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Division of Wildlife Conservation

Federal Aid in Wildlife Restoration  
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Survey-Inventory Activities  
1 July 1996- 30 June 1997



# WOLF

Mary U Hicks, Editor



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Study 14.0  
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Tony Knowles, Governor

**DEPARTMENT OF FISH AND GAME**  
Frank Rue, Commissioner

**DIVISION OF WILDLIFE CONSERVATION**  
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**Project Title:** Southeast Wolf Population Management

**Project Location:** Unit 1A (5,300 mi<sup>2</sup>)  
Ketchikan area including the mainland draining into Behm and Portland Canals

Unit 2 (3,600 mi<sup>2</sup>)  
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 18 wolf pelts from Unit 1A and 92 from Unit 2. Information we collected from the successful trappers 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 Unit 1A was down 56% from last season's harvest, and the Unit 2 harvest was down 11% from last season's 103 wolves. Trappers responding to our survey indicated they believe the wolf population is presently abundant in Unit 1A (*Index of Abundance*  $I_A = 83, n = 6$ ) and intermediate in Unit 2 ( $I_A = 37, n = 4$ ). Wolf numbers have remained stable in both Unit 1A and Unit 2 during the past year.

**Project Location:** Unit 1B (3,000 mi<sup>2</sup>)  
Southeast Mainland from Cape Fanshaw to Lemesurier Point

Unit 3 (3,000 mi<sup>2</sup>)  
All islands west of Unit 1B, north of Unit 2, south of the centerline of Frederick Sound, and east of the centerline of Chatham Strait

**Project Objectives and Activities:**

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

**Work Accomplished During the Project Segment Period:** We sealed 4 wolves (2 males and 2 females) in Unit 1B and 56 wolves (31 males and 25 females) in Unit 3 during the reporting

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period. There were 4 active trapper/hunters in Unit 1B and 23 active trapper/hunters in Unit 3. Wolf skulls were collected from trappers in Units 3 and 1B for a University of Alaska graduate study. The skulls will be analyzed to quantify the degree of marine prey in the diet.

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

**Project Location:** Unit 1C (7,600 mi<sup>2</sup>)  
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:** Eight wolves (5 male, 3 female) were harvested and sealed during the 1996-97 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 Unit 1C are at moderate densities, although packs have apparently decreased their use of areas close to Juneau.

**Project Location:** Unit 1D (2,700 mi<sup>2</sup>)  
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:** Six wolves (3 males and 3 females) were harvested and sealed in Unit 1D during the 1996-97 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 Unit 1D are at moderate to low levels. Wolves were commonly seen by hunters during the 1996 moose season in the area west of the lower Chilkat River, leading to predictions of increased mortality for resident moose. Despite these observations and predictions, wolf harvests have remained low, and our winter moose survey indicated wolf predation had caused no substantial change in moose numbers.

**Project Location:** Unit 5 (5,800 mi<sup>2</sup>)  
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:** Twenty-four wolves (16 males, 8 females) were sealed in Yakutat; 15 more than during the previous season and substantially more than typically reported harvested from this unit. The increased harvest was due to the intense trapping activities of a single individual. It is unclear what effect this harvest will have on the Unit 5A wolf population. We noted additionally that incidental catches of several bears and at least 2 moose were associated with this trapper's activities.

**Segment Period Project Costs:**

	<u>Personnel</u>	<u>Operating</u>	<u>Total</u>
Planned	5.9	2.5	8.4
Actual	17.7	3.5	21.2
Difference	-11.8	-1.0	-12.8

*Explanation:* Staff spent considerable time compiling harvest and survey information for the State Board of Game meeting.

Submitted by:

Doug Larsen  
Acting Management Coordinator

**Project Title:** Southcentral Wolf Population Management

**Project Location:** Unit 6 (10,100 mi<sup>2</sup>)  
Prince William Sound and north gulf coast

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

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

Sealing records indicated unitwide harvest of 13 wolves. Seven were gray, 3 were black, 1 was white, and color was unknown for 2. Eight were males, 4 were females and sex was unknown for 1.

