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WOLF

Mary V. Hicks, Editor

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Project Title: **Southeast Wolf Population Management**

Project Location: Subunit 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 hides from Subunit 1A and 82 from Unit 2. Information gathered included location and date of kill, method of take and transportation used, sex, and pelt color. We collected anecdotal information through discussions with hunters and trappers and continued to gather quantitative information from ongoing UAF graduate wolf research in Unit 2. We will be gathering additional information during the annual trapper survey.

Progress Meeting Project Objectives: For the first time in 3 seasons, fewer than 100 wolves were reported harvested from Unit 2. We have not yet received trapper survey results; however, information from UAF research indicates Unit 2 wolf numbers may be down slightly from levels observed during the past 3 years. Wolf numbers have remained stable in Subunit 1A during the report period.

Project Location: Subunit 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:

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 the use of an annual trapper survey.

Work Accomplished During the Project Segment Period: We sealed 16 wolves (11 males and 5 females in Subunit 1B and 54 (31 males and 23 females) in Unit 3. There were eight active trappers in Subunit 1B and 13 in Unit 3. We collected anecdotal information through discussions with trappers, hunters, and Forest Service biologists. We have begun mapping pack ranges and numbers. We collected 6 wolf carcasses from trappers. We will analyze the carcasses for sex, age, weight, length, stomach contents, body condition, and placental scars.

Progress Meeting Project Objectives: Discussions with trappers, hunters, FS biologists and information from the trapper questionnaire indicate the wolf population has been increasing.

Project Location: Subunit 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: Seven wolves (4 males and 1 female; 2 unknown) were harvested and sealed during the 1994-95 season. At least one other was trapped but not recovered because of heavy snow conditions.

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 thought to be at moderate densities, although packs have apparently moved out of areas near Juneau inhabited during the previous year.

Project Location: Subunit 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 (one male, one female) were harvested and sealed in Subunit 1D during the 1994-95 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 at moderate to low numbers. Wolf predation on moose was highly visible in late winter 1992-93; local trappers and other sportspersons have reported some increase in numbers of wolves or wolf sign. 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 the 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: Fifteen wolves (10 males, 2 females, 3 unknown) were sealed in Yakutat. This is nearly identical with the harvest from the previous season. 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	$5.6	$0.0	$5.6
Actual	$8.9	$0.0	$8.9
Difference	3.3	0.0	$3.3

We spent additional time working on the Alexander Archipelago wolf Endangered Species Act petition issue.

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 no wolves were harvested in Unit 6

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 indicated the wolf density was stable or slightly increasing because of reduced harvest over the past 8 years. The current estimate is 200 wolves in Units 7 and 15.

Twenty wolves were taken by hunters and trappers during the 1994-95 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 in the refuge. Wolf harvest was as follows: Unit 7-7, Subunit 15A-7, 15B-3, and 15C-3. The 1994-95 harvest of 20 was 29 percent below the average annual harvest of 28 during the previous 10 years. Forty percent (8) 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 prior to the restriction.

The harvest of 20 wolves represents 10% 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 FWS 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 1994-95 was 17 in Unit 9 and 0 in Unit 10. This harvest was below the 10-year average of 33 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 1994 prehunting season population estimate for Unit 11 was 105-125 wolves. This figure was higher than last year's estimated population of 90-110 wolves but below the 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 reports from hunters and trappers. We do not conduct systematic wolf track transects in Unit 11.

Preliminary harvest data show 35 wolves taken by 12 trappers during the 1994-95 season. This harvest was well above the previous year's take of 17 wolves. We estimated this year's harvest rate at about 30% of the extrapolated fall 1994 population. The 1993-94 harvest rate was estimated to be lower (18%). Females accounted for 51% (n = 18) of this year's take and males 49% (n = 17). One wolf was taken by an Alaskan resident and 1 by a nonresident during the fall, while the remaining harvest was taken by locals living in the Park resident zone. Ninety-one percent (n = 32) of the wolves were trapped or snared, and 9 % (n = 3) shot. Snowmachines were the most popular method of transportation, accounting for 86% of the reported take, followed by aircraft (8%).

