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Division of Wildlife Conservation

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WOLF

Mary V. Hicks, Editor

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DEPARTMENT OF FISH AND GAME
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Project Title: **Southeast Wolf Population Management**

Project Location: Unit 1A (5,300 mi^2)

Ketchikan area, including the mainland draining into Behm and Portland Canals

Unit 2 (3,600 mi^2)

Prince of Wales Island and adjacent islands south of Sumner Strait and west of Kashevarof Passage and Clarence Strait

Project Objectives and Activities:

1. Regulate seasons and bag limits to maintain viewable and harvestable populations of wolves
2. Seal wolf pelts as they are presented for sealing
3. Contact reliable observers to gain general information about the status and trends of wolf populations, including an annual trapper survey

Work Accomplished During the Project Segment Period: We sealed 25 wolf pelts from Unit 1A and 79 from Unit 2. Information we collected from successful trappers included location and date of kill, method of take and transportation used, sex, and pelt color. We collected anecdotal information through informal discussions with hunters and trappers and more formal information through our trapper survey. We also collected leg bones that allowed us to make estimates of age classes represented by harvested wolves.

Progress Meeting Project Objectives: The following numbers of wolves were harvested from Units 1A and 2 during this report period:

Unit 1A	Unit 2
25	79

The wolf harvest from Unit 1A increased 40% from last season's harvest of 15 wolves, and the Unit 2 harvest decreased 40% from last season's harvest of 132. Recent Board of Game actions shortened Unit 2's 1997/98 hunting season by 5 months and the trapping season by 2 months. The Board also implemented a harvest quota of 90 wolves. Trappers responding to our 1996/97 trapper survey indicated the wolf population is presently abundant in Unit 1A (*Index of Abundance* (I_A) = 80, n = 5) and in Unit 2 (I_A = 70, n = 5). Wolf numbers have remained stable in both Unit 1A and Unit 2 during the past year.

Project Location: Unit 1B (3,000 mi^2)

Southeast Mainland from Cape Fanshaw to Lemesurier Point.

Unit 3 (3,000 mi^2)

All islands west of Unit 1B, north of Unit 2, south of the centerline of Frederick Sound, and east of the centerline of Chatham Strait

Project Objectives and Activities:

1. Regulate seasons and bag limits to maintain viewable and harvestable populations of wolves
2. Seal wolf pelts as they are presented for sealing
3. Contact reliable observers to gain general information about status and trends of wolf populations, including an annual trapper survey.

Work Accomplished During the Project Segment Period: The following numbers of wolves were harvested from Units 1B and 3 during this report period:

Unit 1B	Unit 3
9	41

We sealed 9 wolves (5 males and 4 females) in Unit 1B and 41 wolves (23 males, 16 females, and 2 unknown) in Unit 3. There were 4 active trappers/hunters in Unit 1B and 22 active trappers/hunters in Unit 3. The left foreleg was collected from each sealed wolf to determine adulthood.

Progress Meeting Project Objectives: Discussions with trappers, hunters, and Forest Service biologists and information from a trapper questionnaire indicate the wolf population increased in the early 1990s and is stable.

Project Location: Unit 1C (7,600 mi^2)

Southeast mainland and the islands of Lynn Canal and Stephens Passage lying between Cape Fanshaw and the latitude of Eldred Rock, including Sullivan Island and the drainages of Berners Bay

Project Objectives and Activities:

1. Regulate seasons and bag limits to maintain viewable and harvestable populations of wolves
2. Seal wolf pelts as they are presented for sealing
3. Contact reliable observers to gain general information about status and trends of wolf populations, including an annual trapper survey.

Work Accomplished During the Project Segment Period: Nine wolves (6 males, 3 females) were harvested and sealed during the 1997/98 season.

We used a trapper questionnaire to gain additional information regarding target species abundance, prey abundance, trapping conditions, and trapping patterns. We also collected leg bones that allowed us to make estimates of age classes represented by harvested wolves.

Progress Meeting Project Objectives: The following numbers of wolves were harvested from Unit 1C during this report period:

Unit 1C
9

We believe wolf populations in Unit 1C to be at moderate densities, although packs have decreased use of areas near Juneau.

Project Location: Unit 1D (2,700 mi^2)

Southeast mainland north of the latitude of Eldred Rock, excluding Sullivan Island and the drainages of Berners Bay.

Project Objectives and Activities:

1. Regulate seasons and bag limits to maintain viewable and harvestable populations of wolves
2. Seal wolf pelts as they are presented for sealing
3. Contact reliable observers to gain general information about status and trends of wolf populations, including the use of an annual trapper survey

Work Accomplished During the Project Segment Period: Four wolves (3 males and 1 female) were harvested and sealed in Unit 1D during the 1997/98 season.

A trapper questionnaire was used to gain additional information regarding target species abundance, prey abundance, trapping conditions, and trapping patterns. We also collected leg bones that allowed us to make estimates of age classes represented by harvested wolves.

Progress Meeting Project Objectives: The following numbers of wolves were harvested from Unit 1D during this report period:

Unit 1D
4

Wolf populations in Unit 1D are thought to be at moderate numbers. Hunters commonly saw wolves during the 1996 moose season in the area west of the lower Chilkat River, leading to dire predictions from local residents about effects upon the moose population. Wolf harvests have remained low, and our winter moose surveys have indicated wolf predation had caused no significant change in moose numbers.

Project Location: Unit 5 (5,800 mi^2)

Cape Fairweather to Icy Bay, eastern Gulf Coast

Project Objectives and Activities:

- Regulate seasons and bag limits to maintain viewable and harvestable populations of wolves
- Seal wolf pelts as they are presented for sealing

- Contact reliable observers to gain general information about status and trends of wolf populations, including an annual trapper survey

Work Accomplished During the Project Segment Period: Harvest was analyzed from wolf sealing certificates. We also collected leg bones that allowed us to make estimates of age classes represented by harvested wolves. No planning meetings were held during the report period.

Progress Meeting Project Objectives: The following numbers of wolves were harvested from Unit 5 during this report period:

Unit 5
5

Five wolves (3 males, 1 female, and 1 unknown) were sealed in Yakutat. The wolf population in Unit 5 is probably healthy but is recovering from the heavy trapping pressure from the previous season.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	13.3	15.0	28.3
Actual	15.5	17.0	32.5
Difference	-2.2	-2.0	-4.2

(Staff spent additional time working on wolf population estimates and collecting and aging wolf forelegs.)

Submitted by:

Bruce Dinneford
Management Coordinator

Project Title: **Southcentral Population Wolf Management**

Project Location: Unit 6 (10,100 mi^2)
Prince William Sound and north Gulf Coast

Project Objectives: Maintain a population in a minimum of 5 packs that will sustain an annual harvest of at least 10 wolves.

Work Accomplished During the Project Segment Period: No wolf surveys were completed in Unit 6. Incidental observations, reports from trappers and guides, and preliminary data from a US Forest Service wolf ecology study inddicated a stable population of about 47–61 wolves in 8 packs.

Sealing records indicated a unit harvest of 5 wolves, 1 gray female, 2 gray males, 1 black male and 1 white female.

Progress Meeting Project Objectives: We met wolf population objectives. The population could have sustained more harvest than the 10 animals specified in the objectives.

