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Division of Wildlife Conservation

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WOLF

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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 status and trends of wolf populations, including the use of an annual trapper survey.

Work Accomplished During the Project Segment Period: We sealed 41 wolf pelts from Subunit 1A and 89 from Unit 2. Information collected from the 41 successful trappers in Subunit 1A and the 71 trappers from Unit 2 included location and date of kill, method of take and transportation, sex, and pelt color. We also collected anecdotal information through informal discussions with hunters and trappers, and more formal information through our trapper survey.

Progress Meeting Project Objectives: The wolf harvest from Subunit 1A equaled last season's total; the Unit 2 harvest was up 7 from last season's 82 wolves. Trappers responding to our survey indicated the wolf population is presently common in Subunit 1A (*Index of Abundance* I_A = 92, n = 6) and intermediate in Unit 2 (I_A = 37, n = 4). Wolf numbers have remained stable in Subunit 1A during the past year while numbers in Unit 2 may have declined slightly.

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 Subunit 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 the use of an annual trapper survey.

Work Accomplished During the Project Segment Period: We sealed 4 wolves (1 male and 3 females) in subunit 1B and 38 wolves (25 males and 13 females) in Unit 3 during the reporting period. There were 4 active trapper/hunters in Subunit 1B and 18 active trapper/hunters in Unit 3. We collected anecdotal information through discussions with hunters, trappers and Forest Service biologists. From this information we mapped pack ranges and numbers. Six female and 2 male wolf carcasses were collected from trappers and necropsied. Skinned weights for the males were 30 and 39 kilograms; the skinned weight for the females ranged from 22 to 28 kilograms. Age information has not been completed at this time. One adult female taken April 1, 1995 had 4 male and 1 female fetuses. Each fetus was around 150 mm in length and 180 grams in weight. One wolf was killed by an automobile in the Petersburg city limits.

Progress Meeting Project Objectives: Trappers, hunters, Forest Service biologists and information from a trapper questionnaire indicate the wolf population has increased in recent years.

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 the use of an annual trapper survey.

Work Accomplished During the Project Segment Period: Five wolves (2 males, 3 females) were harvested and sealed during the 1995/96 season.

We used a trapper questionnaire to gain additional information regarding target species abundance, prey abundance, trapping conditions, and trapping patterns.

Progress Meeting Project Objectives: Wolf populations in Subunit 1C are at moderate densities, although packs have decreased use of areas inhabited the previous season 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: Two wolves (females) were harvested and sealed in Subunit 1D during the 1995/96 season.

A trapper questionnaire was used to gain additional information regarding target species abundance, prey abundance, trapping conditions, and trapping patterns.

Progress Meeting Project Objectives: Wolf populations in Subunit 1D are thought to be at moderate to low numbers. Wolf predation on moose was highly visible in late winter 1992/93 and local trappers and other sportsmen have reported some increase in numbers of wolves or wolf sign in recent years. However, harvests have remained low.

Project Location: Unit 5 (5,800 mi^2)
Cape Fairweather to Icy Bay, eastern gulf coast

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: Harvest was analyzed from wolf sealing certificates. No planning meetings were held during the report period.

Progress Meeting Project Objectives: Nine wolves (5 males, 4 females) were sealed in Yakutat; this is 6 less than the previous season. However, wolf populations in Unit 5 are healthy and probably more numerous than anytime in the past decade.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	5.8	0.0	5.8
Actual	12.6	0.0	12.6
Difference	-6.8	0.0	6.8

Staff spent additional time working on wolf population estimates.

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 Forest Service wolf ecology study indicated a population of 40 to 60 wolves in 9 packs.

Sealing records indicated unitwide harvest of 5 wolves. All 5 wolves taken were gray and included 3 males and 2 females.

Progress Meeting Project Objectives: We achieved wolf population objectives. The population could have sustained harvest in excess of the 10 animals specified in 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 suggest the wolf density is stable or slightly increasing due to reduced harvest over the past five years. The current estimate is 200 wolves for Units 7 and 15.

Forty-two wolves were taken by hunters and trappers during the 1995/96 season in Units 7 and 15. Although wolves were abundant trappers showed little interest in trapping due primarily to the presence of lice infested wolves and difficulties related to checking traps every 4 days or snares every 7 days in the Refuge. Wolf harvest was as follows: Unit 7-17, Subunit 15A-7, 15B-10 and 15C-8. The 1995/96 harvest of 42 was the second highest harvest in the past 10 years, when harvest ranged from 9 to 49. Forty-five percent (19) of the harvest was reported by hunters, the second highest nontrap harvest on record.

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 refuge requirement of checking traps every 4 days and snares

every 7 has virtually eliminated recreational trappers' opportunity to pursue wolves over most of the refuge. Low fur prices, caused by pelt damage from lice infestation, reduced trapping and hunting efforts. Average annual harvest since the 4-day trapline check was initiated was 19, compared to 48 for the 10 years before the restriction.

The harvest of 42 wolves represents 21.0% 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.