Progress Meeting Project Objectives: The high harvest this year, especially of females, is expected to reduce wolf numbers in Unit 11 this year. In recent years estimates of wolf numbers have fluctuated depending on harvest levels. Overall, wolves were 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 tend to limit overall wolf numbers in Unit 11.

The wolf harvest in 1994-95 was up appreciably over last year's harvest, which was the lowest reported since 1986. Yearly fluctuations in harvest often reflect pelt prices, trapper effort, and snow conditions as much as wolf abundance. This year's reported harvest rate of 30% with a high number of females approaches the level where human harvests could be expected to reduce the wolf population. Plotting locations of wolf kills shows most of the wolf harvest occurred 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. Because hunting and trapping pressure is low and not expected to increase, we expect Unit 11's wolf population to fluctuate based on harvests, but the overall trend should be for wolf numbers to remain at current levels or decline because of the low prey base available to wolves in this unit.

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

Project Objectives: To maintain the posthunting population at a minimum of 150-200 wolves.

Work Accomplished During the Project Segment Period: We conducted wolf survey flights in Unit 13 during October and November 1994, and March 1995. The area covered during these flights included large portions of Subunit 13A, 13B, and 13C but only small segments of 13D 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 1994 Unit 13 population estimate was between 350-390 wolves in 50 packs. Observed pack size was as high as 23 wolves. This yielded a unitwide density estimate of 8.2 to 9.1 wolves/1,000 km^2. The preliminary spring 1995 population estimate was between 170-210 wolves.

Preliminary harvest figures showed 153 wolves (85 males, 66 females, and 2 sex undetermined) reported taken to date by 66 hunters and trappers during the 1994-95 season. The current harvest was 15% below the previous year's record take of 179 wolves. Seventy-three (48%) wolves were ground shot, 26 (17%) were snared, and 54 (35%) were trapped. Snowmachines were the most popular method of transportation (54%) followed by aircraft (18%). Twenty-one wolves were shot and 6 animals were trapped by trappers and/or hunters using aircraft. The average take per trapper was 2.3 wolves. Unit residents took 64 (42%) wolves, nonlocal Alaskans 88 (57%) wolves and one nonresident took a wolf. Subunit 13E and 13B had the highest harvests. The preliminary overall wolf harvest rate in Unit 13 was approximately 40% of the estimated fall population.

Progress Meeting Project Objectives: The spring 1995 population estimate of 170 wolves in Unit 13 meets the new population objective set by the Board of Game during the March 1995 meeting. However, the spring 1995 estimate is the lowest since the late 1980s when wolf numbers increased in Unit 13. Wolves in the unit were not limited by prey availability because moose and caribou numbers were high. Although the Nelchina caribou herd was estimated at over 40,000 animals, a large portion of the herd migrated into Unit 12 and Canada during the winter. 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 the past, when a large number of caribou remained in Unit 13, predation rates were quite high.

The 1994-95 wolf harvest was down by 15% from the record take of 179 wolves in 1993-94. The slight reduction in the harvest is attributed to a decline in wolf abundance as reflected by a lower population estimate. The number of wolves snared during 1994-95 was half the number taken by this method last year. The number of wolves shot using aircraft remained low for the second year in a row with only 21 animals reported by this method.

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 1994-95 season, 22 wolves were sealed from Unit 14. Sixteen were taken in Subunit 14A, 4 were taken in Subunit 14B and 2 in Subunit 14C. Annual harvests have been increasing sharply; the harvest averaged 4 wolves during the previous 5 years. A questionnaire was mailed to all trappers who sealed fur taken in Unit 14. Few trappers made sets specifically for wolves; 50% of the wolves harvested were ground shot.