Project Location: Units 7 and 15 (8,400 mi^2)
Kenai Peninsula

Project Objectives: Maintain the posthunting population in Unit 15A and the Kenai National Wildlife Refuge (KNWF) portion of Unit 7 at 35 wolves.

Maintain the population in the remainder of Unit 7 and Units 15B and 15C at a minimum ratio of 1 wolf to 50 moose.

Work Accomplished During the Project Segment Period: Reports from trappers and staff observations indicate wolf density is stable or slightly increasing due to reduced harvest over the past 5 years. The current estimate is 200 wolves for Units 7 and 15.

Hunters and trappers took 24 wolves during the 1997–98 season in Units 7 and 15. Although wolves were abundant, trappers showed little interest in attempting to trap due primarily to the presence of lice-infested wolves and difficulties related to checking traps every 4 days or snares every 7 days on a portion of the Refuge. Harvest for Unit 7 was 7 wolves, and 7 wolves were also taken in Unit 15A; 2 wolves were harvested in Unit 15B, and 8 were taken in Unit 15C. The 1997–98 harvest of 24 wolves tied the second highest harvest in the past 10 years, when harvest ranged from 9 to 42. Hunters reported 57% (13 of 23) of the harvest, the second highest nontrap harvest on record.

The spring 1997 Board of Game increased the wolf trapping season by extending it to March 31.

In April 1998, we relocated 18 wolves from the Tok area to the Kenai Peninsula as part of the Fortymile Caribou Recovery Plan. Released wolves comprised 15 pups (9 males and 6 females) and 3 adults (1 male and 2 females). Wolves were released in Unit 15C. A local hunter killed 1

released wolf, and 1 wolf moved off the Kenai Peninsula; the remaining animals are alive and monitored monthly.

Progress Meeting Project Objectives: To achieve population objectives, additional funding will be necessary to conduct thorough surveys followed by liberalization of U.S. Fish and Wildlife Service restrictions on trappers. The current refuge requirement of checking traps every 4 days and snares every 7, if you have completed the education course, has virtually eliminated recreational trappers' opportunity to pursue wolves over most of the refuge. Low fur prices due to pelt damage caused by lice infestation and the reduced season for trapping lynx have also reduced trapping and hunting effort. Average annual harvest since the 4-day trapline check was initiated was 22, compared to 48 for the 10 years before the restriction.

The harvest of 24 wolves represents 12% of the early winter population estimate of 200 for Units 7 and 15. With this low rate of harvest, the wolf population is expected to increase where prey is available.

Project Location: Units 9 and 10 (43,300 mi^2)

Alaska Peninsula and Unimak Island

Project Objectives: Maintain a population that will sustain a 3-year average annual harvest of no more than 50 wolves.

Work Accomplished During the Project Segment Period: Direct observation surveys were not conducted during this reporting period. We mailed a select group of trappers questionnaires to help estimate wolf abundance. Only a few questionnaires were returned by active trappers, limiting our inferences about wolf abundance. These trappers were split in their opinions about whether wolves were increasing or decreasing, compared to the previous year. Given the diversity of opinion and the sample size, I concluded there was not a widespread change in the status of wolves in Unit 9 as of winter 1997–98. During spring 1998 several red fox carcasses and 1 coyote from Unit 9E tested positive for rabies. This was the first confirmed rabid coyote in Alaska. In addition to these reported cases, a wolf shot after killing a dog in Port Heiden also tested positive for rabies The extent of mortality in 1998 among canids in Unit 9 is not known at this time.

Wolf harvest is derived from wolf sealing certificates; however, the data are preliminary at the time of this report. The preliminary harvest of wolves in 1997–98 was 72 in Unit 9 and 0 in Unit 10.

Progress Meeting Project Objectives: Snow conditions and lack of funding hampered progress developing measurable objectives for wolf populations in Units 9 and 10. Research on wolves continues in other areas, but unless budgets increase, it is unlikely effort will be extended on the Alaska Peninsula. The trapper questionnaire, incidental observations, and sealing requirements are adequate for management purposes as long as trapping effort remains light. If pelt prices and other factors lead to increased harvest, more intensive management may be required.

Project Location: Unit 11 (13,345 mi^2)
Wrangell Mountains

Project Objectives: Maintain the posthunting population at a minimum of 50 wolves.

Work Accomplished During the Project Segment Period: The fall 1997 prehunting season population estimate for Unit 11 was 85–100 wolves. This figure was lower than last year's estimated population of 110–125 wolves. We base the current estimate on our observations of radiocollared packs, sightings from department personnel, the public, and hunter and trapper reports. We do not conduct systematic wolf track transects in Unit 11.

The 1997 harvest of 11 wolves was lower (42%) than the previous year's take of 19. Harvests the last 3 years have been well below the 10-year average of 25 wolves taken between 1985 and 1994. We estimated this year's harvest rate at about 10% of the extrapolated fall 1997 population. Females accounted for 20% ($n = 2$) of this year's take and males 80% ($n = 8$). All of the 1997–98 wolf harvest was taken by local residents living in the Park resident zone. All the wolves harvested in Unit 11 this year were trapped or snared by individuals using snowmachines as the primary method of transportation.

Progress Meeting the Project Objectives: Wolves are considered abundant in Unit 11 for the prey base available. Fluctuations in annual estimates may reflect either variability in deriving the estimates or actual changes in numbers. In some years localized harvests have reduced wolf numbers somewhat within heavily trapped areas; however, the wolf harvest has not been effective in reducing unit numbers. Further increases in the Unit 11 wolf population may be restricted by habitat suitability and prey availability. Because much of Unit 11 is mountainous or glaciated, wolves are limited to the more gentle slopes and river valleys. In addition, ungulate numbers are lower in Unit 11 than in the adjacent Unit 13. Wolf dispersal into suitable habitat in Unit 13 occurs where ungulate numbers are higher and provide a larger prey base.

The wolf harvest in Unit 11 has been lower over the last 3 years. Yearly fluctuations in harvest often reflect pelt prices, trapper effort, and snow conditions as much as wolf abundance. Fewer trappers are putting less effort into taking wolves because of current market conditions.The price paid for wolf pelts has declined appreciably the last 2 years, and it is almost impossible to sell poorer quality pelts. Plotting locations of wolf kills, we find most of the wolf harvest was in the northern portion of the unit. In more remote areas, wolf packs received little or no hunting or trapping pressure. Most trappers and hunters concentrate their activities near access points, especially those areas along the Nabesna and McCarthy Roads, the only roads that lead into this unit, and along the Copper River adjacent to the Tok Cut-off. Because unit hunting and trapping pressure is low and not expected to increase, we expect Unit 11's wolf population to continue yearly fluctuations based on intense localized harvests and dispersal, with the overall trend to stabilize wolf numbers at or near current levels.

Project Location: Unit 13 (25,000 mi^2)
Nelchina Basin

Project Objectives: To maintain the posthunting population at a minimum of 135–165 wolves.