Preliminary genetic evaluations by the US Fish and Wildlife Service indicate wolves on the Kenai Peninsula lack genetic diversity. If this finding is true, the "founders effect" may be the reason wolves on the Kenai are severely affected by lice, compared to other wolves throughout the state. If Kenai wolves carry a recessive gene that predisposes them to lice infestation, an introduction of genetically diverse wolves should, over time, reduce this effect. I recommend the department enter into a study with USFWS to investigate this hypothesis.

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 up to 50 wolves.

Work Accomplished During the Project Segment Period: Direct observation surveys were not conducted during this reporting period. An indirect survey for estimating wolf abundance was accomplished by mail-out questionnaires sent to a select group of trappers. Only 5 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.

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 1995-96 was 26 in Unit 9 and 0 in Unit 10. This harvest was below the 10-year average of 33 wolves but was up from the 1994 harvest of 17 wolves.

Progress Meeting Project Objectives: Snow conditions and lack of funding have 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 (12,800 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 1995 prehunting season population estimate for Unit 11 was 95-115 wolves. This figure was lower than last year's estimated population of 105-125 wolves and fall wolf estimates between 1989 and 1992 that ranged from 130-170 wolves. The current estimate was based on sightings from department personnel and the public and hunter and trapper reports. We do not conduct systematic wolf track transects in Unit 11.

The harvest was well below the previous year's take of 35 wolves. We estimated this year's harvest rate at about 10% of the extrapolated fall 1995 population. The 1994-95 harvest rate was estimated to be much higher (30%) percent of the estimated fall wolf population. Females accounted for 36 % (n = 4) of this year's take and males 64% (n = 7). One wolf was taken by a nonresident during the fall, while all the remaining harvest was taken by locals living in the Park resident zone. Eighty-two percent (n = 9) of the wolves were trapped or snared, and 18 % (n = 2) shot. Snowmachines were the most popular method of transportation, accounting for 100% (n = 10) of the reported take with known transportation listed.

Progress Meeting Project Objectives: The low wolf harvest during the 1995-96 season is not expected to reduce wolf numbers in Unit 11 for the 1996-97 season. In recent years estimates of wolf numbers have fluctuated depending on harvest levels. Wolves are considered abundant, but further increases in the wolf population may be restricted by habitat suitability. Because much of Unit 11 is mountainous or glaciered, 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, where ungulate numbers are higher also, tends to reduce overall wolf numbers in Unit 11.

The wolf harvest in 1995-96 was down appreciably over last year's harvest and is the lowest reported harvest in 10 years. Yearly fluctuations in harvest often reflect pelt prices, trapper effort, and snow conditions as much as wolf abundance. This year there was little snow all winter, making transportation very difficult for trappers. Plotting locations of wolf kills show 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 in proximity to access points, especially those areas along the Nabesna and McCarthy Roads, the only roads leading into this unit. Because hunting and trapping pressure is low and not expected to increase, we expect Unit 11's wolf population will continue to demonstrate yearly fluctuations based on harvests, but the overall trend should be for wolf numbers to remain at 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 1995, and February 1996. The area covered during these flights included large portions of Subunit 13B, 13C, and 13D, but only small segments of 13A and 13E. We used reports from hunters and trappers, incidental sightings by department personnel, and track survey data to estimate wolf densities for Unit 13. A fall 1995 Unit 13 population estimate was between 310-350 wolves in 40-50 packs. Observed pack size was as high as 21 wolves. This yielded a unitwide density estimate of 7.2 to 8.1 wolves/1,000 km^2. The preliminary spring 1996 population estimate was between 180-220 wolves.

A wolf census was also conducted in Unit 13A and part of 13B during February 1996. A total of 66 wolves were observed during the census in 13A. The population estimate at the 90% CI was 66-72 wolves for a density of 6.4 wolves/1,000 km^2. Within Subunit 13A is a research and intensive management area called 13A West. The wolf estimate in this area was 48-56 wolves, an estimated 9 wolves/1,000 km^2. The wolf estimate in 13B was 28-43 wolves at the 90% CI and a density estimate of 4.6 wolves/1,000 km^2. A spring 1996 wolf population estimate for all of Unit 13 was completed by extrapolating densities found in 13A and 13B unitwide and subtracting the wolf harvest taken subsequent to the census. The extrapolated wolf estimate that resulted was 215 animals.

Preliminary harvest figures showed 122 wolves (64 males, 57 females, and 1 sex undetermined) reported taken to date by 58 hunters and trappers during the 1995-96 season. The current harvest was 24% below the previous year's take of 161 wolves. Thirty (25%) wolves were ground shot, 27 (22%) were snared, and 64 (53%) were trapped. Snowmachines were the most popular method of transportation (66%) followed by aircraft (10%). Ten wolves were shot and 2 animals were trapped by trappers and/or hunters using aircraft. The average take per trapper was 2 wolves. Unit residents took 59 (48%) wolves, nonlocal Alaskans 58 (48%) wolves, and nonresidents took 5 (4%) wolves. Units 13B and 13D had the highest harvests. The preliminary overall wolf harvest rate in Unit 13 was approximately 35% of the estimated fall population.