Aerial surveys were conducted on 23 and 24 February to estimate the number of wolves in Subunit 14C (excluding Anchorage) and a small portion of Subunit 14A (Knik River). Biologists observed 19 wolves and estimated the area contained 27 wolves (19-39 wolves at the 90% confidence level).

Local pilots frequently observed wolves in the Knik River area. Five wolves were reported taken from this pack. The adults survived the trapping/hunting season and produced pups during spring 1995. Observations from staff and the public indicated additional wolf packs in the following drainages: Talkeetna River near Sheep River, Iron Creek, Peters/Purches Creek, King River, Carpenter Creek, Peters Creek/Eagle River, Ship Creek, and Twentymile River/Portage Creek.

Progress Meeting Project Objectives: Systematic wolf surveys were flown only in portions of Subunits 14C and 14A. Through incidental observations and discussions with trappers and hunters, we estimated the wolf population in Unit 14 at 55-80 wolves, including 25-30 in Subunit 14C. To adequately track and manage 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 1994-95 trapping season, 29 wolves (2 from Subunit 16A and 27 from Subunit 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. Sixty-one percent of the harvested wolves were taken by ground shooting. Several long-time trappers and pilots indicated the number of wolves seemed to be increasing.

Progress Meeting Project Objectives: The population objectives for this unit were met. Systematic surveys were not conducted during this reporting period. Public and staff observations indicated at least 2 packs were inhabiting 16A, and a third was suspected. At least 9 packs were inhabiting 16B. Though increasing, wolf harvests were probably well below the sustainable level, and ample opportunity existed to harvest wolves. To adequately track wolf numbers, the department should continue to refine the probability-network sampling method to estimate wolf numbers and apply this method every 5 years.

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 indicated a reported harvest of 116 wolves, including 72 males (68%), 34 females (32%), and 10 of undetermined sex during the 1994-95 season. This level of harvest is over 3 times more than the 5-year average of 30 wolves and is the highest reported harvest ever for this unit. Wolves were not killed in Subunit 17A; however, 104 (90%) were taken in Subunit 17B, and 12 (10%) in Subunit 17C. Local residents reported killing 39 wolves (34%), nonlocal residents harvested 71 wolves (61%), and nonresident hunters harvested 6 (5%).

Most trappers used snowmachines for access (58%) or aircraft. Seventy-three percent of wolves harvested during this reporting period were shot, 22% were trapped, and 5% snared. Ten percent of the wolves were killed during August-October, 17% in November, 15% in December, 8% in January, 33% in February, and 14% in March.

Progress Meeting Objectives: We do not have objective data on the population density of wolves in Unit 17. Local trappers noted wolf populations seemed to be increasing unitwide during this reporting period, which was reflected by an increased harvest. I also saw more wolves during moose and caribou surveys than in previous years. Perhaps Unit 17B and 17C wolf populations responded favorably to increasing caribou and moose populations, and trappers and hunters were able to harvest large numbers of these wolves.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	9.5	8.0	17.7
Actual	9.5	7.5	17.0
Difference	0.0	0.5	0.5

Submitted by:

Jeff Hughes
Survey-Inventory Coordinator

Project Title: **Region III Wolf Population and Habitat Management**

Project Location: Unit 12 and Subunit 20E

Project Objectives and Activities:

Unit 12:

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.

Unit 20E:

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.
   a. Through seasons and bag limits, allow for increased harvest within and in the vicinity of the Fortymile caribou herd.
   b. Monitor harvest and temporarily close the season if the population in western Unit 20E declines below 75 wolves.

Work Accomplished During the Project Segment Period:

Unit 12: During FY95, 15 hunters and trappers harvested 30 wolves (17 males, 13 females), substantially below the 5-year average harvest of 52 wolves. Fur market value for wolf pelts declined, and few trappers actively selected for wolves. The harvest removed about 18% of the fall 1994 population estimate of 159-183 wolves. This rate was below the sustainable (25%) harvest. Trapping, snaring, and ground shooting accounted for 57%, 30%, and 13% of the harvest, respectively.