Work Accomplished During the Project Segment Period: We conducted wolf survey flights in Unit 13 during October and November 1997, and March 1998. The area covered during these flights included large portions of Units 13B, 13C, and 13D, but only small segments of Units 13A and 13E. We used reports from hunters and trappers, incidental sightings by department personnel, and track survey data to estimate wolf densities for all of Unit 13. A fall 1997 Unit 13 population estimate was between 360–400 wolves in 45–55 packs. Observed pack size was as high as 18 wolves. This yielded a unitwide density estimate of 8–9 wolves/1000 km^2. The preliminary spring 1998 population estimate was between 210 and 230 wolves.

Preliminary harvest figures showed 130 wolves (61 males, 67 females, 2 unknown) reported taken to date by 50 hunters and trappers during the 1997–98 season. Method of take during the 1997–98 season included 78 (61%) wolves trapped, 20 (16%) ground shot, and 29 (23%) snared. Snowmachines were the most popular method of transportation (84%). The average take per trapper/hunter was 2.6 wolves. Known residency data indicate unit residents took 80 (63%) wolves, nonlocal Alaskans 45 (35%) wolves, and nonresidents 3 (2%) wolves. The preliminary overall wolf harvest rate in Unit 13 was approximately 33% of the estimated fall population.

Progress Meeting the Project Objectives: The spring 1998 population estimate of 210–230 wolves in Unit 13 exceeds the spring population objective for Unit 13 set by the Board of Game by about 60 or more wolves. Wolves are usually much more numerous than called for by the management objective. The closest the spring population estimate has come to approaching the posthunt management objective for wolves was in 1995 when an estimated 180 wolves remained postharvest. Wolves in Unit 13 are not limited by prey availability because moose numbers are moderate and caribou numbers are high. Although the Nelchina caribou herd was estimated at over 30,000 animals, the herd migrated into Unit 12 during the winter of 1997–98. As a result, caribou were often unavailable during the winter to wolves in Unit 13, and moose became the important prey species from early October until late April. In addition, hares are at a 30-year high in Unit 13; trappers reported observations of wolves specifically taking hares, thus making use of an abundant alternate prey.

The 1997–98 wolf harvest declined 8% from the previous year's take of 141 wolves. Wolf harvests have averaged 138 (range = 93–179) the last 5 years (1992–96). Yearly fluctuations reflect snow conditions, weather, trapper effort and wolf abundance or distribution in relation to established traplines. Current harvest levels, coupled with natural mortality, have been high enough to limit further expansion of the wolf population. However, under current methods and means of harvesting wolves, trappers do not harvest enough wolves to reduce the spring wolf population enough to approach current management objectives. Prices paid for wolf pelts are very low, and it is almost impossible to sell poor quality adult grays. The decline in pelt prices may result in a decline in trapping effort.

No changes in season length or bag limit are recommended.

Project Location: Unit 14 (6,600 mi^2)
Upper Cook Inlet

Project Objectives:

Units 14A and 14B: Maintain a posthunting population at 35 wolves

Unit 14C: Maintain a posthunting population of 20 wolves

Work Accomplished During the Project Segment Period: During the 1997–98 season, 14 wolves were sealed from Unit 14. Of these, 6 were taken in Unit 14A, 5 were taken in 14B, and 3 were taken in 14C. We mailed a questionnaire to all trappers who sealed fur taken in Unit 14. Although few trappers made sets specifically for wolves, those that did were very effective.

Biologists working on Elmendorf AFB radiocollared 1 male wolf during August 1997. The collar was found on the ground during December 1997 in the village of Eklutna. The fate of the wolf is unknown. Staff at Elmendorf have terminated this study.

Sealing records and observations from staff and the public indicate packs occupied the following areas: Talkeetna River–Prairie Creek, Iron Creek–Sheep River, Kashwitna River–Little Willow Creek, Bald Mountain–Willow Creek, King River–Moose Creek, Chickaloon River, Carpenter–Wolverine Creeks, Knik River, Lake George, Eklutna River, Elmendorf–Fort Richardson, Ship Creek, and Twentymile River–Portage Creek.

Progress Meeting Project Objectives: Through incidental observations and discussions with trappers and hunters, we estimated the spring (pre-pupping) wolf population in Unit 14 at 61–110 wolves, including 36–75 in Units 14A and 14B, and 25–35 in Unit 14C. We met population objectives, and prey densities generally remain high. To adequately assess wolf numbers, the department should continue to refine a systematic method to estimate wolf numbers and apply this method every 5 years.

Project Location: Unit 16 (12,300 mi^2)

West Side of Cook Inlet

Project Objectives: Maintain a population that will sustain an annual harvest of 25 wolves.

Work Accomplished During the Project Segment Period: During the 1997–98 trapping/hunting season, 13 wolves (2 from Unit 16A, 13 from Unit 16B) were reported taken from Unit 16. Results from a questionnaire mailed to all trappers who sealed fur taken in Unit 16 indicated few trappers made sets specifically for wolves. Weather conditions produced favorable travel and trapping conditions.

Sealing records and observations from biologists, trappers, and pilots indicate packs inhabited the following drainages: Tokositna River, Susitna River, Kahiltna River, Yentna River, Happy River, Theodore–Lewis Rivers, Beluga Mountain–Alexander Creek, McArthur–Big River and Drift River.

Progress Meeting Project Objectives: The population objectives for this unit were met. With information from sealing certificates and public and staff observations, we estimated 40–70

wolves inhabited Unit 16 during spring (pre-pupping) 1997. Assuming average reproduction of 5 pups per pack, there will be 80–100 wolves by fall. At that level, the population could sustain a harvest of more than 25 wolves annually.

Project Location: Unit 17 (18,800 mi^2)
Northern Bristol Bay

Project Objectives: Maintain a population that will sustain an annual harvest of 25 wolves

Work Accomplished During the Project Segment Period: Preliminary sealing data for the 1997–98 trapping and wolf hunting season indicates a reported harvest of 93 wolves, including 61 males (66%) and 32 females (34%). This level of harvest is higher than the previous 5 years average of 57.6 wolves. Two (2%) wolves were harvested in Unit 17A, 49 (53%) in Unit 17B, and 42 (45%) in Unit 17C. Unit 17 residents reported harvesting 80 wolves (86%); 10 (11%) wolves were harvested by Alaska residents from outside the unit, and nonresident hunters harvested 3 (3%).

Trappers reported using snowmachines to take 71 (76%) wolves and aircraft to take 16 (17%) wolves. Seventy-eight (84%) of the wolves harvested during this reporting period were shot, 7 (7.5%) were snared, and 7 (7.5%) were trapped. Thirteen (14%) of the wolves were taken during the main big game hunting season (August–October), none were taken in November, 12 (13%) were taken in December, 28 (30%) in January, 40 (43%) in February, and none in March. Abundant snow throughout the unit encouraged travel by snowmachine, which is reflected in the above average harvest and proportion taken by trappers using snowmachines.

