.1. T16N, R17E, Section 13; 1750-1800 ft. ASL
T16N, R18E, Section 18

Probable active Sharp-shinned Hawk nest immediately northeast of highway along Bitters Creek; one defensive adult (probably male) was reported (R. McMillan personal communication).

12. T16N, R17E, Section 20 1645-1650 ft. ASL

Active Osprey nest in a spruce tree on southwest shore of Tlocogn Lake; one adult present and brooding.

13. T16N, R17E, Section 18 1640-1650 ft. ASL

Active Bald Eagle nest in a poplar tree along bank of Tanana River; one adult incubating and one adult perched nearby.

TANACROSS A-4 (Map No. 7)

14. T17N, R15E, Section 29 1625-1650 ft. ASL

Active Bald Eagle nest in a poplar tree along bank of Tanana River; one adult incubating and one adult perched nearby.

TANACROSS B-4 (Map No. 8)

15. T18N, R13E, Section 1 1600-1650 ft. ASL

Active raven nest on cliff above Tanana River; four young present.

TANACROSS B-5 (Map No. 9)

16. T19N, R12E, Section 20, 21 1800 ft. ASL

a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

b. Unoccupied Golden Eagle stick nest on cliff above Tanana River (VABM SAMO); subadult Golden Eagle soaring immediately above cliff; an eagle has used area for perching.

17. T19N, R10E, Section 36 1500-1550 ft. ASL

Active Bald Eagle nest in poplar tree along Tanana River; one adult incubating and another adult perched nearby.

TANACROSS B-6 (Map No. 10)

18. T19N, R9E, Section 23 1600-1650 ft. ASL

- a. Active raven nest on cliff above Tanana River; two, possibly three nearly fledged young ravens present in the raven nest.
- b. Unoccupied Golden Eagle nest on cliff above Tanana River.

19. T19N, R9E, Section 29 1700-1800 ft. ASL

- a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
- b. Active Golden Eagle nest on cliff above Tanana River (Cathedral Bluffs); one adult incubating.

20. T19N, R8E, Section 24 1500-1550 ft. ASL

Unoccupied, previously used stick nest on bluff above Tanana River.

20.1. T19N, R8E, Section 14 1575 ft. ASL

Unoccupied Goshawk nest in stand of poplar trees immediately upslope of Haines Pipeline right-of-way.

21. T20N, R8E, Sections 24, 25 1600 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

- a. Active peregrine site on cliff above Tanana River (Tower Bluffs); both adults present, male perched above, female began "kekking" from undetermined location about midway down cliff (possibly from a hole in the cliff). Both birds exhibited normal defensive behavior.
- b. Active raven nest on cliff above Tanana River (Tower Bluffs); site located approximately 200 yards downstream from above Peregrine Falcon site; four nearly fledged young present.

[Golden Eagles also have nested along the southern end of Tower Bluffs (J. Haugh personal communication). Eagle nest sites along the upper portion of the hillside were not checked because of their proximity to an active peregrine site].

TANACROSS C-6 (Map No. 11)

22. T20N, R9E, Sections 7, 18 approximately 2000 ft. ASL

A reported Golden Eagle nest on Tower Bluffs could not be located; report may refer to Site No. 23.

23. T20N, R9E, Section 6 1600-1700 ft. ASL

Active raven nest on cliff above Tanana River; three young present.

24. T20N, R8E, Section 1; elevation unknown
T20N, R9E, Section 6;
T21N, R8E, Section 36

A reported nest site (species unknown) could not be located.

25. T21N, R8E, Sections 27, 34 approximately 1500 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

A reported possible Peregrine Falcon site on cliff above Tanana River; possibly an historical location. Currently the relatively sheer faces of rock do not appear to offer any suitable nest ledges; no evidence of stick nests found.

26. T21N, R8E, Section 24 1500-1700 ft. ASL

Unoccupied Golden Eagle nest (recent construction) with no alternate older nests nearby.

27. T21N, R8E, Section 23 approximately 1600 ft. ASL

Active Golden Eagle nest on cliff above Tanana River flood plain; one adult standing on edge of nest; at least one egg present; second adult perched near hilltop approximately 1/2 mile away.

28. T21N, R8E, Section 1 approximately 1450 ft. ASL

Active Bald Eagle nest along Tanana River; both adults perched nearby but single nest (excellent condition) was empty; apparently these eagles had lost their clutch.

29. T21N, R8E, Section 10

approximately 1500-
1700 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

- a. Active raven nest on cliff approximately 250 yards downstream of above Peregrine Falcon site; three nearly fledged young present.
- b. Active peregrine site on cliff above Tanana River (Round Lake); both adults present, male appeared and flew above cliff top, female "kekking" from cliff. Male flew to grassy ledge on cliff and disappeared after female had appeared from undetermined location on cliffs. Female perched, then flew above while "kekking". Both birds exhibited normal defensive behavior; male believed to be incubating as we departed [this same ledge has been used by peregrines in the past (J. Haugh personal communication)].

30. T22N, R7E, Section 24

approximately 1400-
1450 ft. ASL

Unoccupied and previously used Bald Eagle nest in poplar tree along Tanana River.

31. T22N, R8E, Section 18

approximately 1600 ft. ASL

Active raven nest on cliff above Tanana River floodplain; one adult present, three nearly fledged young in nest.

32. T22N, R7E, Section 12

approximately 1700 ft. ASL

Active Golden Eagle nest on cliff above Tanana River flood plain; one adult present and incubating.

MT. HAYES C-1 (Map No. 12)

33. T22N, R7E, Section 3

1400 ft. ASL

A reported Bald Eagle nest could not be located (may no longer exist).

34. T22N, R7E, Section 5 1500 ft. ASL
- a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
 - b. Active raven nest on cliff above Tanana River; both adults present; nest contained three large young; cliff series contained two previously used large stick nests on high rock outcrop and one more recently constructed large stick nest in good condition with much old whitewash.
35. T22N, R7E, Section 6 approximately 1400-1500 ft. ASL
- a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
 - b. Unoccupied stick nest on cliff above Tanana River; nest located under overhang and much whitewash present, see 'a' above; this is probably the nest used by peregrines in 1978.
36. T22N, R6E, Section 2, 3 1400-1500 ft. ASL
- One unoccupied stick nest on cliff above Tanana River with several whitewashed perches. No evidence of use at other potential nest sites on this bluff.
37. T22N, R6E, Section 7 1350-1400 ft. ASL
- Active Great Horned Owl nest on island in Tanana River; birds occupying a previously used Osprey nest at top of dead spruce; one adult owl present and brooding (evidence suggested this bird was incubating eggs that failed to hatch or eggs from a second clutch or was brooding recently hatched young).
38. T22N, R5E, Section 2 1400-1500 ft. ASL
- a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
 - b. Active raven nest on cliff above Tanana River; adults present; two large young in nest.
 - c. Unoccupied large Golden Eagle stick nest and two smaller stick nests (raven nests?) present near active raven nest; another ledge supported the remains of a previously used stick nest that was falling off the cliffs located about 400 yards downstream.

39. T22N, R5E, Section 4 1350-1400 ft. ASL

Active Osprey nest along bank of Tanana River; nest in top of dead spruce; one adult incubating and another adult perched nearby.

40. T23N, R5E, Section 32 1350-1400 ft. ASL

Unoccupied Harlan's Hawk nest in top of spruce along bank of Tanana River; single Harlan's Hawk soaring one mile downstream.

MT. HAYES C-2 (Map No. 13)

- 40.1. T14S, R16E, Section 23 1350-1400 ft. ASL

Probable active Great Horned Owl nest along Dry Creek in vicinity of Haines Pipeline right-of-way; three fledged young were reported at this site in mid-June (R. McMillan personal communication).

41. T14S, R16E, Section 12 1600 ft. ASL

- a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
- b. Unoccupied and previously used Golden Eagle stick nest on cliff along Tanana River.

42. T14S, R16E, Sections 3, 10 approximately 1500 ft. ASL

- a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
- b. Active raven nest on cliffs above Tanana River; adults present; nest contained four large young (three of these fledged on 1 June).
- c. Unoccupied Golden Eagle nest located high and just downstream from raven nest ('b', above); male Kestrel observed flying in front of cliff.

MT. HAYES D-2 (Map No. 14)

43. T13S, R16E, Section 29 1050-1100 ft. ASL

Active Osprey nest in top of dead spruce on island in Tanana River; one adult incubating; second previously used nest nearby.

44. T13S, R16E, Section 20 approximately 1400 ft. ASL

A reported stick nest on a suitable cliff along the Tanana River; nest not located; whitewashed perches present on cliffs.