The Unit 12 wolf population estimate derived from 10 hours of track survey, trapper reports, radiotelemetry data, and incidental sightings of wolves or their tracks by department personnel. A spring 1995 population estimate of 127-136 wolves (includes a 10% addition

for lone wolves) in 28 established packs in Unit 12 reflected a decline in the wolf population of about 19% since spring 1992. The fall 1993 estimate derived from pack sightings and by adding the known overwinter harvest and wolves that died of natural causes to the spring estimate. Based on this estimate, the Unit 12 fall wolf population declined by 27% since 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 actively pursued wolves, and harvest exceeded sustainable levels during 3 of the 4 years.

Only one wolf carried a functional radiocollar during FY95. The radiocollared wolf was part of a pack of two. This pack has not increased during the past 2 years. We monitored the radiocollared wolf periodically during winter FY95 to determine its movements in relation to the Fortymile caribou herd.

Unit 20E: During FY95, 15 hunters and trappers harvested 37 wolves (23 males and 13 females, and 1 unknown sex). Harvest declined substantially compared to 1992 and 1993 (63 wolves/year). Wolves held a high value on the fur market between 1991 and 1994; in response, area trappers put more effort into wolf trapping. During FY95 the fur market value for wolves declined, and trappers reduced their wolf trapping effort. Snaring, trapping, and ground shooting accounted for 38%, 35%, and 27% of harvested wolves, respectively. The harvest of 37 wolves represented about 20% of the fall population estimate of 183-195 wolves. This harvest rate is below sustainable (< 25%).

The FY95 Unit 20E spring wolf estimate of 146-157 derived from over 30 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 unit; consequently we used counts made in prior years in the estimate. We derived the fall estimate by adding the known overwinter harvest and the number of wolves that died from natural or unknown causes to the spring estimate. The wolf population has declined by 7% since fall 1992 due to high harvests during 1992 and 1993.

During FY94 we monitored 11 radiocollared wolves associated with 10 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:

Unit 12: 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 management priorities in Unit 12. These are being met through our existing wolf management objectives, and I recommend no changes in objectives or wolf seasons and bag limits.

Unit 20E: We met management objectives during FY95. 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 trappers; secondly, the area must be somewhat accessible. During FY95, wolf pelt prices were low and the projection for FY96 is that low fur prices will continue. To meet objective 2, some trapper incentives will probably be necessary. The Fortymile Caribou Management Team is discussing management options which will affect future wolf management in Unit 20E.

Project Location: Unit 19 and Subunits 21A and 21E

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 continuing to sustain 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. 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 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 numbers.

During the 1994-95 season, preliminary analyses of sealing documents indicated hunters and trappers took 239 wolves from Unit 19, 21A and 21E. This harvest represents approximately 14% of the population. Harvest by unit was 19A, 45; 19B, 42; 19C, 60; and 19D, 40. Reported harvests in 21A and 21E were 9 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 1994-95 harvest was almost 5 times that of two years previous. 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 limits.

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

Project Objectives and Activities:

1. Estimate wolf population size and distribution from aerial survey and harvest in Units 20A, 20B, and 25C by 1996.

2. Solicit public input regarding prey population and harvest objectives before the spring 1995 Board of Game meeting. Determine what wolf population levels can be supported with these objectives.

3. Initiate a calf mortality study of moose and/or caribou in Unit 20A by 1996.

Work Accomplished During the Project Segment Period: We conducted aerial surveys for wolves in the Tanana Flats portion of Unit 20A. In early fall 1994, we estimated 660-975 wolves in 90-145 packs were present in Units 20A, 20B, 20C, 20F and 25C. This estimate is based 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. During March 1995, the estimate for the Tanana Flats portion of Unit 20A was revised to 60-80. We derived the estimate after an intensive survey involving 5 aircraft flying 31 hours. We will estimate a posthunt wolf population for Unit 20A during summer 1995.