Progress Meeting Objectives: We have no objective data on the population density of wolves in the unit. Local trappers noted that wolf populations appeared to be increasing unitwide during this reporting period. Wolves responded favorably to increasing ungulate populations, and trappers/hunters were able to harvest a large number of these wolves.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	12.8	6.0	18.8
Actual	12.8	6.0	18.8
Difference	0.0	0.0	0.0

Submitted by:

Michael G. McDonald
Assistant Management Coordinator

Project Title: **Interior Wolf Population and Habitat Management**

Project Location: Unit 12 (9,978 mi^2)

Upper Tanana and White River drainages; Charley, Fortymile, and Ladue River drainages

Project Objectives and Activities:

1. To provide opportunity to participate in hunting, trapping, and viewing wolves
   - Monitor harvest through sealing records and trapper questionnaires
   - Temporarily close the wolf trapping season if the population declines below 100 wolves
2. Monitor wolf numbers and population characteristics
   - Conduct fixed-wing aerial surveys during the winter in selected areas
   - In cooperation with U.S. Fish and Wildlife Service (FWS), radiocollar and monitor selected packs

Work Accomplished During the Project Segment Period: Seventeen hunters and trappers harvested 39 wolves (21 males, 15 females, and 3 unknown sex). The average annual harvest for the past 5 years was 44. During 1997–1998, fur market value for wolf pelts was low and most trappers did not actively select for wolves. Trappers set for wolves opportunistically when trapping for lynx and marten. The reported harvest removed 17%–20% of the fall 1997 population estimate of 200–230 wolves. This harvest was below the sustained rate of 25–30% that has precluded wolf population growth in this area. Trapping, snaring, and ground shooting accounted for 31%, 58%, and 11% of the harvest, respectively.

We derived the Unit 12 wolf population estimate from wolf observations by department and FWS personnel and from reliable reports from trappers, hunters, and pilots. Wolf numbers increased the past 3 years due to low harvest. The wolf population declined between 1990 and 1994 due to annual harvests exceeding 25% of the population during 3 of the 4 years. During this period, wolf pelt value was high, and marten and lynx prices were low. In response, area trappers concentrated on wolves.

In April and November 1997, we relocated 4 and 13 wolves, respectively, to 3 different release sites in Unit 12. The release sites were at least 100 miles from the wolves' home territories. We radiocollared 13 of these wolves and monitored movements and survival rates. The remaining wolves were eartagged. We maintained contact with all relocated, radiocollared wolves and have determined the fate of 3 of the 5 wolves that were eartagged. Our initial findings indicated that moving wolves aged 1.5 years and older about 100–125 miles from their home territory was inadequate to ensure against their return. Four of the 5 older wolves returned within 3–5 months of their release. We relocated 3 of these in Unit 12 over 130 miles from their home territories in May 1998 and 1 returned within 10 days. Relocating 11-month-old wolves about 100 miles from

home territories appeared adequate to ensure against their return. All wolves released with additional pack mates eventually separated, but 11-month-old wolves remained together and remained near the release site longer than 18-month-old and older wolves. The initial movements of all but 2 of the relocated wolves were toward their home territory. The closest any one of the wolves took up residence was about 50 miles from the release site. Only 1 of the 12 radiocollared, relocated wolves still remains in Unit 12. Mortality rates for relocated wolves were comparable to published rates for naturally dispersing wolves. Trapping was the primary cause of death. None of the relocated wolves died near the release site due to resident wolves. One did die about 75 miles from the release site 4 months after release. It was probably killed by other wolves or by a bear. Release of these wolves into Unit 12 had no effect on unit wolf numbers and has not increased the effect of wolf predation on moose or caribou.

Progress Meeting Project Objectives: Wolf management objectives were met. Management priorities were maintaining natural ecosystems in much of Unit 12 and providing for consumptive use in the unit. These priorities were met through our wolf management objectives, and I recommend no changes in objectives or wolf seasons and bag limits.

Releasing 17 wolves into Unit 12 benefited the Fortymile Management Plan and did not effect wolf population goals or objectives in the unit. It also did not effect the unit's prey populations.

Project Location: Units 19, 21A, and 21E
Kuskokwim, Middle Yukon, and Nowitna drainages

Project Objectives and Activities:

1. Determine distribution, abundance, and population trends of wolves in selected areas
   - Radiocollar and monitor selected packs
2. Maintain a population of wolves capable of sustaining an annual harvest of at least 100 wolves
   - Seal hides taken by hunters and trappers; interview hunters and trappers to assess relative abundance of wolves
3. Manage to reduce wolf numbers in areas where wolf predation is thought to be significantly affecting ungulate populations through calf or adult mortality
4. Refine annual wolf population estimates in the area based on incidental sightings, hunter interviews, and sealing documents
5. Delineate wolf survey area boundaries in each of the 6 subunits and attempt to survey these respective areas beginning March 1991
   - Conduct fixed-wing aerial surveys during the winter in selected areas

Work Accomplished During the Project Segment Period: Sealing documents indicated hunters and trappers took 78 wolves from Units 19, 21A and 21E. This harvest represented approximately 6%–7% of the population. Harvest by unit was 19A-8; 19B-16; 19C-25; 19D-5; and Unit 19 (subunit unknown)-8. Reported harvests in Units 21A and 21E were 7 and 9 wolves, respectively. A higher harvest can be sustained. Previously, when land-and-shoot methods were allowed, harvests were commonly between 100 and 150 per year.

Progress Meeting Project Objectives: We made progress with estimating density, distribution, and abundance in selected areas. We did not have any wolves collared in the area. We met our population objective and did not manage to reduce wolf populations in areas of overabundance. We used anecdotal information to enhance our wolf population estimates and made progress with establishing wolf survey areas. We are continuing to extend our survey areas but are limited by weather and financial constraints.

Project Location: Units 20A, 20B, 20C, 20F, and 25C

Tanana Flats, Central Alaska Range; drainages into the north and south banks of the Tanana River, the west bank of the Nenana River, and the south bank of the Yukon River

Project Objectives and Activities:

1. Monitor harvest through sealing certificates

2. Estimate wolf population size and distribution from aerial surveys and harvests in Units 20A, 20B, and 25C

   - Maintain a sample of radiocollared wolves in the Tanana Flats portion of Unit 20A to facilitate aerial surveys and moose/wolf research

   - Conduct a Track Intercept Probability Estimator (TIP) in the Minto Flats portion of Unit 20B

   - Conduct aerial surveys in Units 20C, 20F, and 25C by spring 1998

3. Conduct calf mortality study of moose and/or caribou in Unit 20A

Work Accomplished During the Project Segment Period: Wolves were radiocollared in the Unit 20A Foothills and Tanana Flats. We conducted a Survey Unit Probability Estimator (SUPE) aerial survey on the Unit 20A Flats in 1996 to estimate population size. However, that technique failed to provide reliable data for the Tanana Flats. We estimated population parameters from information gathered on the size, distribution, and color composition of radiocollared packs. We supplemented this information with incidental observations of other wolves. We did not conduct formal surveys in units other than 20A; however, we recorded numerous observations of wolves while conducting aerial surveys of other species. We estimated the number, method, location, timing, age, sex and color of wolves taken by hunters and trappers by collecting and analyzing sealing data.

Progress Meeting Project Objectives: We monitored harvest through sealing records, an effective and economical method.

We made progress meeting our objective to estimate wolf population size and distribution in Units 20A, 20B and 25C. We completed aerial surveys of the Tanana Flats in March 1995 and a SUPE estimate in the same area in February 1996. I recommend we plan a TIP in Unit 20B in spring 1998. I also recommend we plan aerial surveys in Units 20C, 20F, and 25C during spring 1998.

A caribou calf mortality study was conducted during 1995–1997 in Unit 20A. A moose calf mortality study was completed in 20A during 1996–1997. Objective number 3 is complete and should be deleted for 1999.