45. T13S, R16E, Section 18 approximately 1100 ft. ASL

Active raven nest on cliff above Tanana River; one adult present, nest contained at least three (possibly four) large young.

46. T13S, R15E, Section 13 1250 ft. ASL

Active Bald Eagle nest in poplar tree on island in Tanana River; one adult incubating, one adult perched nearby.

47. T13S, R15E, Section 13 approximately 1250-1300 ft. ASL

a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

b. Unoccupied stick nest under overhanging cliff above Tanana River; perching place and whitewash present near nest.

48. T12S, R15E, Sections 33, 34; approximately 1250-1350 ft. ASL
T13S, R15E, Sections 2, 3

a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

b. Active raven nest on cliff above Tanana River; both adults present, nest contained three large young; second unoccupied stick nest and whitewash nearby.

49. T12S, R15E, Section 34 approximately 1300-1500 ft. ASL

Unoccupied and previously used large Golden Eagle stick nest on hillside outcrops.

50. T12S, R15E, Section 22 approximately 1250-1350 ft. ASL

TREAT AS POSSIBLE HISTORICAL PEREGRINE FALCON NEST SITE

Single Adult Peregrine Falcon on cliff above Tanana River; one large ledge and one platform site unoccupied but possibly used in the past; scattered whitewash on rocks suggested this bird spent some time perched on the rocks this spring. Although the rock outcroppings and cliff faces are small, the site does offer suitable nesting habitat and should be considered a possible Peregrine Falcon nesting location.

51. T12S, R15E, Section 14 1200-1250 ft. ASL

A reported Bald Eagle nest along the Tanana River could not be located. One subadult Bald Eagle observed flying nearby across the river.

52. T12S, R15E, Section 9 1250-1350 ft. ASL

Possible active raven nest on cliff above Tanana River; one adult raven on perch; one unoccupied stick nest with whitewash and one unoccupied ledge located.

53. T11S, R15E, Section 7 1150 ft. ASL

Active Bald Eagle nest in poplar tree along bank of Tanana River; adult incubating on nest.

BIG DELTA A-3 (Map No. 18)

54. T10S, R14E, Section 21 1100 ft. ASL

Unoccupied Bald Eagle nest along bank of Tanana River.

55. T10S, R13E, Sections 2, 11 1100-1250 ft. ASL
Gerstle River Complex

TREAT AREA AS HISTORICAL PEREGRINE FALCON NEST SITE

Unoccupied series of stick nests on cliffs above Tanana River; total of seven nests, numerous perches and much whitewash observed along cliffs.

56. T10S, R13E, Section 16 1050-1100 ft. ASL

A reported Bald Eagle nest along bank of Tanana River could not be located.

57. T10S, R12E, Section 1 1050 ft. ASL

Unoccupied Bald Eagle nest in poplar tree along bank of Tanana River.

BIG DELTA A-4 (Map No. 19)

58. T9S, R11E, Section 27

1025 ft. ASL

Unoccupied Bald Eagle nest in poplar tree along bank of Tanana River.

59. T9S, R11E, Section 27

1000 ft. ASL

Active Bald Eagle nest in poplar tree along bank of Tanana River; both adults present, one incubating; another previously used nest nearby.

60. T8S, R10E, Sections 26, 27approximately 1000-
1100 ft. ASL

a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

b. Active raven nest on cliff above Tanana River; adult present, nest contained five large young, at least one additional unoccupied stick nest nearby.

61. T8S, R10E, Section 32

1000 ft. ASL

TREAT AS POSSIBLE HISTORICAL PEREGRINE FALCON NEST SITE

Single Adult Peregrine Falcon observed on cliff above Tanana River; two suitable ledges under small overhung cliff were well screened by trees; fresh whitewash indicated bird had been perching on cliff this spring; older whitewash at ledges suggest past use by unknown species. Although cliff is small and near human activity (cabins and cabin construction), its concealed nature and the presence of excellent ledges suggest it may be a potential site; may have historical significance, although not reported as such. Bird's plumage indicated advanced stage of molt.

62. T9S, R10E, Section 5

1000-1050 ft. ASL

Active raven nest on cliff above Tanana River; adults present; nest contained three large young.

63. T9S, R10E, Section 6

1000-1100 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

Unoccupied cliff on Tanana River; stick nests not evident but several good whitewashed perches along downstream portion.

63.1. T9S, R10E, Section 7

1100-1200 ft. ASL

TREAT AS POSSIBLE HISTORICAL PEREGRINE FALCON NEST SITE

A reported Peregrine Falcon site that is unoccupied; site consists of series of well whitewashed perches and may contain a few ledges; possible that this location served as an alternate to site No. 63 above, however, the historical significance of this location is somewhat unclear.

BIG DELTA B-5 (Map No. 21)

64. T8S, R8E, Section 2

900 ft. ASL

Active Bald Eagle nest in poplar tree along Tanana River; one adult incubating.

BIG DELTA A-5 (Map No. 20)

65. T8S, R8E, Section 5-8 boundary

875-900 ft. ASL

Unoccupied Bald Eagle nest in poplar tree on island in Tanana River.

66. T8S, R8E, Section 5

900-950 ft. ASL

Active Bald Eagle nest in poplar tree along bank of Tanana River; one adult incubating.

BIG DELTA B-5 (Map No. 21)

67. T8S, R8E, Section 6

950-1000 ft. ASL

Active Great Horned Owl nest in hole on cliff above Tanana River; one adult present at entrance and three (possibly four) large, nearly fledged young.

68. T7S, R7E, Section 36

900-1000 ft. ASL

a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

b. One unoccupied, previously used stick nest; whitewashed perches high on cliff above Tanana River.

69. T7S, R7E, Section 35 900-1000 ft. ASL

- a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
- b. One unoccupied stick nest on cliff above Tanana River with several good whitewashed perches.

69.1. T7S, R7E, Section 21 1000-1200 ft. ASL

Active Sharp-shinned Hawk nest north side of highway; active nest contained six downy young in late June (R. Clarke personal communication); many previously used nests this area.

69.2. T7S, R6E, Section 24 1000-1200 ft. ASL

Goshawk nests; status undetermined because of concealment by vegetation.

BIG DELTA B-6 (Map No. 22)

70. T7S, R6E, Section 32 900-1000 ft. ASL

Active raven nest on cliff above Tanana River cliff; nest contained two large young; one previously used site present.

70.1. T7S, R6E, Sections 5, 6 1100-1250 ft. ASL

A previously reported stick nest (possible Goshawk nest) could not be located.

71. T7S, R6E, Section 31 775-800 ft. ASL

Unoccupied Bald Eagle nest in poplar tree on island in Tanana River.

72. T7S, R5E, Section 30 800-1000 ft. ASL

A reported stick nest could not be located (report may refer to Site 71 above).

73. T7S, R5E, Sections 36, 25, 26

800-900 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

- a. Active raven nest on cliff above Tanana River approximately 400 yards upstream from Peregrine Falcon site; nest contained at least two, and probably more, large young; three other previously used and unoccupied stick nests nearby on same cliff series.
- b. Active Peregrine Falcon site on cliff above Tanana River; upon our arrival, both adults perched above in trees, male circled three to four times above and flew upriver out of sight north of bluffs; female remained perched in tree top, male returned immediately upon my whistle and "kekkek" only once while circling high, then flew upriver out of sight north of bluffs again; female remained and perched quietly. Very weak defensive behavior; female neither incubating nor attempting to incubate. All evidence suggested that this pair had already failed in their attempt to nest (as of 2 June 1979).

74. T7S, R5E, Section 23

800-900 ft. ASL

- a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
- b. Small ledge with whitewash and one previously used fallen stick nest on cliff above Tanana River.

75. T7S, R4E, Section 12
T7S, R5E, Section 7

700 ft. ASL

Active Bald Eagle nest on island in Tanana River; adults present, one adult incubating.

76. T6S, R4E, Section 9

850-1000 ft. ASL

Series of outcrops on Flag Hill; no evidence of nesting, garbage dump located directly below along road; nesting habitat relatively poor, however, some use (e.g. by ravens) may have occurred prior to use of area by humans.

76.1. T6S, R4E, Section 9

1000-1200 ft. ASL

Reported stick nest (probably Goshawk nest) in tree; status undetermined because of excessive vegetative cover.

77. T6S, R4E, Section 8 675 ft. ASL

Reported stick nest (probably Bald Eagle) that was inadvertently not checked.

- 77.1. T5S, R4E, Sections 10, 11, 14, 15, 16 700-800 ft. ASL

Active Goshawk nest in Section 16; other alternate sites nearby (W. Tilton personal communication).