According to a preliminary count of sealing certificates from this reporting period (1994-95), the number of wolves harvested by trappers or hunters was 31 in Unit 20A, including one shot from an airplane and one trapped after the season. The department harvested an additional 36 wolves during the predation control project, bringing Unit 20A's total harvest to 67 wolves. In Unit 20B, hunters and trappers harvested 52, with 13 in Unit 20C, 8 in Unit 20F, and 13 in Unit 25C.

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

In November 1994 the administration suspended the wolf control program in Unit 20A. At the spring 1995 meeting, the Board of Game approved the control program to resume after 1 January 1996.

Progress Meeting Project Objectives: 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. For a more precise population estimate in Unit 20A, we are planning an intensive (SUPE, Sample Unit Probability Estimator) survey during spring 1996. I also recommend we plan a TIP (Track Intercept Probability Estimator) in Unit 20B in spring 1997. I also recommend we plan a "fly-around" survey in Units 20C, 20F, and 25C during spring 1998.

We did not make any progress meeting objective 2.

We met our objective to start a caribou calf mortality study in Unit 20A and will begin a moose calf mortality study in 20A in spring 1996.

I recommend the following management objectives for the next reporting period:

- Renumber objective 1 to 2.
- Add objective 1: "Monitor harvest through sealing certificates."
- Add 2a: Conduct a SUPE (Sample Unit Probability Estimator) in the Tanana Flats portion of Unit 20A during spring 1996.
- Add 2b: Conduct a TIP (Track Intercept Probability Estimator) in the Minto Flats portion of Unit 20B during spring 1997.
- Add 2c: Conduct an aerial "fly-around" survey in Units 20C, 20F, and 25C during spring 1998.
- Delete objective 3.

Unit 20D

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: Hunters and trappers reported taking 25 wolves during 1994-95. Seventeen wolves were taken from southern Unit 20D and 8 were taken from northern Unit 20D.

Estimates of the Unit 20D wolf population were based on aerial counts in portions of northern Unit 20D and trapper and hunter interviews in the remainder of the area. We estimate a population of 60-80 wolves.

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

Project Location: Subunits 21B, 21C, 21D and Unit 24

Project Objectives and Activities:

Units 21B, 21C, and 21D:

1. Reduce wolf density to achieve a moose:wolf ratio of 50:1 until the moose population objectives are attained in Unit 21B.
   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 11-32% 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 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.

Unit 24:

1. Reduce wolf density to 1 wolf/100 mi^2 to achieve a moose:wolf ratio of 50:1 in the central part of the unit; i.e., Hughes to Bettles.
   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:

Units 21B, 21C, and 21D: We contacted trappers and provided educational materials to increase trapper efficiency.

Within Units 21B and 21C, wolf populations were estimated based on sealing documents, wolf trapper surveys, estimates of density, and radiocollared pack home ranges.

In Unit 21D the entire area was surveyed with USFWS in 1994 using a probability estimator method. We found a spring population estimate of 256.0 wolves (±14.2% at 80% C.I.) and density estimates of 8.16 wolves/1,000 km^2 (SE = 0.91).

The unit estimated fall wolf populations are listed: Unit 21B, 80-90 wolves in 9-11 packs; Unit 21C, 40-50 wolves in 6-10 packs; Unit 21D, 219-292 wolves in 34-37 packs

We radiotracked 15 wolves during the period and plotted locations.

Hunters and trappers harvested 31 wolves during the 1994-95 season. Sealing compliance in some of the rural villages seems to be increasing.

Unit 24: 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; 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 87 wolves during the 1994-95 season. Sealing compliance in some of the rural villages is 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 good technique to increase our knowledge about wolf numbers.