Progress Meeting Project Objectives: The spring 1996 midpoint population estimate of 200 wolves in Unit 13 meets the new population objective set by the Board of Game during the March 1995 meeting. This estimate is also higher than the spring 1995 estimate, which was the lowest since the late 1980s when wolf numbers increased in Unit 13. Wolves in Unit 13 are not limited by prey availability because moose and caribou numbers are high. Although the Nelchina caribou herd was estimated at over 50,000 animals, most of the herd migrated into Unit 12 during the winter of 1995-96. As a result, caribou were often unavailable to wolves during winter in Unit 13, and moose become the important prey species from early October until late April. Wolves readily preyed on caribou in years they were available in Unit 13 during winter. In the past, when a large number of caribou overwintered in Unit 13, predation rates were quite high.

The 1995-96 wolf harvest was down by 32% from the record take of 179 wolves in 1993-94. The reduction in the harvest was attributed to both a slight decline in wolf abundance as reflected by a lower population estimate and poor snow conditions. In Unit 13 there was virtually no snow until late February, greatly limiting access by hunters and trappers. The number of wolves shot using aircraft remained low for the second year in a row with only 10 animals reported by this method.

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 1995-96 season, 24 wolves were sealed from Unit 14. Nineteen were taken in Subunit 14A, 2 were taken in Subunit 14B, and 3 were taken in Subunit 14C. A questionnaire was mailed to all trappers who sealed fur taken in Unit 14. Although few trappers made sets specifically for wolves, trappers were very effective; 75% of the wolves were snared or trapped. Seven wolves were snared in a single set on the Knik River.

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 Twenty-mile River/Portage Creek. The pack on Elmendorf-Ft. Richardson has been established since an intensive aerial wolf survey conducted during February 1995.

Progress Meeting Project Objectives: During the 1995-96 season, 24 wolves were sealed from Unit 14. Nineteen were taken in Subunit 14A, 2 were taken in Subunit 14B and 3 were taken in Subunit 14C. We mailed a questionnaire to all trappers who sealed fur taken in Unit 14. Although few trappers made sets specifically for wolves, trappers were very effective; 75% of the wolves were snared or trapped. Seven wolves were snared in a single set on the Knik River.

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 Twenty-mile River/Portage Creek. Apparently, the pack on Elmendorf-Ft. Richardson has become established since an intensive aerial wolf survey conducted during February 1995.

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 1995-96 trapping season, 15 wolves (1 from Subunit 16A, 14 from Subunit 16B) were reported taken from Unit 16. Snow cover was light or nonexistent until February in many portions of the area, reducing trapper/hunter effort. Results from a questionnaire mailed to all trappers who sealed fur taken in Unit 16 indicated few trappers made sets specifically for wolves. Sixty percent of the harvested wolves were taken via trap or snare.

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 and Drift River. Also, a pack of 32 wolves was seen repeatedly in the McArthur and Big River drainages during March 1996. FWP troopers eventually tracked this pack back to the head of Lake Clark Pass. It is unknown whether this was a resident pack or an unusual movement from a pack in Unit 9 or 17.

Progress Meeting Project Objectives: We estimated 64-95 wolves inhabited Unit 16 during spring 1996, based on public and staff observations. At that level, the population could sustain a harvest of more than 25 wolves annually. Harvest was reduced due to unusual weather conditions. The population objectives for this unit were met.

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 data indicate a reported harvest of 28 wolves, including 16 males (57%), 12 females (43%) during the 1995-96 season. This level of harvest is less than 25% of the 1994-95 take and is below the 5-year average of 49.2 wolves. No wolves were killed in Unit 17A; however, 21 (75%) were killed in Unit 17B, and 7 (25%) in Unit 17C. Unit 17 residents reported killing 19 wolves (68%), 6 (21%) wolves were harvested by Alaska residents from outside the Unit, and 3 (11%) were killed by nonresident hunters.

Most trappers used snowmachines (54%) or aircraft (39%) for access. Ninety-three percent of the wolves harvested during this reporting period were shot and 7% were snared. Eleven percent of

the wolves were killed during the main big game hunting season (August-October); none were taken in November or December. Trappers took 25% in January, 43% in February, and 21% in March. These harvest data reflect the extremely low snow cover throughout much of the unit in 1995-96.

Progress Meeting Objectives: We have no objective data on the population density of wolves in the Unit. Local trappers noted wolf populations increased unitwide during this reporting period. Wolves in Units 17B and 17C responded favorably to increasing ungulate populations, and trappers/hunters were able to harvest a large number of these wolves without any artificial incentives.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	7.0	8.5	15.5
Actual	7.0	8.5	15.5
Difference	0.0	0.0	0.0

Submitted by:

Michael McDonald
Management Coordinator

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

Project Location: Unit 12 (9978 mi^2)

Project Objectives and Activities:

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

Work Accomplished During the Project Segment Period: During FY95, 15 hunters and trappers harvested 46 wolves (25 males, 11 females, 10 unknown sex) in Unit 12, which equals the 5-year average harvest. During FY96, fur market value for wolf pelts was low and many trappers did not actively select for wolves. Harvest was higher than expected due to the success of two trappers; both had 1-2 large packs traveling their lines throughout the season. The reported harvest removed 26-30% of the fall 1995 population estimate of 155-177 wolves. This harvest is at the sustainable rate of 25-30%. Trapping, snaring, and ground shooting accounted for 41%, 52%, and 7% of the harvest, respectively.