Project Location: Unit 20D (5,633 mi^2)

Central Tanana Valley near Delta Junction

Project Objectives and Activities:

1. Manage for a population of 15-125 wolves
2. Determine distribution, abundance, predation rates, and population trends in selected areas
    a. Seal hides taken by hunters and trappers; interview hunters and trappers to assess relative abundance of wolves.
    b. Conduct aerial surveys during the winter in selected areas
    c. Radiocollar and monitor selected packs

Work Accomplished During the Project Segment Period: Preliminary reported harvest was 37 wolves taken by hunters and trappers and 1 wolf taken in defense of life or property (DLP). Twenty-two wolves were taken from southern Unit 20D and 15 wolves plus 1 DLP wolf were taken from northern Unit 20D. In addition, 6 wolves from 2 packs in northern Unit 20D were trapped and relocated out of the unit as part of the Fortymile Caribou Management Plan. An aerial survey was attempted to obtain an estimate of population size; however, conditions were poor for observing tracks and suitable conditions did not occur later in the survey season. We maintained radio collars on wolves in 5 packs in northern Unit 20D. The objective was to determine pack size and territories. We conducted trapper interviews to contribute to the wolf population estimate for Unit 20D. Because interviews were not completed, the 1997–98 wolf population estimate was not finalized. The Unit 20D Wolf Control Implementation Plan was not implemented during this reporting period. It was intended to improve ungulate calf survival and to help achieve moose and caribou population size objectives.

Progress Meeting Project Objectives: Compliance with population objectives was not determined. Harvested wolves were sealed to monitor take. A combination of aerial surveys and hunter/trapper interviews will be used to calculate a population estimate.

Project Location: Unit 20E (10,681 mi^2)
Charley, Fortymile and Ladue River drainages

Project Objectives and Activities:

1. Monitor wolf numbers, population characteristics, and harvests
   a. Monitor harvest through sealing records and trapper questionnaires
   b. Conduct fixed-wing aerial surveys during the winter in selected areas
   c. Radiocollar and monitor selected packs
2. Provide for the maximum harvest of wolves in western Unit 20E
   - Through seasons and bag limits, allow for increased harvest within and near the Fortymile Caribou Herd
3. Reduce the number of wolves on the Fortymile caribou herd's calving and summer range by relocating all members of up to 15 packs other than the dominate pair and controlling fertility among dominant pairs
   a. Monitor relocated wolves to determine survival, homing instinct, and establishment of territory
   b. Monitor sterilized wolves to determine pack size, territory size and usage, and kill rates
   c. Close trapping if the wolf population in the control area is reduced to 30 wolves

Work Accomplished During the Project Segment Period: Nine hunters and trappers harvested 34 wolves (16 males and 18 females). The average annual harvest during the past 5 years was 56 wolves. Harvest has ranged between 16% and 37% of the fall population estimate since 1992. Wolf pelt value was high in 1992 and 1993 but declined in 1994. In 1995 and 1996, fur market value for wolves was still low but a privately funded incentive program was offered to area wolf trappers in an attempt to increase wolf harvest to benefit the Fortymile caribou herd. Trappers responded to the program and took 84 wolves in 1995 and 54 wolves in 1996 primarily in central and western Unit 20E. During 1997, the privately funded program was discontinued and trapping pressure declined. The number of trappers who caught wolves in Unit 20E in 1997–1998 was the lowest since 1988. Snaring, trapping, and ground shooting accounted for 68%, 24%, and 9% of the harvested wolves, respectively. The harvest of 34 wolves represented about 16% of the fall population estimate of 200–230 wolves.

The 1997 fall wolf population estimate for Unit 20E was derived from over 100 flight hours of survey time primarily in the western and northwestern portions of the unit, from trapper reports, radiotelemetry data, and from incidental sightings by department personnel. We did not conduct surveys within the northeastern portion of the subunit and, consequently, used counts made in prior years in the estimate. Since little to no trapping occurred throughout eastern Unit 20E, we

consider our estimate conservative because harvest of <25% is not limiting to population growth. Our 1997 fall estimate was 200–230 wolves in 34 packs, about 7.5 wolves/1000 km^2.

We implemented the nonlethal wolf component of the Fortymile Caribou Management Plan and a research project to evaluate its effects. The objective of the program was, in combination with trapping, to reduce the wolf population on the Fortymile caribou herd's calving grounds, excluding Yukon–Charley Rivers National Preserve, by 70%–80% to benefit caribou calf survival. By 1 June 1998 we had: fertility controlled the alpha wolves in 6 packs; relocated 31 wolves to release sites in Units 12, 7, and 15; radiocollared an alpha pair that will be fertility controlled next fall; and radiocollared 13 wolves in 5 packs to use as a control in the research project. Initially, following sterilization surgeries, relocation, and during caribou calving, we monitored the wolves daily. Two weeks after the treatments were completed, we reduced our monitoring effort to an average of once every 2 weeks.

Progress Meeting Project Objectives: Harvest objectives were met. We conducted intensive surveys in central and western Unit 20E to monitor wolf numbers, movements, and mortality. Public trapping was monitored through the sealing process and by keeping close contact with area trappers and the private group that funded the trapping program in 1995 and 1996. Trappers were encouraged to help the Fortymile Plan by trapping certain areas to reduce wolf numbers.

At least two conditions must be met for trappers to cause a decline in the wolf population in a specific area: the market value of wolves must be sufficient to meet the financial needs of the trapper and the area must be somewhat accessible. During 1995 and 1996 wolf pelt prices were low, but a private group offered an incentive to area trappers, and, consequently, harvest was higher than expected. Trappers did catch wolves within the summer range of the Fortymile caribou herd, including the Yukon-Charley Rivers National Preserve, but in most areas did not exceed sustainable harvest and wolf numbers remained stable. Trappers did harvest at a high enough rate to reduce wolf numbers in the central portion of the unit, which is used by the herd primarily during winter.

Beginning in fall 1997 we implemented nonlethal wolf control. By 1 June 1998 wolf numbers in the western portion of the unit were reduced by 80% through a combination of trapper harvest, wolf relocation, and fertility control. We monitored the sterilized wolves throughout the winter and calving periods, and all pairs maintained their territories. Four of the relocated wolves returned; 1 joined a sterilized alpha male that had lost his mate, and the other 3 returned to their home territories. We moved those 3 wolves in May 1998. The paired wolf will be sterilized next fall.

Next fall we will treat 3–4 packs that reside within the western portion of the herd's calving grounds in Units 20B and 20D. In Unit 20E we will sterilize 1–2 pairs that we did not complete in 1997, and we will relocate all their pack mates and any other returning wolves.

I recommend continuing the existing objectives for at least 2 more years until we can determine effects of nonlethal wolf control in combination with public trapping on Fortymile caribou calf survival and herd growth.