Most objectives have been met with regard to sustaining harvest levels. In the middle area of Unit 24, wolf numbers are still above optimum levels which discourages moose population growth.

Project Location: Units 25A, 25B, 25D, 26B, and 26C

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 1995 indicated hunters and trappers harvested 12 wolves in Unit 25A, 10 in Unit 25B, 16 in Unit 25D, 12 in Unit 26B, and 5 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 total number taken by local residents is not large. Wolves taken by nonlocal residents adjacent to the Dalton Highway in Unit 26B are regularly sealed.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	81.8	86.0	167.8
Actual	103.3	18.9	122.2
Difference	-21.5	67.1	45.6

Submitted by:

Kenton P. Taylor
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 in consultation with the public and other agencies.

Work Accomplished During the Project Segment Period: Sealing certificate data indicate 7 wolves were harvested in Unit 18 during the 1994-95 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.

Trappers and hunters have reported an increase in wolf abundance since last year, and wolf sightings from the public have also increased. Coyotes moving into the southwest portion of Unit 18 have been seen for 4 years between the Kwethluk and the Kisaralik rivers, and at least one coyote was taken on the Gweek River near Akiachak. Some of these coyotes may have been mistaken for wolves.

Public notices were sent to all villages informing hunters and trappers that wolves needed to be sealed.

Progress Meeting Project Objectives: Observations reported by the staff and the public indicate that several wolf packs occupied the entire length of the Yukon River, portions of the Kilbuck Mountains, the Kuskokwim River near the Subunit 19A boundary, and a few wolves were sighted near Quinhagak during the late winter when an influx of 30,000 or more caribou from the Mulchatna herd entered Unit 18. The overall Unit 18 population ranges from 75 to 100 wolves in 6-8 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 River drainage, where a den site and pups were observed. Resident wolf packs were also seen on the upper Kwethluk and Kisaralik drainage, the Goodnews and Arolik drainage, the Paimiut Hills, Russian Mountains, Twelve-mile Slough and the Portage Hills area, as well as

the Andreafsky Mountain area. In addition, scattered sightings have been reported elsewhere in the Unit.

Of the 7 wolves harvested during the reporting period, 6 were taken during November 1994 and 1 wolf was taken during February 1995. All 7 wolves were ground shot. Snowmachines were used as transportation. No sex information, except for 1 male, was reported when the animals were sealed. Five wolves were taken out of a pack of 7, and 2 single wolves were taken from 2 separate packs of 2 wolves. 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 Unit 18's wolves 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 increase 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, extension of the Mulchatna caribou herd into the Kilbuck Mountains, and increased numbers of moose along the lower Yukon River will 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 that portion of the Nulato Hills draining west into 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 from furbearer sealing records indicate 14 hunters and trappers harvested 26 wolves (17 males, 2 females, and 7 of unknown sex) in Unit 22 during the reporting period. All hunters/trappers were residents of Unit 22. A breakdown of this harvest by subunit is as follows: Subunit 22A-13; 22B-11; and

22C-2. Twenty-five wolves were ground shot and 1 was trapped. Resident wolf hunters continued to use snowmachines as their major method of 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 numerous 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 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 for more complete compliance with current regulations.

Limited progress has been achieved in reducing confrontations between wolves and reindeer. Local reindeer herders try 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.

We announced our plans to develop an area specific wolf management plan to local residents and governmental agencies and are receiving comments for subsequent review. At this time a draft plan has not been completed.

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.
3. Conduct a wolf census in the Noatak River drainage by 1997.

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 52 wolves (23 males, 19 females, and 10 of unknown sex). About 20 additional wolves were taken but not reported through the sealing program. The unreported harvest is probably much higher than this. Twenty hunters ground shot 40 wolves and trapped 12.

Most hunters were residents of the region, and every hunter used a snowmachine for transportation. Forty-six percent of the harvest occurred in the Kobuk River drainage, 27% in the Noatak River drainage, 14% in the Selawik, and 13% in the Buckland and Goodhope River drainages.