78. T5S, R5E, Section 13, 14 750-900 ft. ASL

Unoccupied Golden Eagle nest on cliff above Salcha River.

79. T5S, R5E, Section 15 750-900 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

Unoccupied dirt ledges, some old whitewash, no evidence of birds present.

80. T5S, R5E, Section 15 750-900 ft. ASL

TREAT AS POSSIBLE HISTORICAL PEREGRINE FALCON NEST SITE

Unoccupied dirt ledge, some old whitewash.

81. T5S, R6E, Section 22 775-800 ft. ASL

Unoccupied stick nest in spruce tree along creek (possible Harlan's Hawk nest).

FAIRBANKS C-1 (Map No. 24)

82. T4S, R3E, Section 4 550-575 ft. ASL

Active Bald Eagle nest in poplar tree on island in Tanana River; both adults present, one adult incubating.

- 82.1. T2S, R3E, Section 19 550-750 ft. ASL

Active Goshawk nest on Moose Creek bluffs, several other previously used stick nests in this area (W. Tilton personal communication).

83. T2S, R2E, Sections 17, 20 475-500 ft. ASL

Active Bald Eagle nest in poplar tree on island in Tanana River; tenth consecutive year of occupancy (L. Peet personal communication).

FAIRBANKS D-1 (Map No. 25)

84. T1S, R3E, Section 22 550-650 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

River bluff on Chena River, not checked because of great distance from NAPLine alignment.

LIVENGOOD A-2 (Map No. 26)

85. T3N, R1W, Section 35 700-800 ft. ASL

Reported Bald Eagle nest above Vault Creek; not located, vicinity unoccupied.

LIVENGOOD B-3 (Map. No. 28)

86. "Grapefruit" or "Castle" rocks, 1400-1500 ft. ASL
Mile 39, Elliott Highway

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

Active Peregrine Falcon site on hillside outcrop northeast of Elliott Highway opposite mile 38.7. As we approached in helicopter on first pass to check Golden Eagle sites, a perched falcon was sighted. On second (last) pass, the perched bird was identified as a Peregrine Falcon (probably male). A second Peregrine Falcon (probably female) stood up on a fairly well hidden ledge and both birds flew off. As we departed the area, the falcons circled once and returned to the same area of cliff. We chose not to land and walk into this site since presence of a Peregrine Falcon pair was confirmed and numerous state highway personnel were present and working in a gravel pit approximately 1/4 mile downslope and approximately 500 feet below the nest site; we did not wish to attract attention to the birds. This site is of extreme interest since it was not considered a historical Peregrine Falcon site; only Golden Eagles have

been known to nest on those rocks since the early 1960's. This site is atypical of virtually every known Peregrine Falcon nesting site in Alaska since it occurs on tor-like rocks in the interior uplands above a small creek (Globe Creek) valley. Whether or not Peregrine Falcons have ever actually used this site in the past is unknown.

87. "Grapefruit" or "Castle" rocks, 900 ft. ASL
Mile 39, Elliott Highway

Unoccupied Golden Eagle nest on hillside outcrop southwest of highway, overlooking Globe Creek valley; nest in good condition.

88. "Grapefruit" or "Castle" rocks area, 1100-1200 ft. ASL
Mile 39, Elliott Highway

Unoccupied Golden Eagle nest on hillside outcrop northeast of highway.

89. "Grapefruit" or "Castle" rocks area, 750 ft. ASL
Mile 39, Elliott Highway

A reported stick nest (in a tree?) could not be located.

LIVENGOOD B-4 (Map No. 29)

90. T18N, R6W, Section 26 500-550 ft. ASL

Unoccupied raven stick nest on small outcrop above upper Tolovana River, approximately 2-1/2 miles below Lost Creek.

91. T7N, R7W, Sections 9, 10 700-1000 ft. ASL

A reported stick nest on small rocky bluffs above west fork of the Tolovana River; not checked because of distance from alignment.

LIVENGOOD C-5 (Map No. 31)

92. T10N, R9W, Section 2 800-1000 ft. ASL

A reported Golden Eagle site along Hess Creek that was not checked because of local air turbulence.

LIVENGOOD D-5 (Map No. 32)

93. T12N, R9W, Section 8 300-500 ft. ASL

A reported Golden Eagle nest on a cliff above the Yukon River that was not checked during this survey because of its distance from alignment and possible presence of peregrines nearby. This site checked by boat on 11 July 1979 and found to be unoccupied.

LIVENGOOD D-6 (Map No. 33)

94. T12N, R10W, Section 1 300-400 ft. ASL

An unoccupied Golden Eagle nest on a cliff above the Yukon River.

95. T12N, R11W, Section 14 300-500 ft. ASL

a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

b. Active raven nest on cliffs above the Yukon River (checked by boat, 13-14 June 1979).

96. T12N, R11W, Section 23 300-500 ft. ASL

a. Possible active Harlan's Hawk nest on cliffs above the Yukon River; one adult flew from cliff.

b. Unoccupied Golden Eagle nest on cliffs above Yukon River.

97. T12N, R11W, Section 22 300-500 ft. ASL

Unoccupied raven nest on cliffs above the Yukon River (checked by boat 13-14 June 1979).

BETTLES A-1 (Map No. 35)

98. T14N, R12W, Section 28 400 ft. ASL

Active Great Horned Owl nest above Ray River; owls utilizing large stick nest (possibly Golden Eagle nest) overhung by small rock outcrop. One adult present and two large young (at least 4 weeks old).

BETTLES B-2 (Map No. 37)

99. T17N, R15W, Section 1 1250 ft. ASL

Unoccupied Golden Eagle nest (on large tor); nest fallen down; much whitewash.

100. T18N, R14W, Section 17 1700-1750 ft. ASL

Unoccupied Golden Eagle nest (on hillside tor); nest fallen from cliff; good perch, whitewash present.

101. T19N, R14W, Section 7 1250 ft. ASL

A reported Gyrfalcon nest near center of Section 18 on some ADFG maps; investigated from ground, poor nesting habitat (few rocks) and no evidence of use. Small cliff along creek to north may have been used and appears to be only possible location in this area; no evidence of a nest, but small amount of whitewash and "lichen color". White and Cade (1975) reported this Gyrfalcon site as both north and south of Old Man Camp near the haul road. They may have been referring to the vicinity of site 100 above or to the vicinity of 'T' or 'S' (see Appendices 1 and 3).

BETTLES C-2 (Map No. 38)

102. T20N, R15W, Section 2 2000 ft. ASL

Unoccupied Gyrfalcon type site nearly adjacent to Trans-Alaska Oil Pipeline; one previously used ledge, whitewashed, excellent perches, does not currently contain a nest but likely used in the past by Gyrfalcons, Golden Eagles, or ravens.

103. T21N, R14W, Section 7 1050-1100 ft. ASL

Hillside outcrop above Bonanza Creek contains one ledge and some perching places; no evidence of recent occupancy.

BETTLES D-2 (Map No. 39)

104. T23N, R14W, Section 33 1000 ft. ASL

Unoccupied stick nest on rock outcrop above Prospect Creek; several other rock outcrops and bluffs occur along the creek in Sections 32, 33, and 34; nests did not appear to be present (area previously reported to be "habitat").

105. T23N, R14W, Section 25 Approximately
1000-1500 ft. ASL

A reported stick nest (possibly Golden Eagle nest) that was not checked because of local air turbulence and distance from NAPline alignment.

106. T22N, R16W, Sections 1, 2, 3, 10 1000 ft. ASL
T22N, R15W, Section 6
T23N, R15W, Sections 29, 30, 31, 32
T23N, R16W, Section 36 (Jim River Canyon)

Numerous rock outcrops and river cliffs along and above the river. Many excellent whitewashed perches and ledges. Although there are no historical data suggesting past occupancy of this area by Peregrine Falcons, the habitat and general "setting" suggest that this area should be treated as potential Peregrine Falcon nesting habitat.

One active raven nest; one adult and at least two young present; second unoccupied stick nest nearby in Section 31 (T23N, R15W) at the location of a previously reported Gyrfalcon site.

BETTLES D-1 (Map No. 40)

107. T25N, R13W, Section 34 2200-2300 ft. ASL

Nest site approximately 900 ft. above valley floor.

Active Golden Eagle nest east of Grayling Lake on hillside outcrop; one adult present and incubating (area previously reported as "habitat").

108. T25N, R13W, Section 14 2200-2300 ft. ASL

Nest site approximately 900-950 ft. above valley floor.

Active Golden Eagle nest on west side of valley on hillside outcrop; one adult present and incubating.