Project Location: Units 21B, 21C and 21D (20,655 mi^2)

Lower Nowitna River and Yukon River between Melozitna and Tozintna rivers; Dulbi River above Cottonwood Creek and Melozitna River above Grayling Creek; and Yukon River from Blackburn to Ruby and Koyukuk River drainage below Dulbi Slough

Project Objectives and Activities:

1. In Unit 21B maintain at least 50 moose per wolf until the moose population objective of 4,000 to 4,500 is attained. Thereafter, maintain a fall wolf density of approximately 8 wolves/1000 km^2 and sustain an annual harvest rate of 15%–25% from the wolf population

2. In Units 21C and 21D maintain a fall wolf density of approximately 8 wolves/1000 km^2 and sustain an annual harvest rate of 15%–25% from the wolf population

3. Conduct fixed-wing aerial surveys using the Sample Unit Probability Estimation (SUPE) method during winter in selected areas to estimate population size

4. Radiocollar and monitor selected packs and interview hunters and trappers to assess relative abundance of wolves

5. Seal hides taken by hunters and trappers to determine annual harvest rates

Work Accomplished During the Project Segment Period: We contacted trappers and provided educational materials to increase trapper efficiency. We sealed wolf pelts taken by hunters and trappers. Preliminary results from fur sealing records indicated hunters and trappers harvested 33 wolves. This compares with 29 in 1996–1997 and 47 in 1995–1996. Sealing compliance in some of the rural villages probably increased. No wolves were radiocollared, and no surveys were completed.

Within Unit 21B, wolf numbers probably did not change since winter of 1995–96 when a cooperative SUPE survey with the U.S. Fish and Wildlife Service was completed. In the 3700 mi^2 area, 52–83 wolves (90% CI) were found. Within Unit 21C the population was subjectively estimated at 40–50 wolves in 6–10 packs. The estimate was based on sealing documents, wolf trapper surveys, and estimates of density in surrounding areas. Within Unit 21D the density in 1994–1995 was 8.2 wolves/1000 km^2, with a population of 219–292. Wolf numbers have probably increased considerably since then, based on observations by department staff and local hunters and trappers.

Progress Meeting Project Objectives: Harvest levels were consistently below targeted rates for all subunits. Low pelt prices and restrictions on methods of trapping will result in relatively low wolf harvest.

Project Location: Unit 24 (26,055 mi^2)

Koyukuk River drainage above Dulbi River

Project Objectives and Activities:

1. In the southern part of Unit 24 (south of Hughes), manage for a stable fall wolf population with a density of approximately 8 wolves/1000 km^2 to sustain an annual harvest of approximately 30 wolves

2. In the central part of the unit (Hughes to Bettles), reduce wolf density to 4 wolves/1000 km^2 to achieve a moose:wolf ratio of 50:1

3. In the northern part of the unit (north of Bettles including Gates of the arctic National Park (GANP), maintain a stable fall wolf density of approximately 8 wolves/1000 km^2, to sustain an annual harvest of 30 wolves while providing for nonconsumptive uses within the GANP

4. Conduct fixed-wing aerial surveys using the Sample Unit Probability Estimation (SUPE) method during winter in selected areas to estimate population size

5. Radiocollar and monitor selected packs and interview hunters and trappers to assess relative abundance of wolves

6. Seal hides taken by hunters and trappers to determine annual harvest rates

Work Accomplished During the Project Segment Period: We contacted trappers and provided them with educational materials to increase their efficiency. A SUPE survey for wolves was not conducted during this reporting period. Fourteen wolves were immobilized and 12 radiocollared on or near the Kanuti National Wildlife Refuge by department personnel under contract to U.S. Fish and Wildlife Service. Using trapper interviews and previous surveys, we estimated the fall wolf population at 405–540 wolves in 58–66 packs within the unit.

Preliminary results from fur sealing records indicated hunters and trappers harvested 53 wolves. This was down from 83 wolves taken during the previous season. Sealing compliance in some of the rural villages probably increased.

Progress Meeting Project Objectives: Most harvest objectives were met. In central Unit 24, wolf numbers were above optimum level, which hindered moose population growth.

Project Location: Units 25A, 25B, 25D, 26B, and 26C (73,756 mi^2)

Upper Yukon River Valley, north slope of the Brooks Range, and Arctic Coastal Plain east of the Itkillik River

Project Objectives and Activities:

1. Conduct a wolf census in Units 25A, 25D East, and 25D West by 1999

2. Using computer modeling, evaluate effects of wolf predation on moose in Unit 25D

Work Accomplished During the Project Segment Period: Preliminary data from sealing forms indicated hunters and trappers harvested 17 wolves in Unit 25A, 14 in Unit 25B, 10 in Unit 25D, 7 in Unit 26B, and 1 in Unit 26C.

No surveys were conducted during this period, but the status of wolves was discussed informally with numerous local and nonlocal residents. Observations by the public generally indicated wolf numbers increased in recent years. Sightings of wolves and tracks during moose trend counts indicated wolves were common in most parts of the area.

Progress Meeting Project Objectives: No additional surveys were conducted since March 1997, when an aerial survey of the central and western portions of Unit 25D enumerated 111–131 wolves in 23 groups. We made minimal progress toward project objectives because other activities were higher priority.

The level of compliance with pelt sealing requirements is fairly high in Unit 25, and contacts with the public and sealing agents indicate wolves are routinely sealed in this area. In Units 26B and 26C, wolf pelts harvested by local residents are often processed locally. Although some pelts are not sealed, the total number taken by local residents is not large. Wolves taken by nonlocal residents adjacent to the Dalton Highway in Unit 26B are usually sealed.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	90.3	26.0	116.3
Actual	6.2	9.2	15.4
Difference	84.1	16.8	100.9

Explanation: During the last 7 months of this report period, Region III staff initiated a new time accounting procedure. In December 1997, staff began recording time spent on specific federal aid projects. Previously, staff had recorded only total time that was then prorated to either federal aid or nonfederal aid time according to a fixed percentage that varied among staff positions. Therefore, the "Actual" expenditures for "Personnel" in this report are estimates derived from 7 months of specific project time extrapolated to 12 months. The new procedure unavoidably resulted in what appears to be substantial discrepancies between "Planned" and "Actual" personnel expenditures for most of the FY98 federal aid projects. However, most of these "discrepancies" are not real, and the explanation and justification are presented in the explanation section of each project report. This is a transitional phenomenon and, unlike this year, the FY99 performance reports will reflect a full 12 months of actual project time accounting.

Personnel: The estimated underexpenditure of funds may be a relatively close reflection of actual staff time. This will require a close reassessment of how staff time is allocated to wolf work, especially during years when no wolf management report is required, which was the case this year.

Operating: The operating allocation was actually 16.1, a budgetary decision that was made after the Work Plan was submitted. The underexpenditure of funds resulted from the postponement of

a planned survey in favor of participation in a wolf capture/telemetry project funded entirely by USFWS in Unit 24.

Submitted by:

Roy A. Nowlin
Regional Management Assistant

David D. James
Management Coordinator

Project Title: **Western Alaska Wolf Management**

Project Location: Unit 18 (42,000 mi^2)
Yukon–Kuskokwim Delta

Project Objectives and Activities:

Establish and maintain viable wolf populations in Unit 18

a. Monitor harvests through the sealing program, contacts with the public, and the annual trapper questionnaire

b. Explain and promote compliance with the sealing requirement among local hunters and trappers

c. Monitor the size and population status of wolves and wolf packs in Unit 18

d. Minimize adverse interactions between wolves and the public

e. Develop updated population management objectives upon implementation of the statewide wolf management plan

Work Accomplished During the Project Segment Period: Sealing certificates to date show 43 wolves were harvested in Unit 18 during the 1997–1998 season. This is nearly a four-fold increase from the harvest at this time last year.