The Unit 12 wolf population estimate was derived from wolf observations by department and U.S. Fish and Wildlife personnel and from reliable reports from trappers, hunters, and pilots. If this estimate is correct, the Unit 12 fall wolf population has remained stable the past two years at a level approximately 27% below that of 1992. The cause of the decline was high annual harvests between 1990 and 1994. Between 1991 and 1994, wolf pelt value was high and marten and lynx prices were low. In response, area trappers concentrated on wolves, and the resulting harvest exceeded recruitment during 3 of the 4 years.

We did not have any wolves radiocollared in Unit 12 during FY96.

Progress Meeting Project Objectives: The Unit 12 wolf management objectives were met during FY95. Maintaining natural ecosystems in much of Unit 12 and providing consumptive use by local residents have been identified as the unit's management priorities. Our existing wolf management objectives are meeting these priorities, and I recommend no changes in objectives or wolf seasons and bag limits.

Project Location: Unit 19 and Units 21A and 21E (59,756 mi^2)

Project Objectives and Activities:

1. Determine distribution, abundance, and population trends of wolves in selected areas.
   a. Radiocollar and monitor selected packs.
2. Maintain a harvestable population of wolves capable of sustaining an annual harvest of at least 100 wolves.
   a. Seal hides taken by hunters and trappers; interview hunters and trappers to assess relative abundance of wolves.
3. 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 units and attempt to survey these respective areas beginning in March 1991.
   a. Conduct fixed-wing aerial surveys during the winter in selected areas.

Work Accomplished During the Project Segment Period: Through preliminary analyses of sealing documents, discussions with area trappers and hunters, incidental field operations, trapper questionnaires, and a census in a portion of Unit 19D, we estimated the size of the wolf population at about 1671 wolves in about 170 packs. This is a two-fold increase from the previous year's population estimate. However, this increase in the estimate reflects a better estimate based on field investigations, not a two-fold increase in actual numbers of wolves.

During the 1994-95 season, final analyses of sealing documents indicated hunters and trappers took 223 wolves from Unit 19, 21A and 21E. This harvest represents approximately 14% of the population. Harvest by unit was 19A, 44; 19B, 41; 19C, 54; and 19D, 33. Reported harvests in 21A and 21E were 8 and 43 wolves, respectively.

During 1991-92, only 16 wolves were sealed in these same units. During 1992-93, 48 wolves were harvested. Thus, the preliminary 1995-96 harvest was almost 5 times that of 4 years earlier. This, along with the trapper questionnaires, indicates an increasing wolf population. Certainly this 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 estimated wolf distribution and abundance. Pelts were sealed and analyses of harvest data will be finalized. Statistically sound estimates of wolf densities were not achieved over large expanses because of lack of money and personnel, although the population estimate from 19D-east was completed with relatively tight confidence intervals.

Project Location: Units 20A, 20B, 20C, 20F, and 25C (39,228 mi^2)

Project Objectives and Activities:

1. Monitor harvest through sealing certificates.
2. Estimate wolf population size and distribution from aerial survey and harvest in Units 20A, 20B, and 25C by 1996.
   a. Conduct a SUPE (Sample Unit Probability Estimator) in the Tanana Flats portion of Unit 20A during spring 1996.
   b. Conduct a TIPE (Track Intercept Probability Estimator) in the Minto Flats portion of Unit 20B during spring 1997.
   c. Conduct aerial surveys in Units 20C, 20F, and 25C by spring 1998.
3. Initiate a calf mortality study of moose and/or caribou in Unit 20A by 1996.

Work Accomplished During the Project Segment Period:. In early fall 1995, we estimated 630-885 wolves in 90-140 packs were present in Units 20A, 20B, 20C, 20F and 25C. This estimate is based on surveys and research in Unit 20A and 20C and on extrapolation of 1993 estimates that included 160-180 wolves in 25-35 packs in Unit 20A, 150-225 wolves in 20-30 packs in Unit 20B, 200-320 wolves in 25-40 packs in Unit 20F, and 75-125 wolves in 10-20 packs in each of Units 20F and 25C.

Wolves were radiocollared in the 20A Foothills, and a SUPE survey was conducted on the 20A Flats.

According to a preliminary count of sealing certificates from this reporting period (1995-96), the number of wolves harvested by trappers or hunters was 63 in Unit 20A. In Unit 20B, hunters and trappers harvested 82 wolves, with 15 in Unit 20C, 4 in Unit 20F, and 24 in Unit 25C. Harvest in Units 20B and 25C were substantially higher than in 1994 (52 and 13, respectively)

In February 1995 approximately 30 trappers attended a Wolf Trapping School cosponsored by the department and the Alaska Trappers' Association.