109. T25N, R13W, Section 13 1900-2000 ft. ASL

Nest site approximately 700 ft. above valley floor.

Two unoccupied Golden Eagle nests on hillside outcrops above west side of valley; these nests are almost certainly alternates to Site 108, mentioned above.

BETTLES D-2 (Map No. 39)

110. T25N, R14W, Section 18 Approximately
1250-1750 ft. ASL

A reported Golden Eagle nest that was not checked because of its great distance from NAPline alignment.

WISEMAN A-1 (Map No. 41)

111. T25N, R12W, Section 6 Elevation unknown
T26N, R12W, Section 31

A reported Golden Eagle nest that was not located and apparently does not exist; location probably refers to Sites 112 and 113.

112. T26N, R12W, Section 32 1750-1800 ft. ASL

Nest site approximately 650-700 ft. above valley floor.

One large unoccupied Golden Eagle nest on hillside outcrop above the south fork of the Koyukuk River; whitewash present (likely an alternate for Site 113).

113. T26N, R12W, Section 32 1100-1200 ft. ASL

Nest site approximately 75-100 ft. above valley floor.

Active Golden Eagle nest on river cliff along west side of south fork of Koyukuk River; one adult present and incubating, two unoccupied alternate nests nearby (slightly upriver).

114. T26N, R12W, Section 35 1600 ft. ASL
Nest site approximately 350 ft. above valley floor.
Two unoccupied Golden Eagle nests on hillside outcrop (one falling down).
115. T26N, R12W, Section 26 1500 ft. ASL
A reported Golden Eagle nest was not located; rock outcroppings present but no sign of nesting or use by eagles; reported location probably refers to Site 116.
116. T26N, R12W, Section 26 1300-1400 ft. ASL
Two unoccupied stick nests on hillside outcrop.
117. T26N, R11W, Section 30 1300-1500 ft. ASL
Active raven nest above south fork of Koyukuk River; adult present, nest contained three large and nearly fledged young; two additional stick nests nearby.
118. T26N, R11W, Section 29 1500 ft. ASL
A reported Golden Eagle nest that was not checked because of great distance from NAPline alignment.
119. T26N, R12W, Section 20 1500 ft. ASL
Unoccupied Golden Eagle nest on hillside outcrop (possible Gyr Falcon site was reported in this vicinity; no evidence of this falcon nest could be located).
120. T26N, R12W, Sections 25, 30 2000-2250 ft. ASL
A reported possible Gyr Falcon site; habitat consists of several tors with no ledges; no nest; no conclusive evidence of past use other than perching.

WISEMAN A-2 (Map No. 42)

121. T26N, R14W, Section 12 900-1000 ft. ASL
Unoccupied Golden Eagle nest immediately below Tramway Bar; along north bank of middle fork of Koyukuk River.

WISEMAN A-1 (Map No. 41)

122. T26N, R13W, Section 7 950 ft. ASL
One unoccupied stick nest along west side of middle fork of Koyukuk River immediately above Tramway Bar.
123. T27N, R12W, Section 19 2400 ft. ASL
Hillside outcrop with whitewash and one fallen stick nest (probably Golden Eagle nest).
124. T27N, R12W, Sections 22, 27 2200 ft. ASL
A reported stick nest could not be located; a small outcrop with whitewash located on the west end of Section 22-27 boundary but no evidence of nest found.
125. T28N, R12W, Sections 26, 25 1200-1250 ft. ASL
T28N, R11W, Section 30
Three reported stick nests along Slate Creek on small rocky bluffs between the winter road and Myrtle Creek; several small rocky bluffs/outcroppings were observed but were not checked because of air turbulence; possible raven habitat.

WISEMAN B-1 (Map No. 43)

126. T29N, R12W, Section 21 1400-1500 ft. ASL
a. Possible active raven nest immediately upstream of active mine on Emma Creek; one adult flew and returned to cliff.
b. Two large unoccupied stick nests (at least one may have been previously used by Golden Eagle).
127. T29N, R11W, Section 19 3000-3100 ft. ASL
Nest site approximately 1700 ft. above floor of Marion Creek valley.
A reported Golden Eagle nest above Marion Creek (north side) that may have fallen down; no nests present but several areas well whitewashed; rock could support new nests.

128. T29N, R11W, Section 17 2800 ft. ASL
 Nest site approximately 1200 ft. above floor of Marion Creek valley.
Active Golden Eagle nest above Marion Creek (north side); one adult present flying above nest; nest contained one chick estimated 10-14 days old; two large nests are joined together to form the site on a broad, large ledge.
129. T29N, R12W, Section 10 1800-2000 ft. ASL
 Nest site approximately 700-800 ft. above floor of Koyukuk River valley.
 Two unoccupied Golden Eagle nests on north side of Sawyer Creek; a possible third nest located lower down (1500-1600 ft. ASL) on south side of the creek; rocks fallen into nest.
130. T30N, R12W, Section 24 1600-1700 ft. ASL
 Nest site approximately 450-550 ft. above floor of Koyukuk River valley.
 Unoccupied stick nest high up on northeast side of Wiseman Creek gorge immediately northwest of Wiseman; apparently a previously used raven nest.
131. T31N, R11E, Section 31 1700 ft. ASL
 Nest site approximately 500 ft. above floor of Koyukuk River valley.
 One unoccupied Golden Eagle nest on north side of Conferate Gulch.
132. T31N, R11W, Section 31 2600-2700 ft. ASL
 Nest site approximately 1400-1500 ft. above floor of Koyukuk River valley.
Active Golden Eagle nest west side of Koyukuk valley; one adult present and incubating; two additional alternate nests on same cliffs.
133. T31N, R11W, Section 29 Elevation unknown
 A reported raven nest that could not be located; however, some small outcrops occur and they may have supported a nest previous to 1979.

134. T31N, R11W, Section 21 1600-1700 ft. ASL

Nest site approximately 300-400 ft. above floor of Koyukuk River valley.

A reported Golden Eagle nest; no nest evident, rock appears to have been used recently only as a perching place.

WISEMAN C-1 (Map No. 44)

135. T31N, R11W, Section 17 Elevation unknown

A reported Golden Eagle nest that was not checked because of air turbulence.

CHANDALAR C-6 (Map No. 46)

136. T31N, R11W, Section 16 2500 ft. ASL

Active Golden Eagle nest in headwaters of Jennie Creek; both adults present, one adult on nest with one chick estimated to be 5+ days old; two additional unoccupied and alternate nests on same cliff.

WISEMAN C-1 (Map No. 44)

137. T32N, R11W, Section 33 2500-2700 ft. ASL

A reported Golden Eagle nest on north side of and above Jennie Creek Lake; not checked because of air turbulence and distance from NAPline alignment.

CHANDALAR B-6 (Map No. 45)

138. T31N, R11W, Section 27 1700-1800 ft. ASL

Nest site approximately 400-500 ft. above floor of Koyukuk River valley.

Active raven nest on hillside outcrop north side of Koyukuk valley; one adult present, nest contained four large nearly fledged young.

139. T31N, R11W, Section 24 2500-2600 ft. ASL

Nest site approximately 1200-1300 ft. above floor of Koyukuk River valley.

Active Golden Eagle nest on hillside outcrop northwest side of Koyukuk valley; one adult incubating on nest, another adult perched on outcrop at northeast end of cliffs, two additional unoccupied and alternate nests on same cliffs.

CHANDALAR C-6 (Map No. 46)

140. T31N, R10W, Section 16 1700-1800 ft. ASL

Unoccupied Golden Eagle nest and unoccupied smaller nest (probably raven nest) on cliffs along the north side of Gold Creek.

141. T31N, R11W, Section 1 1450-1500 ft. ASL

- a. Possible active Great Horned Owl nest along west side of Koyukuk valley on northeast side of lower Vi Creek; one adult flushed from lower rock outcrops and perched above them in a spruce tree.
- b. Two unoccupied stick nests located 1/4 mile upstream from 'a' above (raven or possibly previously used Golden Eagle nest).

142. T32N, R10W, Section 30 2200 ft. ASL

Nest site approximately 900 ft. above floor of Koyukuk River valley.

Reported Golden Eagle nest west side of Koyukuk valley; no nests apparent, one previously used ledge present that may have contained a nest.

143. T32N, R10W, Section 19 1800-2500 ft. ASL
Nest site approximately 450-1150 ft. above floor of Koyukuk River valley.
- a. Active Golden Eagle nest west side of Koyukuk valley (active site 2500 ft. ASL); one adult incubating; five additional, alternate nests (four of which are above 2200 ft. ASL).
 - b. Possible active raven nest (between 1800-2000 ft. ASL) at lower end of same cliff; one adult flushed and returned to cliff; much whitewash on rocks.
144. T32N, R10W, Junction of Sections 5, 6, 3000 ft. ASL
7, 8
Nest site approximately 1600 ft. above floor of Koyukuk River valley.