A trapper questionnaire was sent out in spring 1998. Forty trappers from Unit 18 responded. Trappers and hunters have seen increasing numbers of wolves in the Kilbuck and Kuskokwim Mountains, as well as the river corridor between Marshall and Paimiut. Reports from the general public show wolf sightings have increased.

Progress Meeting Project Objectives: Observations by department staff and the public indicate several wolf packs occupied the entire length of the Yukon River in Unit 18, portions of the Kilbuck Mountains, and the Kuskokwim River near the Unit 19A boundary. The overall Unit 18 population is estimated to range from 100–125 wolves in 8–12 different packs.

Due to low fur prices and high local demand for wolf pelts for parka ruffs, some local trappers may not have sealed their harvest. Wolf harvest is normally very low in Unit 18. Prior to the caribou and moose population increases of the last 3 to 5 years, most wolves found in Unit 18 were migrants from nearby Units 17, 19, 21 to the east and Unit 22 to the north. There are undoubtedly established packs now, and they make up the majority of wolves found here.

Increased numbers of ungulates in the Kuskokwim and Yukon drainages has resulted in increased numbers of wolves in Unit 18. The recent migrations of several thousand of the Western Arctic Caribou Herd into the lower Yukon and Andreafsky River area, expansion of the Mulchatna Caribou Herd into the Kilbuck Mountains, and increased numbers of moose along the lower Yukon River have allowed the wolf population to grow in Unit 18.

Project Location: Unit 22 (25,230 mi^2)

Seward Peninsula and eastern Norton Sound

Project Objectives and Activities:

1. Establish and maintain viable wolf populations in Unit 22

   a. Assess harvest, interview hunter/trappers, and seal all pelts brought in for sealing

   b. Establish and maintain license vendors and sealers in all Unit 22 villages

   c. Improve compliance with current sealing requirements through public communication and education

2. Cooperate with reindeer herders to develop methods that will reduce adverse interactions between wolves and reindeer

3. Develop updated wolf management objectives upon completion of the statewide Wolf Management Plan

Work Accomplished During the Project Segment Period: The furbearer sealing records indicate that 9 hunter/trappers harvested 20 wolves (11 males, 9 females) in Unit 22. Eleven were harvested in Unit 22A and 9 came from Unit 22B. Fourteen were taken by ground shooting, 5 were trapped, and 1 was taken by unknown means. One hunter/trapper used an airplane for transportation. Seventeen wolves were taken with the aid of snowmachines and 2 were harvested with a highway vehicle as transportation. The wolves harvested in Unit 22B were reported to be alone or in packs of 2 animals. In Unit 22A the pack sizes ranged from 1 to 6 animals.

Wolves are becoming more abundant in many parts of Unit 22, caused by the large number of Western Arctic caribou that have wintered on the Seward Peninsula in the last 2 years. Accounts of larger packs than previously reported have come from Unit 22A. In western Unit 22B and Unit 22C, where wolves were previously reported only during winter months, observations of small resident wolf packs and harvest during the summer months are reported. A pack of 4 wolves was observed last winter at the western end of the Lava Beds and individual animals were noted along the north slopes of the Bendelebens in Unit 22D. There are few reports of wolves in the western portion of Units 22D or 22E.

We devoted considerable time to answering questions from the public and supporting local license vendors and fur sealers.

Progress Meeting Project Objectives: The magnitude of unreported wolf harvest each year in Unit 22 is thought to be substantial and fur sealing data provides only a minimum estimate of harvest. Although fursealing agents are available in all Unit 22 villages, many furs are tanned, kept, bartered, or sold locally, and people see no reason to seal them. Increased contact with hunter/trappers throughout the unit is desirable to encourage harvest reporting and to gain information about furbearer abundance. Efforts are underway to develop a short questionnaire that will be mailed to hunter/trappers at the end of each season to better assess harvest and

abundance of wolves and other furbearers in Unit 22. We are also considering the feasibility of conducting village surveys to assess harvest of furbearers and big game species.

Local reindeer herders are attempting to reduce wolf/reindeer interactions by spending more time with the reindeer, particularly at fawning time, and keeping reindeer in areas where wolf densities are lower.

Efforts to inform the public of the importance of wildlife conservation and the need for regulations are showing results in some communities where the number of individuals purchasing licenses has increased. Additional contact with local village residents is needed if more complete compliance with current regulations is to become a reality.

Project Location: Unit 23 (43,000 mi^2)

Kotzebue Sound and Western Brooks Range

Project Objectives:

1. Maintain a healthy population of wolves in Unit 23

2. Maintain the furbearer-sealing program to monitor harvest

Work Accomplished During the Project Segment Period: We supported license vendors and furbearer sealers in Unit 23. Ten hunters sealed 15 wolves (6 males, 7 females, and 2 sex unknown); an additional 3 wolves were harvested but not sealed. Five wolves were trapped and 9 shot. All except 2 hunters were residents of the unit, and these hunters were Alaska residents. Unit residents used snowmachines to harvest wolves between December and April. Hunters from outside the unit used aircraft. Adding to our incidental observations of wolves and wolf tracks, we collected observations and opinions on population trends from local residents with recent field experience.

Progress Meeting Project Objectives: Healthy populations of wolves and liberal trapping regulations continue in Unit 23. Winter weather contributed to very poor travel and hunting conditions, lowering the number of wolves sealed. Snow and weather conditions also made population assessment difficult.

The department recognizes that hunters harvest many wolves and do not have them sealed. The unreported harvest probably exceeds the reported take of wolves.

Harvest reporting rates by local residents remained low. We suspect only hides sold outside the region or tanned commercially are sealed. Most hides are processed locally and remain within the region. This practice probably will continue, despite increases in the availability of furbearer sealers or vendors.

Project Location: Unit 26A (53,000 mi^2)

Western North Slope

Project Objectives and Activities:

1. Maintain viable wolf populations in Unit 26A

    a. Monitor the population density of wolves in the most heavily hunted area in Unit 26A once every 3 years

    b. Monitor harvest through the statewide sealing program and by interviewing knowledgeable people in the villages; develop a better monitoring system.

    c. Interview hunters, guides, and pilots to collect harvest and population status information

2. Determine the impact of wolves on Unit 26A moose populations

    a. Monitor the wolf population by conducting surveys in the primary moose habitat area once every 3 years

    b. Record wolf observations and moose carcasses during moose counts

Work Accomplished During the Segment Project Period: During the 1997–1998 reporting period, only 3 wolves were sealed. Two (67%) were males and 1 (33%) was a female. All 3 were ground shot and taken with the aid of snowmachines. One wolf was taken in February and 2 wolves were harvested in March.

A Sample Unit Probability Estimator (SUPE) sample design was used to census wolves in a 10,343 km^2 area bordered by the Colville, Killik, and Itkillik Rivers and Gunsight Mountain on 15 and 16 April 1998. Lack of fresh snow and wind-blown snow caused poor tracking conditions in the southern half of the study area. We concentrated our efforts on the northern 5000 km^2. Only 7 wolves were seen in 2 packs, resulting in an estimate of 8 wolves, with a range of 5–11 (90% CI). A density estimate was calculated at 1.6 wolves/1000 km^2.