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

We are making progress meeting our objective to estimate wolf population size and distribution in Units 20A, 20B and 25C. We completed an aerial survey of the Tanana Flats in March 1995 and a SUPE estimate in the same area in February 1996. I recommend we plan a TIPE (Track Intercept Probability Estimator) in Unit 20B in spring 1997. I also recommend we plan aerial surveys in Units 20C, 20F, and 25C during spring 1998.

We conducted a caribou calf mortality study in 1995 and 1996 in Unit 20A. A moose calf mortality study began in 20A in 1996.

The completion date for objective 2 should be changed to 1998 so that it is in agreement with objectives 2b and 2c. Objective 2a should be changed to indicate that wolves should be radio-collared in 20A Flats to facilitate aerial surveys in 1996 and 1997.

Project Location: Unit 20D (5637 mi^2)

Project Objectives and Activities:

1. 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 fixed-wing aerial surveys during the winter in selected areas.
    c. Radiocollar and monitor selected packs.

Work Accomplished During the Project Segment Period: Preliminary reported harvest indicates 41 wolves were taken by hunters and trappers during 1995-96. Twenty-three wolves were taken from southern Subunit 20D and 18 from northern Subunit 20D.

Estimates of the Subunit 20D wolf population were based on aerial counts in portions of northern Subunit 20D and trapper and hunter interviews in the remainder of the area. The preliminary population estimate is 90-100 wolves.

Progress Meeting Project Objectives: Harvested wolves were sealed to monitor harvest. A combination of aerial surveys and hunter/trapper interviews were used to calculate a population estimate.

Project Location: Unit 20E (10681 mi^2)

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 Subunit 20E.
    a. Through seasons and bag limits, allow for increased harvest within and near the Fortymile Caribou Herd.
    b. Monitor harvest and temporarily close the season if the population in western Subunit 20E declines below 75 wolves.

Work Accomplished During the Project Segment Period: During the 1995-96 regulatory year, 17 hunters and trappers harvested 77 wolves (37 males and 36 females, and 4 unknown sex) exceeding the 5-year harvest of 52 wolves. Harvest was comparable to 1992 and 1993 (63 wolves/.year) when wolves held a high value on the fur market. During FY96, the fur market

value for wolves was low, but a privately funded incentive program was offered to area wolf trappers to increase wolf harvest to benefit the Fortymile caribou herd. Trappers responded to the program and increased their efforts in the central portion of the subunit. The remainder of the subunit was lightly trapped. Snaring, trapping, and ground shooting accounted for 70%, 25%, and 5% of the harvested wolves, respectively. The harvest of 77 wolves represents about 42% of the fall population estimate of 178-188 wolves. This harvest rate exceeds the sustainable rate of 25-30%.

The 1995 Unit 20E fall wolf population estimate was derived from over 100 flight hours of survey time, trapper reports, radiotelemetry data, and incidental sightings by department personnel. We did not conduct surveys within the northeastern portion of the subunit; consequently, we used counts made in prior years in the estimate. The wolf population remained stable the past 3 years but is expected to show a decline in fall 1996.

During FY96, we captured 17 wolves associated with 7 packs. Throughout the year we monitored 23 radiocollared wolves associated with 11 packs. We collected data on pack and territory size, movement patterns in relation to caribou wintering and calving areas and population demographics.

Progress Meeting Project Objectives: The management objectives were met during FY96. In order for trappers to cause a decline in the wolf population in a specific area, at least two conditions must be met. First, the market value of wolves must be sufficient to meet the financial needs of the trapper and, secondly, the area must be somewhat accessible. During FY96 wolf pelt prices were low but an incentive was offered by a private group to area trappers; consequently, harvest was higher than expected. Trappers still did not increase the harvest of wolves within the summer range of the Fortymile caribou herd, including the Yukon-Charley Rivers National Preserve, and the wolf population in that area remains stable. Wolf numbers in the central portion of the unit are expected to decline because of trapping effort.

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

Project Objectives and Activities:

1. Reduce wolf density in Unit 21B to achieve a moose:wolf ratio of 50:1 until the moose population objectives are attained.
   a. Encourage trapper participation by education and liberal regulations.
2. Maintain a stable fall wolf density of approximately 1 wolf/50 mi^2 with the intent to sustain an 11-30% annual harvest rate from the wolf population in Units 21B, 21C, and 21D after the moose population objectives have been attained.
   a. Conduct fixed-wing aerial surveys using the Sample Unit Probability Estimation (SUPE) method during winter in selected areas to estimate population size.
   b. Radiocollar and monitor selected packs and interview hunters and trappers to assess relative abundance of wolves.
   c. 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. Within Unit 21B, wolf numbers were estimated with a cooperative SUPE survey with U. S. Fish and Wildlife Service. In the 3700 mi^2 area, we found 52-83 wolves (90% confidence interval). Within Subunit 21C, wolf populations were subjectively estimated based on sealing documents, wolf trapper surveys, and estimates of density in surrounding areas. In Subunit 21D, the entire area was surveyed with USFWS in 1994 using a probability estimator method. We estimated a spring population of 256.0 wolves (+ 14.2% at 80% C I) and density estimates of 8.16 wolves/1000 km^2 (SE = 0.91).