Unoccupied Golden Eagle nest along west side of Koyukuk River valley.
145. T33N, R10W, Section 33 2500 ft. ASL
Nest site approximately 1100 feet above floor of Koyukuk River valley.

Unoccupied Golden Eagle nest along west side of Koyukuk River valley.
146. T33N, R10W, Section 27-28 boundary 2000 ft. ASL
Nest site approximately 550 ft. above floor of Dietrich River valley.

Unoccupied Golden Eagle nest along west side of Koyukuk River valley.
147. T33N, R10W, Section 22 1900-2600 ft. ASL
A reported possible Golden Eagle nest west of Dietrich Camp that apparently does not exist; habitat relatively poor.
148. T32N, R10W, Section 2 1800-1900 ft. ASL
Unoccupied Golden Eagle nest on hillside outcrop to northeast, along side of lower Bettles River valley.

149. T33N, R9W, Section 25-30 boundary 2900 ft. ASL
 Nest site approximately 1400 ft. above floor of Dietrich River valley.
 Unoccupied and previously used stick nest along east side of Koyukuk River valley.
150. T33N, R9W, Section 18 2500-2600 ft. ASL
 Nest site approximately 1000-1100 ft. above floor of Dietrich River valley.
 Unoccupied Golden Eagle nest along east side of Dietrich River valley on hillside outcrop.
151. T33N, R10W, Section 12 1700 ft. ASL
 Nest site approximately 150 ft. above floor of Dietrich River valley.
Active Golden Eagle nest in creek canyon along east side of Dietrich valley; large nest under overhanging cliff; one adult present and incubating.
152. T33N, R10W, Section 10-15 boundary 1800-2700 ft. ASL vicinity
 A reported stick nest that could not be located; habitat relatively poor; this location may refer to Site 153 below.
153. T33N, R10W, Section 3-10 boundary 2800-2900 ft. ASL
 Nest site approximately 1300-1400 ft. above floor of Dietrich River valley.
Possible active Golden Eagle nest along west side of Dietrich River valley; one adult perched at north end of the cliff series; three unoccupied Golden Eagle nests located along cliff series; the cliff series is large and it is possible that an active nest could have been overlooked.
154. T33N, R10W, Section 3 2500-2600 ft. ASL
 Nest site approximately 1000-1100 ft. above floor of Dietrich River valley.
 One unoccupied Golden Eagle nest along west side of Dietrich River valley, probably an alternate to Site 153.

155. T34N, R10W, Section 25 2000-2500 ft. ASL
T34N, R9W, Section 30

Snowden Creek complex. Eleven unoccupied Golden Eagle nests and one ledge site in Snowden Creek canyon; others may also exist; nests indicate that this canyon complex has a long and important history of use.

CHANDALAR D-6 (Map No. 47)

156. T34N, R10W, Sections 20, 21 4100-4200 ft. ASL

Nest site approximately 2500 ft. above floor of Dietrich River valley.

One unoccupied Golden Eagle nest (previously used) at high elevation along west side of Dietrich valley; remaining rock outcrops checked and no other nests evident; three nests had been reported in this vicinity.

157. T34N, R10W, Sections 13, 24 2600-2800 ft. ASL

Nest site approximately 1000-1200 ft. above floor of Dietrich River valley.

A reported Golden Eagle nest along east side of Dietrich valley; cliffs in the vicinity apparently do not currently support nests, but may have supported a nest or two in the past. This location may refer to Site 158.

158. T34N, R10W, Section 14 2600-2700 ft. ASL

Nest site approximately 900 ft. above floor of Dietrich River valley.

One unoccupied Golden Eagle nest along east side of Dietrich River valley.

159. T34N, R10W, Section 10 3800-3900 ft. ASL

Nest site approximately 2100 ft. above floor of Dietrich River valley.

Two unoccupied Golden Eagle nests along east side of Dietrich valley.

160. T35N, R10W, Section 35 2600-3000 ft. ASL

A reported Golden Eagle nest up unnamed creek along east side Dietrich valley could not be located; evidence of nest sites not observed in this area; presence of nest site questionable.

161. T35N, R10W, Section 35 Elevation unknown

A reported Golden Eagle nest up unnamed creek along east side Dietrich valley could not be located; evidence of nest sites not observed in this area; presence of nest site questionable.

162. T35N, R10W, Sections 23, 24 Elevation unknown

- a. A reported Golden Eagle nest up unnamed creek along east side of Dietrich valley, no such nest observed in this area.
- b. A reported possible Gyr Falcon site up unnamed creek along east side of Dietrich valley; no such nest observed in this area.
- c. A reported stick nest (probably Golden Eagle nest) up unnamed creek along east side of Dietrich valley; no nest observed in this area.

Special Note: Nesting habitat in this area appeared somewhat marginal, although some outcroppings exist and nesting may have occurred in the past; this area is currently unoccupied.

163. T35N, R10W, Section 8-17 boundary 2900-3000 ft. ASL

Nest site approximately 1100-1200 ft. above floor of Dietrich River valley.

One unoccupied Golden Eagle nest along west side of Dietrich River valley; much rock occurs but fairly barren, few ledges; nest broken and falling from cliff.

164. T35N, R10W, Section 10-15 boundary 2900-3000 ft. ASL

Nest site approximately 1100-1200 ft. above floor of Dietrich River valley.

One unoccupied Golden Eagle nest along east side of Dietrich River valley.

165. T35N, R10W, Section 2 3200 ft. ASL
One unoccupied Golden Eagle nest up a tributary along the east side of the Dietrich River valley.
166. T36N, R10W, Sections 23, 24 2900-3400 ft. ASL
A reported stick nest (probably Golden Eagle nest) along south side of Nutirwik Creek could not be located; nesting habitat in this area relatively poor.
167. T36N, R10W, Section 14 3000-3100 ft. ASL
Nest site approximately 900 ft. above floor of Dietrich River valley.
A reported stick nest (probably Golden Eagle nest) along north side Nutirwik Creek; outcroppings may offer possible nest sites; nests not apparent and site unoccupied.
168. T36N, R10W, Section 2 2700 ft. ASL
Nest site approximately 600 ft. above floor of Dietrich River valley.
Active Golden Eagle nest along east side of Dietrich valley; one adult present and incubating.
169. T36N, R10W, Section 2 3000-3500 ft. ASL
A reported "roost" along east side of Dietrich River valley; an occasional perching place only and not a nest site.
170. T36N, R10W, Sections 9, 10 2800-3600 ft. ASL
A reported Golden Eagle nest along west side of Dietrich River valley could not be located; habitat relatively poor; no evidence of raptors or past use by them in this vicinity.

PHILIP SMITH MOUNTAINS A-5 (Map No. 48)

171. T17S, R10E, Section 1 2700 ft. ASL
Nest site approximately 300 ft. above floor of Dietrich River valley.
A reported Golden Eagle nest along east side Dietrich River valley; outcropping presently unoccupied and no nest evident; outcropping possibly supported a nest in the past, however, habitat marginal.

172. T16S, R11E, Section 30 2900-3000 ft. ASL

Nest site approximately 500-600 ft. above floor of Dietrich River valley.

A reported Golden Eagle nest east side Dietrich valley; outcroppings presently unoccupied; no nest evident; outcroppings possibly supported a nest in the past but habitat generally marginal; some of the higher outcroppings in this vicinity may offer potential nest sites.

PHILIP SMITH MOUNTAINS A-4 (Map No. 49)

173. T14S, R12E, Section 16 4000-4200 ft. ASL

Nest site approximately 900-1200 ft. above floor of Atigun River valley.

Active Golden Eagle nest along east side of the valley in the headwaters of the Atigun River; one adult incubating on nest.

PHILIP SMITH MOUNTAINS A-5 (Map No. 48)

174. T14S, R11E, Sections 11, 12 3600-4000 ft. ASL

Nest site approximately 400-800 ft. above floor of west fork Atigun River valley.

A reported Gyrfalcon nest site along the south side of the west fork of the Atigun River currently unoccupied; several excellent well whitewashed ledges and perches present; excellent nesting habitat for either Gyrfalcons or Golden Eagles.

PHILIP SMITH MOUNTAINS B-4 (Map No. 50)

175. T13S, R12E, Sections 27, 28 3900-4500 ft. ASL

Nest site approximately 1000 ft. above floor of Atigun River valley.