The goal of helping to develop a more effective harvest-monitoring program was partially accomplished. We have worked with the North Slope Borough to develop a harvest-monitoring program involving local monitors in each village. The North Slope Borough study indicated the following harvest during 1994–1995: 59 wolves by Anaktuvuk Pass hunters, 18 in Nuiqsut, and 2 in Atqasuk (Brower and Opie, 1996 and 1997). During 1994–1995, 18 wolves were sealed in Anaktuvuk Pass, and none was sealed in Nuiqsut or Atqasuk. This would indicate that about 25% of the wolves harvested were sealed.

The number of moose counted during surveys along the Colville, Anaktuvuk, and Chandler rivers declined by 50% between 1991 and 1995, during a time of high wolf density. The moose population has begun to increase since 1997 while the density of wolves has been low. It is difficult to determine whether the wolf density is driving the moose population fluctuation, or if the wolves immigrated to the area in response to high moose and caribou numbers and left when the numbers of prey animals declined. We will continue to conduct wolf and moose surveys to monitor the effect of hunters on wolves and the combined effects of hunters, bears, and wolves on moose.

We normally log wolf sightings during moose counts. In 1995, 16 wolves were observed during 35 hours of surveying and 29 wolves were recorded in 39 hours of flight in 1991. No wolves were sighted during moose surveys in 1998.

Progress Meeting Project Objectives: We have monitored the wolf population periodically and surveys indicate the density of wolves increased from approximately 2.6 wolves/1000 km^2 in 1987 to 4.1 wolves/1000 km^2 in 1994. The survey we conducted in 1998 indicated a substantial decline to 1.6 wolves/1000 km^2. Fewer wolves per hour were seen during moose surveys in 1995, 1996, and 1997 than during the period 1991–1994, and this year we did not see any wolves. It is apparent the wolf population in the study area has decreased substantially.

The numbers of wolves sealed in Unit 26A have declined from 47 in 1994–1995 to 19 in both 1995–1996 and 1996–1997 and to 3 in 1997–1998. The department sealing program does not always effectively measure harvests in villages, but this is a strong indication the number of wolves has declined throughout the unit.

Segment Period Project Costs:

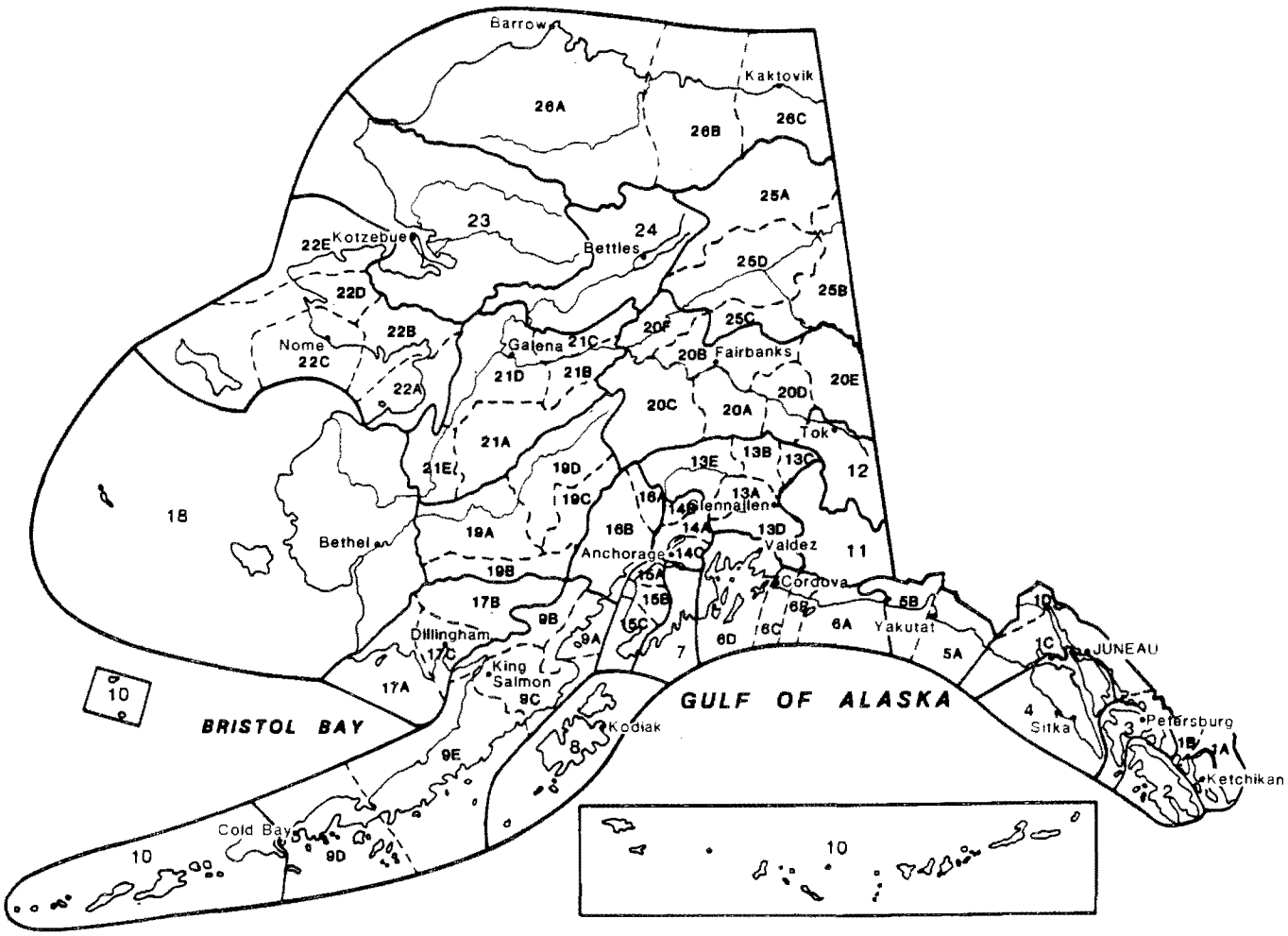
	Personnel	Operating	Total
Planned	26.3	8.5	34.8
Actual	26.3	13.6	39.9
Difference	0	-5.1	-5.1

Explanation: More flying in Unit 26A was required to complete wolf surveys on the North Slope, causing operating expenses to exceed planned costs.

Submitted by:

Peter Bente
Survey–Inventory Coordinator

Alaska's Game Management Units



The Federal Aid in Wildlife Restoration Program consists of funds from a 10% to 11% manufacturer's excise tax collected from the sales of handguns, sporting rifles, shotguns, ammunition, and archery equipment. The Federal Aid program allots funds back to states through a formula based on each state's geographic area and number of paid hunting license holders. Alaska receives a maximum 5% of revenues collected each year. The Alaska Department of Fish and Game uses federal aid funds to help restore, conserve, and manage wild birds and mammals to benefit the public. These funds are also used to educate hunters to develop the skills, knowledge, and attitudes for responsible hunting. Seventy-five percent of the funds for this report are from Federal Aid.

Craig Flatten **Chris Farmer checks the radio collar of a wolf on Heceta Island**