The Subunit estimated fall wolf populations are listed.

Subunit 21B - 52-83 wolves in 12-15 packs
Subunit 21C - 40-50 wolves in 6-10 packs
Subunit 21D - 219-292 wolves in 34-37 packs

Fifteen wolves were radiotracked during the period and locations were plotted.

Hunters and trappers harvested 47 wolves during the 1995-96 season. Sealing compliance in some of the rural villages seems to be increasing.

Progress Meeting Project Objectives: The wolf radiotelemetry projects were in cooperation with the USFWS and have provided better population estimations and distribution data. The SUPE population estimation method is a very good technique to increase our knowledge about wolf numbers.

Most objectives have been met with regard to sustaining harvest levels.

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

Project Objectives and Activities:

1. Reduce wolf density to 1 wolf/1000 mi^2 during a sufficient length of time to achieve a moose:wolf ratio of 50:1 in the central part (i.e., Hughes to Bettles) of the unit.
   a. Encourage trapper participation by education and liberal regulations.
2. Maintain a stable fall wolf density of approximately 1 wolf/50 mi^2 with the intent to sustain an annual harvest of 30 wolves in the southern part of Unit 24, south of Hughes (6,150 mi^2).
   a. Conduct fixed-wing aerial surveys using the SUPE method during winter in selected areas to determine population size.
   b. Radiocollar and monitor selected packs and interview hunters and trappers to assess relative abundance of wolves.
   c. 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.

A SUPE survey was planned for the entire unit but 3 of the 5 agencies who were going to cooperate did not get funding and the survey was canceled.

No new wolves were radiocollared in the unit. Using trapper interviews and previous surveys, we estimated the fall wolf population at 405-540 wolves in 58-66 packs in Unit 24.

Hunters and trappers harvested 112 wolves during the 1995-96 season. Sealing compliance in some of the rural villages seems to be increasing.

Progress Meeting Project Objectives: Most objectives have been met with regard to sustaining harvest levels. In mid Unit 24, wolf numbers are still above optimum levels which discourages moose population growth.

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

Project Objectives and Activities:

1. Conduct a wolf census in Units 25A, 25D East, and 25B West by 1995.
2. Using computer modeling, evaluate the effects of wolf predation on moose in Unit 25D.

Work Accomplished During the Project Segment Period: Sealing forms on file in early May 1996 indicated hunters and trappers harvested 14 wolves in Unit 25A, 6 in Unit 25B, 5 in Unit 25D, 7 in Unit 26B, and 4 in Unit 26C. These harvests are lower than those of previous years.

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 indicate wolf numbers have increased in recent years. Sightings of wolves and tracks during moose trend counts indicate wolves are common in most parts of the area.

Progress Meeting Project Objectives: No additional surveys have been conducted since March 1992, when wolf numbers were estimated in Unit 25D. Because other activities have been a higher priority, we have made minimal progress toward project objectives.

Some progress was made toward objective 2. 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 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	93.5	58.0	151.5
Actual	115.8	86.8	202.6
Difference	-22.3	-28.8	-51.1

Explanation: Personnel and operating expenditures were more than planned because additional effort was put into wolf survey and inventory activities including radiocollaring and telemetry monitoring in Units 20A and 20E.

Submitted by:

David James
Management Coordinator

Project Title: **Western Alaska Wolf Population Management**

Project Location: Unit 18 (42,000 mi^2)

Project Objectives and Activities:

1. 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.
2. Minimize adverse interactions between wolves and the public.
3. Develop updated population management objectives upon implementation of the statewide wolf management plan.

Work Accomplished During the Project Segment Period: Sealing certificate data indicate that 8 wolves were harvested in Unit 18 during the 1995-96 season. In addition, sightings of wolves and prey believed to be killed by wolves were reported by local trappers, hunters, pilots, and by Department and U. S. Fish and Wildlife Service (FWS) staff engaged in other activities.

A trapper questionnaire was sent out in March 1996 to evaluate wolf abundance. 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 and wolverine sightings have increased. Coyotes moving into the southwest portion of Unit 18 have been seen for 5 years between the Kwethluk and the Kisaralik rivers. Some of these coyotes may have been mistaken for wolves.

Public notices were sent to all villages informing hunters and trappers that wolves need to be sealed after they are harvested.

Progress Meeting Project Objectives: Observations by Department staff and the public indicate that several wolf packs occupied the entire length of the Yukon River in Unit 18, portions of the Kilbuck Mountains, the Kuskokwim River near the Unit 19A boundary. The overall Unit 18 population is estimated to range from 75 to 100 wolves in 8-10 different packs. Several wolf kills of caribou were documented during the reporting period. Resident wolf packs have been observed near Nyac on the upper Tuluksak/Fog River drainages, the upper Kwethluk and Kisaralik drainages, the Goodnews and Arolik rivers, the Paimiut Hills, Russian Mountains, the Portage Hills area, and the Andreafsky Mountain area. In addition, scattered sightings have been reported elsewhere in the Unit.