Three unoccupied Golden Eagle nests along east side Atigun River Valley; one nest relatively old, some whitewash evident; one Golden Eagle observed flying above Atigun River opposite this vicinity.

176. T13S, R12E, Sections 10, 15 Approximately 4000 ft. ASL

Nest site approximately 1200 ft. above floor of Atigun River valley.

A reported Golden Eagle nest along east side Atigun valley;
no nest observed; little whitewash this vicinity;
habitat marginal but may have supported a nest in the past.

PHILIP SMITH MOUNTAINS B-5 (Map No. 51)

177. T13S, R12E, Section 5 3500-4500 ft. ASL

Nest site approximately 800 ft. above floor of Atigun River valley.

A reported Golden Eagle nest along west side of Atigun valley; no nest and no whitewash observed; habitat marginal but past nesting in this vicinity may have occurred.

178. T12S, R12E, Section 18 3000-3500 ft. ASL

Nest site approximately 300 ft. above floor of Atigun River valley.

Unoccupied and fallen down Golden Eagle nest along west side of Atigun valley; much old whitewash present.

179. T12S, R11E, Section 2 3400-3500 ft. ASL

One unoccupied ledge on north side of hill located west of south end of Galbraith Lake.

PHILIP SMITH MOUNTAINS B-4 (Map No. 50)

180. T11S, R12E, Section 33 3800-4000 ft. ASL

Nest site approximately 1100-1300 ft. above floor of Atigun River valley.

A reported possible Gyrfalcon site along east side Atigun valley; area unoccupied; some whitewashed perches and possible ledges present; should be considered as a potential nest site.

181. T11S, R12E, Section 28-33 boundary 3600-3700 ft. ASL

Nest site approximately 900-1000 ft. above floor of Atigun River valley.

Unoccupied Golden Eagle nest on south side of entrance to Atigun Gorge.

182. T11S, R12E, Section 27 3100-3200 ft. ASL

Nest site approximately 500-600 ft. above floor of Atigun River valley.

Two unoccupied Golden Eagle nests on south side Atigun Gorge.

Special Note: Many whitewashed perches and potential nest sites are scattered along the cliff between Site 180 (center of Section 33) and Site 182 (boundary area between Sections 26 and 27) at elevations ranging between approximately 3500 to 4000 ft. ASL.

PHILIP SMITH MOUNTAINS C-4 (Map No. 53)

183. T8S, R13E, Sections 28, 21, 22 2500-3500+ ft. ASL

Slope Mountain (west of NAPline alignment)

- a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
- b. Reported Rough-legged Hawk nest; cliff appeared unoccupied but nest not located (presence likely, see special note).
- c. Active raven nest immediately north of center Section 28; adults present; young present in nest.
- d. Reported Gyrfalcon site; not investigated (presence likely, see special note).

Special Note: Because of the presence of small bands of Dall Sheep on Slope Mountain, most of the known nest sites and potential nesting areas could not be investigated. As a consequence, nesting status of raptors in the area is generally unknown and the locale should be treated as if both endangered and non-endangered raptor species were present.

184. T8S, R14E, Section 28 1500-2000 ft. ASL

A reported Golden Eagle and Gyrfalcon site east of the Sagavanirktok (Sag) River; one unoccupied Golden Eagle nest and several unoccupied ledges (the site has probably been used by both species).

PHILIP SMITH MOUNTAINS D-4 (Map No. 54)

185. T8S, R14E, Section 28 1500-2000 ft. ASL

A reported Rough-legged Hawk nest along west bank of Sag River at Oksrukuyik that apparently no longer exists; no evidence of stick nest or birds.

PHILIP SMITH MOUNTAINS D-3 (Map No. 55)

186. T5S, R14E, Section 21 1200 ft. ASL

A reported Rough-legged Hawk nest along east bank of Sag River; bluff unoccupied, nest no longer present.

SAGAVANIRKTOK A-4 (Map No. 56)

187. T5S, R14E, Section 16 1200 ft. ASL

a. Active Rough-legged Hawk nest along east bank of Sag River; both adults present, one incubating on nest; at least three additional unoccupied Rough-legged Hawk stick nests nearby.

b. Active Gyrfalcon nest along east bank of Sag River; both adults present, one brooding on nest; at least one unoccupied Rough-legged Hawk stick nest nearby.

188. T5S, R14E, Section 9 1250 ft. ASL

One unoccupied Rough-legged Hawk nest along east bank of Sag River.

189. T5S, R14E, Section 4 1300 ft. ASL

Active Rough-legged Hawk nest along west bank of Sag River; both adults present, one adult incubating on nest.

SAGAVANIRKTOK A-3 (Map No. 57)

190. T4S, R14E, Section 16

1100-1200 ft. ASL

- a. Active Rough-legged Hawk nest along east bank of Sag River; one adult incubating on nest; at least two additional Rough-legged Hawk stick nests (one fallen down) nearby.
- b. Active Gyrfalcon nest along east bank Sag River; both adults present, one adult incubating on nest, one adult perched nearby.

190.1. T3S, R14E, Sections 16, 21, 28, 33

950-1150 ft. ASL

A reported Peregrine Falcon site along the east bank of the Sag River in very unsuitable habitat; this report is not convincing. It is suspected that the report may have involved the observation of either an individual Peregrine Falcon or Gyrfalcon across from Happy Valley Camp, or may have referred to the Gyrfalcon nest and Gyrfalcons that usually breed at Site 190.

191. T3S, R14E, Section 3

1100 ft. ASL

Active Rough-legged Hawk nest along east bank Sag River flood plain; one adult brooding on nest; at least one unoccupied Rough-legged Hawk stick nest nearby.

SAGAVANIRKTOK B-3 (Map No. 58)

192. T2S, R14E, Section 2

800 ft. ASL

A reported Rough-legged Hawk nest along east bank of Sag River could not be located; no evidence of nesting in area, habitat marginal, vicinity unoccupied.

193. T1S, R14E, Section 35

750-800 ft. ASL

Active Rough-legged Hawk nest along east bank of Sag River; one adult incubating on nest.

193.1. T1S, R14E, Section 14

750 ft. ASL

Previously used and unoccupied Rough-legged Hawk nest site along east side of Sag River flood plain; nest has fallen down.

SAGWON BLUFFS (5-6 June 1979 data from B. Durtsche, Bureau of Land Management and R. Ambrose, U.S. Fish and Wildlife Service; 7 July data this study.)

(Sagavanirktok B-3)

Special Note: Because of the concentrated nature of the raptor nesting sites on Sagwon Bluffs, only those sites occupied in 1979 and the historical Peregrine Falcon nest sites are reported here.

194. T1S, R14E, Section 15 700-800 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

Active Peregrine Falcon Site on south end of Sagwon Bluffs along west bank of Sag River; both adults present on 5-6 June; investigators observed food transfer; female appeared from under a rock where she may have been incubating eggs. On 7 July the site was revisited and the dirt scrape located under a tilted slab of rock about 30 feet above the river was found abandoned. The scrape contained four sun-bleached eggs that were scattered over a 12-14 inch length of the 'ledge'; the degree of bleaching suggested abandonment had occurred two and perhaps as much as three weeks previous to 7 July; two of the eggs may have been incubated longer than the others; all four eggs were collected.

195. T1S, R14E, Section 15 700-800 ft. ASL

Active Rough-legged Hawk nest along west bank of Sag River.

196. T1S, R14E, Section 15 850-900 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

West bank Sag River; alternates to Site 194.

197. T1S, R14E, Section 10 700-800 ft. ASL

Active Rough-legged Hawk nest along west bank of Sag River.

198. T1S, R14E, Section 10 700-800 ft. ASL

Active Gyrfalcon nest along west bank of Sag River.

199. T1S, R14E, Section 10 750-850 ft. ASL

Active Rough-legged Hawk nest along west bank of Sag River; nest contained three eggs.

200. T1S, R14E, Section 3 800-850 ft. ASL
Active raven nest along west bank of Sag River.
201. T1S, R14E, Section 3 800 ft. ASL
 TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
 West bank of Sag River; unoccupied.
202. T1S, R14E, Section 3 800 ft. ASL
Active Rough-legged Hawk nest along west bank of Sag River.
- 202.1. T1S, R14E, Section 4 900 ft. ASL
Active Rough-legged Hawk nest 1/2 mile west of haul road
 on top of small blocky, tor-like outcrop.
203. T1N, R14E, Section 34 1000 ft. ASL
Active Rough-legged Hawk nest immediately southeast of
 VABM Gard, west bank of Sag River.
204. T1N, R14E, Section 34 1000 ft. ASL
Active Gyrfalcon nest immediately southeast of VABM Gard,
 west bank of Sag River.
205. T1N, R14E, Section 27-34 boundary 1000 ft. ASL
 TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
 West bank Sag River; a possible historical Peregrine
 Falcon site very close to Site 204.
206. T1N, R14E, Section 23 800-900 ft. ASL
 TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
 West bank of Sag River; unoccupied.
207. T1N, R15E, Section 19-20 boundary 650 ft. ASL
Active Rough-legged Hawk nest along east bank of Sag River.