Progress Meeting Project Objectives: Unit 23 has healthy populations of wolves and liberal hunting and trapping regulations. The wolf population densities are relatively high and increasing, especially in the Noatak River drainage. Wolf predation will continue to affect the decline in moose and sheep numbers, as well as how quickly these ungulate populations are able to return to former levels of abundance.

Harvest reporting rates by local residents remained low. We suspect only hides to be sold outside the region or tanned commercially are sealed. Most hides are processed locally, cut into hood ruffs, and sold in the region.

Project Location: Subunit 26A (53,000 mi^2)
Western North Slope

Project Objectives and Activities:

1. Maintain viable wolf populations in Subunit 26A.
   a. Monitor the population density of wolves in the most heavily hunted area in Subunit 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 effect of wolves on Subunit 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 a management plan in cooperation with the public and other agencies.

Work Accomplished During the Segment Project Period: During the 1994-95 reporting period, 46 wolves were sealed. Thirty-one (67%) were males and 15 (32%) were females. Thirty-eight (83%) animals were ground shot, 7 (15%) were trapped, and 1 (2%) was snared. Thirty-five (76%) animals were taken using snowmachines for transportation, 10 (22%) were taken using aircraft, and 1 (2%) was taken using boats. The chronology of the harvest was:

August-2; September-2; November-3; December-5; January-2; February-9; March-13; and April-10.

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. We saw 33 wolves 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 the moose census in Subunit 26A. During the April 1994 moose census, we observed 16 wolves in 35 hours of flight. During the spring 1991 moose census, 29 wolves were recorded in 39 hours of flight.

Progress Meeting Project Objectives: In 1992 and 1994 traditional track surveys were repeated in the same areas surveyed in 1986 and 1987. The density estimates, 2.6 wolves/1000 km^2 in 1992 and 2.7-3.2 wolves/1000 km^2 in 1994, indicate wolf density has increased in the portion of the unit south of Umiat. Eventhough this area is among the most heavily hunted areas in Subunit 26A, the density estimates show harvest levels are probably within sustained yield limits. Other considerations which affect wolf harvest and reflect higher wolf density are as follows:

- same-day airborne hunting for wolves has not been permitted (although same-day wolf hunting is now allowed if the hunter is 300 feet from the airplane);
- extensive areas of Subunit 26A receive little hunting pressure;
- hunters, guides, and pilots who spend time in the area report wolf densities are increasing in Subunit 26A;
- the number of wolves observed during moose surveys has steadily increased during the last 14 years.

The number of moose counted during surveys along the Colville, Anaktuvuk, and Chandler Rivers has declined by 50% the last 4 years, and this may be partly due to wolf predation. We will continue to conduct wolf and moose surveys to monitor effects of hunters on wolves and the combined effects of hunters, bears, and wolves on moose.

The number of wolves sealed during 1994-95 was the highest on record. This increased harvest is probably a reflection of a growing wolf population. Because interest in wolf hunting is increasing in many villages, wolf populations may decline in localized areas. The Department sealing program does not effectively measure harvests in most villages. We are working with the North Slope Borough to develop a more effective harvest monitoring program involving local monitors in each village.

A wolf management plan for the North Slope was written during 1992 and 1993. Developing the management plan, we held public meetings in North Slope villages and consulted local governments and federal management agencies.