Increased sightings of wolves and wolverines in the Andreafsky Mountains, during December 1995, occurred when a group of several thousand caribou from the Western Arctic Caribou Herd migrated into the upper Pastolik River drainage.

Sealing certificate data indicate that 5 wolves were harvested during the reporting period in the Andreafsky area, 2 from the Fog River, and 1 from the Kanektok area. Due to low fur prices and high local demand for wolf pelts for parka ruffs, some local trappers may have not sealed their harvest. Wolf harvest is normally very low in Unit 18. Most of the wolves found in Unit 18 are migrants from nearby Units 17, 19, 21, to the east and Unit 22 to the north.

Increased numbers of ungulates in the Kuskokwim and Yukon drainages should result in increased numbers of wolves in the near future. The recent migrations of several thousand Western Arctic herd caribou 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, will likely attract wolves into Unit 18. The increased numbers of suitable prey will also allow year-round occupancy by more wolves within the Unit.

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 which 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: Data obtained from furbearer sealing records indicate that 14 hunters and trappers harvested 28 wolves (17 males, 6 females, and 5 of unknown sex) in Unit 22 during the reporting period. All the hunters/trappers were residents of Unit 22. A breakdown of this harvest by subunits is as follows: Unit 22A - 12; 22B - 15; and 22C - 1. All of the wolves were taken by ground shooting using snowmachines as transportation.

The educational program developed several years ago explaining the importance of wildlife management concepts and regulations continued to be used in Unit 22 schools. We made several trips to villages explaining the need for regulations and harvest reporting as well as assisting license vendors.

We devoted considerable time to answering questions from the public, writing articles, mailing information and regulatory materials, and supporting local license vendors. We held several

meetings and impromptu discussions with reindeer herders and the National Park Service to develop methods of reducing wolf/reindeer interactions.

Progress Meeting Project Objectives: The magnitude of the unreported wolf harvest each year in Unit 22 is thought to be substantial. 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.

Conflicts between wolves and reindeer have increased during the reporting period, particularly in Unit 22B where wolf densities have increased markedly during the last several years. Local reindeer herders are making attempts at reducing wolf/reindeer interactions by spending more time with the reindeer, particularly at fawning time, and keeping reindeer in areas where wolf densities appear to be lower.

We did not update the population management objectives during the reporting period. Completion of this goal will follow the development of the statewide management plan for wolves.

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. Based on sealing certificates, hunters and trappers in Unit 23 harvested 24 wolves (15 males, 9 females). Fifteen hunters ground shot 20 wolves and trapped 4. All but 1 hunter was a resident of the region. Hunters harvested all but 1 wolf using snowmachines. However, the use of aircraft is probably under-reported. When an aircraft is used to access a camp where a snow machine is used for hunting, often only the snow machine transportation is reported. The Department recognizes that hunters harvest many wolves and do not have them sealed. The unreported harvest probably exceeds the reported take of wolves.

Progress Meeting Project Objectives: Healthy populations of wolves and liberal trapping regulations exist in Unit 23. Unit 23 wolf population densities appear high and stable. Wolf predation will continue to affect the magnitude and duration of declines in moose and sheep numbers. We do not know if the high incidence of rabies among red foxes in Unit 23 during the winter of 1995-96 affected wolf numbers and distribution.

Harvest reporting rates by local residents remained low. We suspect only hides that are sold outside the region or tanned commercially are sealed. The majority of hides are processed locally

and remain within the region. We encouraged 2 existing village vendors to become fur sealers. This would make it easier for residents to seal wolves and other furbearers.

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. In addition, a better monitoring system will be developed.
   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 and compare to observations made during past counts.
3. Develop updated management objectives upon implementation of the statewide wolf management plan.

Work Accomplished During the Segment Project Period: During the 1995-96 reporting period, 19 wolves were sealed. Eight (42%) were males and 11 (58%) were females. Fourteen (74%) animals were ground shot, 4 (21%) were trapped, and 1 (5%) was snared. Eighteen (95%) animals were taken using snowmachines for transportation and 1 (5%) was taken using boats. The chronology of the harvest was: September - 1; November - 3; March - 11; April - 1; and May - 3.

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 8 and 9 April 1994. Thirty-three wolves were seen in 8 packs, resulting in an estimate of 43 wolves, with a confidence range of 43-45 at the 90% level. A density estimate was calculated at 4.1 wolves per 1000 km^2. This compares favorably to the 1992 density estimate of 4.2 wolves/1000 km^2 generated from a transect-intercept probability sampling design.

Wolf sightings were logged during moose survey flights in Unit 26A. One wolf was sighted during 7 hours of flying during 21-22 April 1996. Previously, 29 wolves were recorded on 39 hours of flight in 1991 and 16 wolves were sighted during 35 hours of flight in 1995.

Progress Meeting Project Objectives: Wolf 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. However,

fewer wolves per hour were seen during moose surveys in 1995 and 1996 than during the period 1991-94. We do not know if this is reflects a change in the wolf population.