208. T1N, R15E, Section 17 650 ft. ASL
 a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
 b. Active Gyrfalcon nest along east bank of Sag River.
209. T1N, R15E, Section 17-18 boundary 650 ft. ASL
Active Rough-legged Hawk nest along east bank of Sag River.
210. T1N, R15E, Section 17-18 boundary 650 ft. ASL
Active raven nest along east bank of Sag River.
211. T1N, R15E, Section 17-18 boundary 650 ft. ASL
 TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
Active Peregrine Falcon site along east bank of Sag River;
 both adults present and one may have been incubating eggs on
 5-6 June; site on a small rock outcrop about 30 feet from
 active raven Site 210 (the peregrine site is almost exactly
 one mile southeast of Pump Station No. 2). On 4 July this
 site contained three apparently healthy young estimated to
 be 8-9 days old, both adults were present. By mid-August
 at least one young had fledged from this site (C. White
 personal communication).

SAGAVANIRKTOK D-3 (Map No. 60)

FRANKLIN BLUFFS

Special Note: Because of the concentrated nature of the
 raptor nesting sites on Franklin Bluffs, only those
 sites occupied in 1979 and historical Peregrine Falcon
 sites are reported here.

212. T5N, R14E, Sections 27, 28, 21 350-450 ft. ASL
 TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE
 A reported Peregrine Falcon site along east bank of Sag
 River; vicinity unoccupied.

213. T5N, R14E, Section 28 400-450 ft. ASL

Active Rough-legged Hawk nest along east bank of Sag River; one adult incubating on nest.

214. T5N, R14E, Section 21 400-450 ft. ASL

Active Rough-legged Hawk nest along east bank of Sag River; adult female incubating on nest and adult male perched above.

215. T5N, R14E, Section 22 450 ft. ASL

a. TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

b. Active raven nest up large ravine immediately south-southwest of VABM Bruce, east bank Sag River; one adult present; nest contained at least two young.

216. T5N, R14E, Section 16 400-450 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

A reported Peregrine Falcon site along east bank of Sag River and southwest of VABM Bruce; vicinity unoccupied (this is an alternate site to Site 215, C. White personal communication).

217. T5N, R14E, Section 8-9 boundary 300-350 ft. ASL

Active Rough-legged Hawk nest along east bank of Sag River; both adults present, adult female incubating, adult male was perched nearby; nest contained three eggs.

218. T5N, R14E, Section 5 350 ft. ASL

Active Rough-legged Hawk nest along east bank of Sag River; both adults present, adult female brooding, adult male present and flying nearby.

219. T6N, R14E, Section 20 350 ft. ASL

Active Rough-legged Hawk nest located two miles north of VABM Greta along east bank of Sag River and on east side of major stream gorge; both adults present, adult female incubating, adult male soaring nearby; nest contained four eggs.

220. T6N, R14E, Section 20 350 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

Active Peregrine Falcon site located two miles north of VABM Greta along east bank of Sagavanirktok River and on east side of major stream gorge. On 6 June both adults present, adult female incubating on grassy ledge, adult male perched and flying nearby. On 7 July two healthy young estimated to be 4 to 5 days old were present in the grassy scrape and both adults were present.

221. T6N, R14E, Section 17 300-350 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

A reported Peregrine Falcon site along east bank of Sagavanirktok River; vicinity unoccupied (probably an alternate to Site 215).

222. T7N, R14E, Section 33 250-350 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

A reported Peregrine Falcon site along east bank of Sagavanirktok River; vicinity unoccupied.

223. T7N, R14E, Section 28 250-300 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

Active Peregrine Falcon site along east bank of Sagavanirktok River; on 6 June adult female incubating on exposed Rough-legged Hawk nest; a second unoccupied Rough-legged Hawk nest located nearby. On 7 July the peregrine nest contained four healthy young, estimated to be 2 to 4 days old; the adult female was present and the adult male was observed one mile south returning to nest site.

224. T7N, R14E, Section 21 250-300 ft. ASL

TREAT AS HISTORICAL PEREGRINE FALCON NEST SITE

A reported Peregrine Falcon site along east bank of Sagavanirktok River; vicinity unoccupied.

225. T7N, R14E, Section 1, 2, 6, 11 200-250 ft. ASL
T8N, R15E, Section 31

A reported Peregrine Falcon site this general vicinity along east bank of Sagavanirktok River; vicinity unoccupied and habitat becoming marginal this far north.

APPENDIX 3. Miscellaneous Locations of Interest Observed During Raptor Surveys Along the Proposed Northwest Alaskan Pipeline Company Gas Pipeline Route, U.S.-Canada Border to Prudhoe Bay, Alaska, 31 May - 7 June and 7 July 1979.

Lettered sites (i.e., "A" through "Z" and "AA" through "YY") refer to locations that, for various reasons, deserve some comment.

TANACROSS A-2 (Map No. 4)

- A. T15N, R18E, Section 26 1680-1690 ft. ASL

Single adult Bald Eagle observed soaring above the Tanana River; possible nesting habitat in this vicinity.

TANACROSS B-4 (Map No. 8)

- B. T18N, R14E, Section 6 1600 ft. ASL

A small river cliff with some whitewash but no nest; may have some potential as a nest site, particularly for ravens.

MT. HAYES C-1 (Map No. 12)

- C. T22N, R6E, Section 1 1400-1500 ft. ASL

Small river cliff with possible previously used ledge; may have some potential as a nest site for cliff-nesting raptors.

- D. T22N, R6E, Section 2 1400-1500 ft. ASL

Small river cliff; although no evidence of use by raptors observed, may have some potential as a nest site for cliff-nesting raptors.

MT. HAYES D-2 (Map No. 14)

- E. T13S, R15E, Section 3 1250 ft. ASL

Single adult Harlan's Hawk observed perched and soaring above spruce trees along river slough; possible nesting habitat in this vicinity.

- F. T12S, R15E, Section 11 1250-1300 ft. ASL

A small bluff that may provide a previously used ledge; may have some potential as a nest site for cliff-nesting raptors.

BIG DELTA A-4 (Map No. 19)

G. T10S, R11E, Sections 29, 32 1250 ft. ASL

Single adult Harlan's Hawk soaring above Haines Pipeline right-of-way; possible nesting habitat in this general vicinity.

BIG DELTA A-5 (Map No. 20)

H. T8S, R8E, Section 5 900-1000 ft. ASL

A small river cliff with some old whitewash and possibly a nesting ledge; has some potential as a nest site for cliff-nesting raptors.

I. T8S, R7E, Section 14 1000-1150 ft. ASL

A series of small rocks; appears to be marginal nesting habitat for cliff-nesting raptors.

BIG DELTA B-6 (Map No. 22)

J. T7S, R5E, Section 26 800-900 ft. ASL

A small river bluff; well whitewashed but no nest and appeared to be only a perching place.

K. T7S, R5E, Section 9 750-850 ft. ASL

A small river cliff with some whitewash and what appeared to be a possible small ledge; may have some potential as a nest site, particularly for ravens.

L. T5S, R4E, Section 13 700-800 ft. ASL

A small rocky bluff along the north side of lower Salcha River; some whitewash and possible nesting ledges; may have some potential as a nest site for cliff-nesting raptors.

LIVENGOOD B-4 (Map No. 29)

M. T8N, R6W, Section 27 500 ft. ASL

A small bit of rock outcropping; may have some potential as a nest site for cliff-nesting raptors.

LIVENGOOD D-6 (Map No. 33)

N. T12N, R10W, Section 11 400-500 ft. ASL

Good rock outcropping along north side of Yukon River, however, no evidence of nesting observed; has good potential as a nest site for cliff-nesting raptors.

TANANA D-1 (Map No. 34)

O. T13N, R12W, Section 10 400 ft. ASL

A small cliff along the east side of the Ray River; has some potential as a nest site for cliff-nesting raptors.

BETTLES B-1 (Map No. 36)

P. T17N, R12W, Section 31; 2750 ft. ASL
T17N, R13W, Section 36

A series of tors that have been used as perches, but that offer few, if any, potential nesting sites to cliff-nesting raptors.