Segment Period Project Costs:

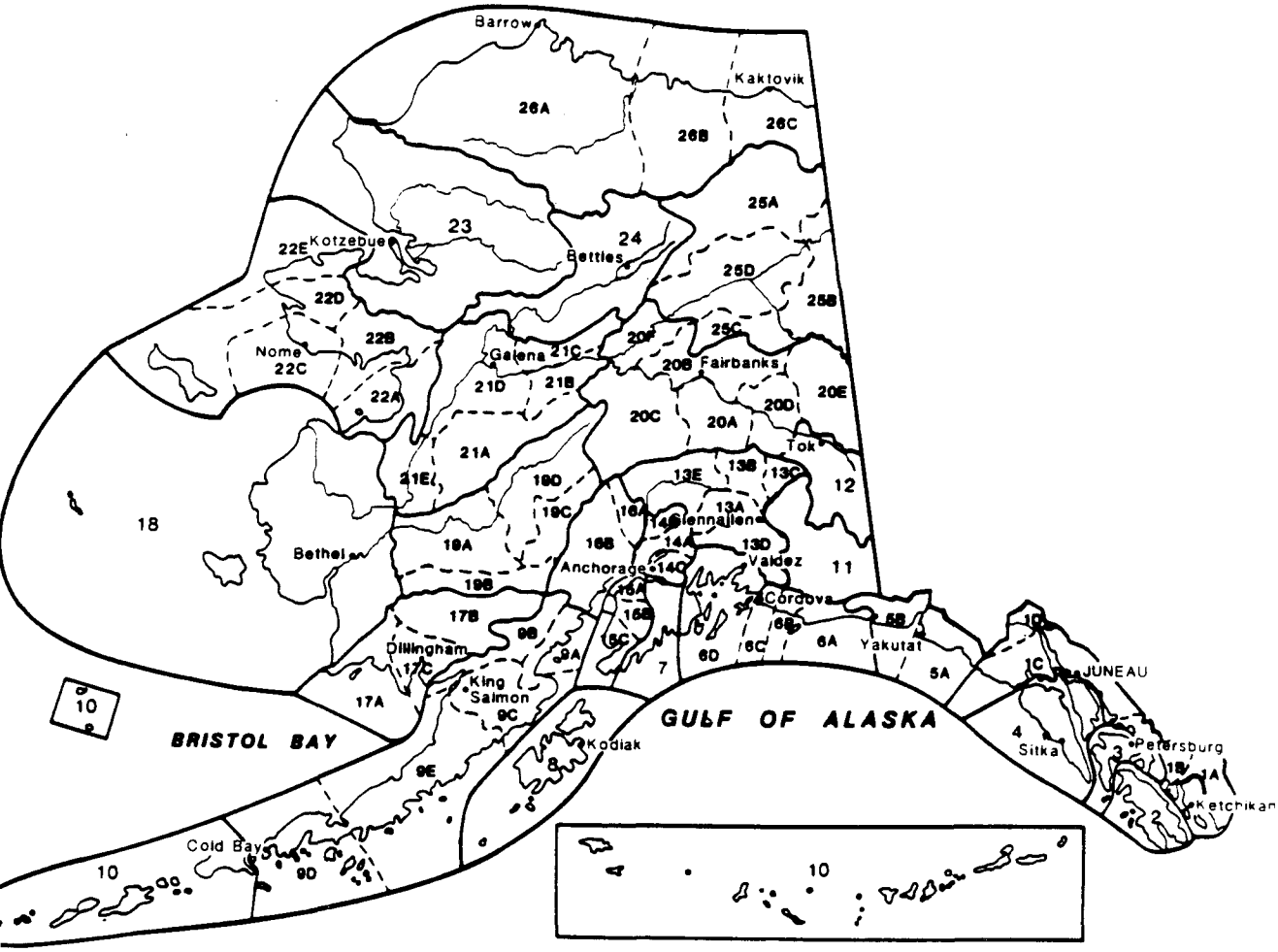
	Personnel	Operating	Total
Planned	28.9	11.9	40.8
Actual	28.9	1.0	29.9
Difference	0	10.9	10.9

Explanation: Surveys in Unit 23 and Subunit 26A were canceled due to higher priority work with other species in the region.

Submitted by:

Steve Machida
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 attitude for responsible hunting. Seventy-five percent of the funds for this report are from Federal Aid.

LEONARD LEE RUE