The 19 wolves sealed during 1995-96 was much lower than the 46 wolves sealed in 1994-95. The Department sealing program does not always effectively measure harvests in villages, so it is unknown if the decline in harvest is reflective of poor compliance with sealing requirements or if the actual harvest was greatly reduced. We are working with the North Slope Borough to develop a more effective harvest monitoring program involving local monitors in each village.

The number of moose counted during surveys along the Colville, Anaktuvuk, and Chandler rivers declined by 50% between 1991 and 1995, and this may be partly attributed to wolf predation. We will continue to conduct wolf and moose surveys to monitor the impact of hunters on wolves, and the combined impact of hunters, bears, and wolves on moose. The decrease in observations and sealing of wolves in 1995-96 highlights the need for another wolf survey to determine if the wolf population has declined.

A wolf management plan for the North Slope was written during 1992 and 1993. In developing the management plan, public meetings were held in North Slope villages and we consulted local governments and federal management agencies. The goals and objectives of the North Slope plan will be updated based on the implementation of the statewide wolf management plan.

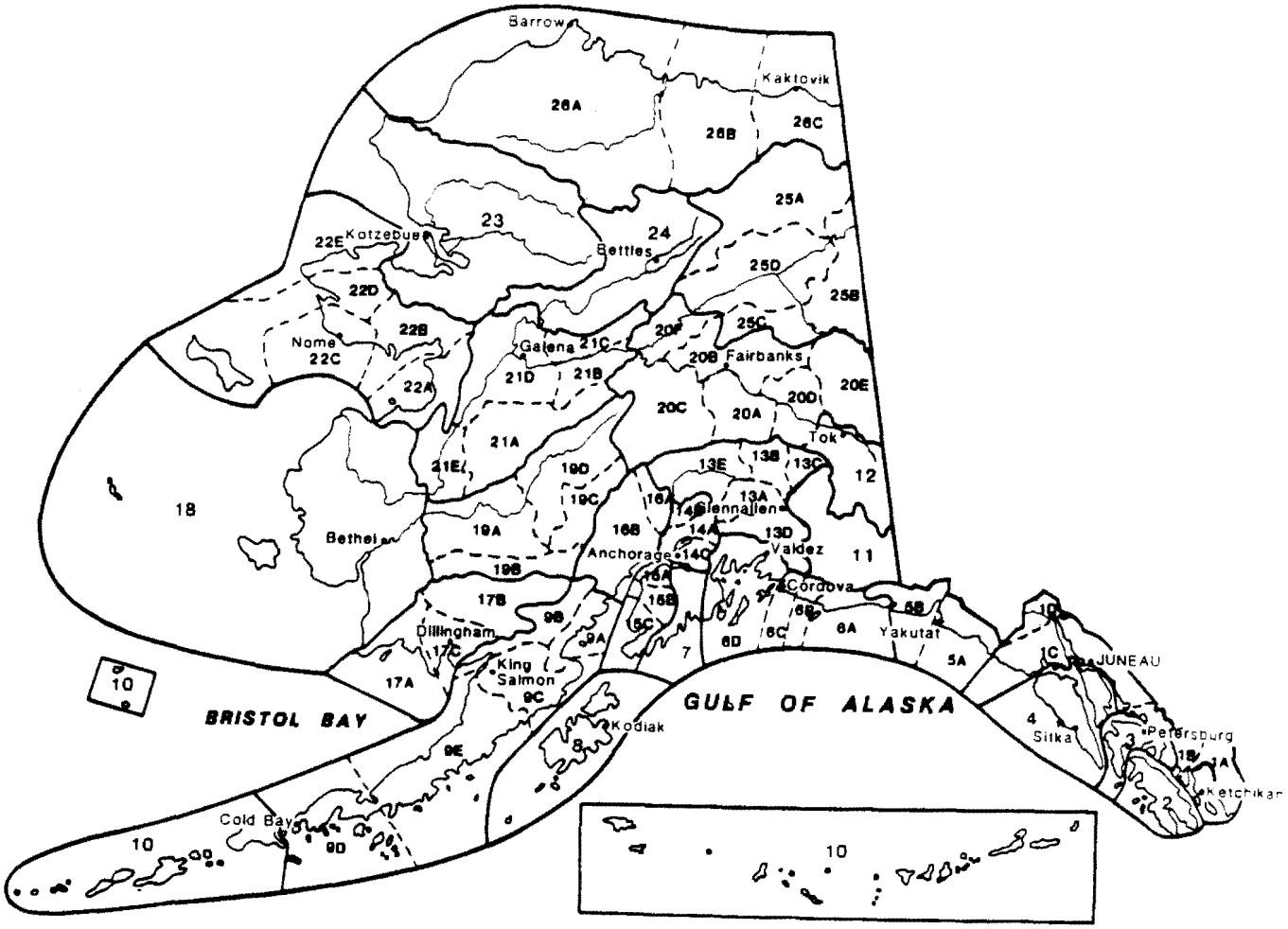
Segment Period Project Costs:

	Personnel	Operating	Total
Planned	6.9	17.0	23.9
Actual	6.9	17.0	23.9
Difference	0.0	0.0	0.0

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.

LEONARD LEE RUE III