Q. T17N, R13W, Sections 7, 18; 1750-2400 ft. ASL
T17N, R14W, Sections 1, 12

Reported nesting habitat (rock outcrops) along the eastern slopes of VABM Basin; nesting habitat apparently does not exist; nesting habitat for cliff-nesting raptors very poor in this area.

R. T17N, R13W, Section 5; 1500-1800 ft. ASL
T18N, R13W, Sections 31, 32

Reported nesting habitat (rock outcrops); no potential nesting sites for cliff-nesting raptors in this area.

S. T18N, R14W, Sections 13, 24 1800-2000 ft. ASL

Reported nesting habitat; a series of tors that are small and that appear to offer no potential nest sites.

T. T18N, R14W, Section 23 1650-1700 ft. ASL

Rock outcroppings well used as a perching place; well white-washed, but no evidence of nesting; marginal nesting habitat.

U. T18N, R13W, Section 5

1650-1900 ft. ASL

A series of tors; poor nesting habitat; no potential for nesting by raptors at this location.

BETTLES B-2 (Map No. 37)

V. T17N, R14W, Section 6;
T17N, R15W, Sections 1, 12;
T18N, R14W, Section 31;
T18N, R15W, Section 36

1200-1350 ft. ASL

A large tor-field; most tors do not offer good nest sites, however, many have been used as perches and there are scattered moderate to good potential nesting sites throughout the area.

W. T19N, R14W, Section 18

1400 ft. ASL

A few small rock outcrops and tors; no potential nest sites in this area.

BETTLES C-2 (Map No. 38)

X. T21N, R14W, Sections 4, 5, 8, 9
T22N, R14W, Sections 32, 33

900-1900 ft. ASL

Reported nesting habitat; several tors and rock outcrops scattered throughout the area; a few have been used as perches but do not offer suitable nest sites.

Y. T22N, R15W, Section 25

1200 ft. ASL

A perching place on a small tor.

Z. T22N, R14W, Section 30

950 ft. ASL

Reported nesting habitat; habitat very marginal, does not appear to offer any potential nest sites for cliff-nesting raptors.

AA. T22N, R14W, Sections 7, 8

1800-1900 ft. ASL

Reported habitat; habitat very marginal, does not appear to offer any potential nest sites for cliff-nesting raptors.

BETTLES D-1 (Map No. 40)

BB. T25N, R12W, Section 18

1300-1350 ft. ASL

A cliff created during the extraction of gravel for the Trans-Alaska Oil Pipeline System; this cliff has been used as a perching place and may eventually become a nest site.

WISEMAN A-1 (Map No. 41)

CC. T26N, R12W, Section 22-27 boundary

1300-1400 ft. ASL

Small rock outcrop; some evidence suggests past use; may offer nest sites to cliff-nesting raptors.

DD. T27N, R13W, Sections 16, 17, 20, 21

2000-3000 ft. ASL

Scattered rock outcroppings along upper eastern slopes of Twelvemile Mountain; may offer some potential Golden Eagle nest sites; not investigated because of air turbulence.

EE. T27N, R12W, Section 18

2000-2500 ft. ASL

Cliffs along upper northwestern slope of Cathedral Mountain; not investigated because of air turbulence; appeared good, may offer some potential Golden Eagle nest sites.

FF. T27N, R12W, Section 22-27 boundary

2250 ft. ASL

Small rock outcropping with some whitewash but no nest; may have supported a nest in the past and may represent reported Site 124.

WISEMAN A-2 (Map No. 42)

GG. T26N, R14W, Section 14

900-950 ft. ASL

A small cliff on the north side of the Middle Fork of the Koyukuk River; some whitewash and a possible previously used stick nest; presence of a nest unconfirmed.

WISEMAN B-1 (Map No. 43)

- HH. T29N, R11W, Section 6 3000-3100 ft. ASL
Small hillside rock outcrop; possible habitat but no evidence of recent use.
- II. T30N, R12W, Section 12 2000-2700 ft. ASL
Series of hillside rock outcrops; well whitewashed perches, some potential for possible nest sites.
- JJ. T30N, R11W, Sections 4, 8, 9 2500-2700 ft. ASL
Series of hillside rock outcrops; some evidence of perching, some possibility of past use, but no evidence of recent nesting could be found.
- KK. T30N, R12W, Section 1 2000 ft. ASL
Small hillside rock outcrop; some possible nesting habitat may occur though no evidence of recent use could be found.

CHANDALAR C-6 (Map No. 46)

- LL. T31N, R10W, Section 5 2000-2100 ft. ASL
Small rock outcroppings; perching places only, area marginal as nesting habitat; no evidence of recent use could be found.
- MM. T32N, R10W, Section 33 2300-2500 ft. ASL
Small rock outcropping; perching place only.
- NN. T34N, R10W, Section 28 1800-2200 ft. ASL
Rock outcroppings with little evidence of use other than for perching.

CHANDALAR D-6 (Map No. 47)

- OO. T36N, R10W, Section 27-34 boundary 2800-2900 ft. ASL
Small hillside rock outcrop that could possibly be used as a nest site by cliff-nesting raptors.

PP. T35N, R10W, Sections 5, 6, 7, 8 3000-4000 ft. ASL
T36N, R10W, Sections 29, 32

Many rock faces in this area, however, none very suitable for nesting; no evidence of use by raptors.

PHILIP SMITH MOUNTAINS A-5 (Map No. 48)

QQ. T16S, R11E, Section 29 and junction 3500-3800 ft. ASL
of Sections 28, 29, 32, 33

Two hillside rock outcrops; may have some potential as nest sites; could not investigate because of air turbulence.

PHILIP SMITH MOUNTAINS B-4 (Map No. 50)

RR. T12S, R12E, Section 34 4000-5000 ft. ASL

High rock outcroppings with several well whitewashed perches.

SS. T12S, R12E, Section 31 4000-4500 ft. ASL

High rock outcropping; no evidence of nesting or perching but appears to have good potential as a nest site for cliff-nesting raptors.

PHILIP SMITH MOUNTAINS B-5 (Map No. 51)

TT. T11S, R11E, Section 34 3300 ft. ASL

Well used perches; no evidence of nesting; may have some potential as a nest site for cliff-nesting raptors.

UU. T11S, R11E, Section 27 2900-3000 ft. ASL

Well used perch; no evidence of nesting; may have some potential as a nest site for cliff-nesting raptors.

VV. T11S, R11E, Section 13 3300-3500 ft. ASL

Several well used perches; the center rock outcropping may possibly support remains of old stick nest; potential as a nest site for raptors appears to be only fair.

PHILIP SMITH MOUNTAINS D-4 (Map No. 54)

WW. T6S, R14E, Sections 28, 33

1350 ft. ASL

Soil and gravel cut-bank along east bank of Sagavanirktok River; some rock; marginal but possible Rough-legged Hawk nesting habitat.

XX. T6S, R14E, Sections 5, 9

1250-1300 ft. ASL

Soil and gravel cut-bank along east bank of Sagavanirktok River; marginal but possible Rough-legged Hawk nesting habitat.

YY. T5S, R14E, Section 28

1150-1200 ft. ASL


Soil and gravel cut-bank along east bank of Sagavanirktok River; marginal but possible Rough-legged Hawk nesting habitat.


APPENDIX 4. Key to USGS Topographic 1:63,360 Map Series, Raptor Survey:
U.S.-Canada Border to Prudhoe Bay, Alaska, 31 May - 7 June
and 7 July 1979. (Refer to report, Appendix 2)

Raptor species are designated by the following letter codes on the
1:63,360 scale USGS topographic maps that illustrate site locations
presented in Appendices 2 and 3.

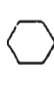
P = Peregrine Falcon
GYR = Gyrfalcon
M = Merlin
RLH = Rough-legged Hawk
HH = Harlan's Hawk
GE = Golden Eagle
GOS = Goshawk
SSH = Sharp-shinned Hawk
BE = Bald Eagle
OS = Osprey
GHO = Great Horned Owl
R = Common Raven


Nest sites found to be unoccupied by birds in 1979 are
designated by the lack of any symbol (only the site number and
species code are present).


 Nest sites found to be active in 1979 are designated by an
open circle.

 Nest sites that were reported but not investigated are
designated by an open square.

 Nest sites that were reported but could not be located are
designated by an open triangle.

 Nest sites that were reported but apparently do not exist
because of a lack of suitable habitat at that location are
designated by an open hexagon.

 Approximate areas are indicated by an enclosed dashed line.

 Nest sites of unknown species (most often a stick nest) are
indicated by an X.