**Progress Meeting Project Objectives:** We achieved wolf population objectives. The population probably could have sustained higher harvest than the 13 animals specified in objectives.

**Project Location:** Units 7 and 15 (8,400 mi<sup>2</sup>)  
Kenai Peninsula

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

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

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

Hunters and trappers took 30 wolves during the 1996-97 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 on a portion of the Refuge. Wolf harvest was as follows: Unit 7-9, Unit 15A-10, 15B-5, and 15C-6. The 1996-97 harvest of 30 was the second highest harvest in the past 10 years, when harvest ranged from 9 to 42. Fifty percent (15) of the harvest was reported by hunters, the second highest nontrap harvest on record.

The spring 1997 Board of Game increased the wolf trapping season to end March 31.

**Progress Meeting Project Objectives:** To achieve population objectives, additional funding will be necessary to conduct thorough surveys followed by liberalization of U.S. Fish and Wildlife

Service restrictions on trappers. The current refuge requirement of checking traps every 4 days and snares every 7, if you have completed the education course, has virtually eliminated recreational trappers' opportunity to pursue wolves over most of the refuge. Low fur prices due to pelt damage caused by lice infestation and the partial closure for trapping lynx have also reduced trapping and hunting effort. Average annual harvest since the 4-day trapline check was initiated was 22 compared to 48 for the 10 years before the restriction.

The harvest of 30 wolves represents 15.0% 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.

**Project Location:** Units 9 and 10 (43,300 mi<sup>2</sup>)  
Alaska Peninsula and Unimak Island

**Project Objectives:** Maintain a population that will sustain a 3-year average annual harvest of 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 12 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 with 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 1996-97 was 37 in Unit 9 and 0 in Unit 10. This harvest was similar to the 10-year average of 33 wolves but was up from the 2 previous years' harvests.

**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 improbable that 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<sup>2</sup>)  
Wrangell Mountains

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

**Work Accomplished During the Project Segment Period:** The fall 1996 pre hunting season population estimate for Unit 11 was 110-125 wolves. This figure was higher than last year's estimated population of 95-115 wolves. The current estimate is based on observations of radiocollared packs, sightings from the public and department personnel, and hunter and trapper reports. We do not conduct systematic wolf track transects in Unit 11.

The 1996 harvest of 19 wolves was higher (73%) than the previous year's take of 11 but well below the 1994 take of 35 wolves. We estimated this year's harvest rate at 15% of the extrapolated fall 1996 population. Females accounted for 58 % ( $n = 11$ ) of this year's take and males 42% ( $n = 8$ ). All of the 1996-97 wolf harvest was taken by local residents living in the Park resident zone. Eighty-nine percent ( $n = 17$ ) of the wolves were trapped or snared, and 11 % ( $n = 2$ ) shot. Snowmachines were the most popular method of transportation, accounting for 89% ( $n = 17$ ) of the reported take with known transportation listed, while aircraft accounted for 11% ( $n = 2$ ). The 2 wolves shot were taken incidentally by sport hunters hunting sheep in the fall.

**Progress Meeting the Project Objectives:** The low wolf harvest during the 1996-97 season is not expected to reduce wolf numbers in Unit 11 for the 1997-98 season. In recent years estimates of wolf numbers have fluctuated depending on harvest levels. In some years localized heavy harvests reduced wolf numbers within heavily trapped areas; however, wolf harvest has not been effective in reducing numbers unitwide. 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 glacial, wolves are limited to the more gentle slopes and river valleys. Also influencing wolf population estimates is the dispersal of wolves into suitable adjacent habitat in Unit 13 where ungulate numbers are higher and provide a larger prey base.

The wolf harvest in 1996-97 was up from last year's harvest but still well below the 5-year average of 31 wolves taken between 1990 and 1995. Yearly fluctuations in harvest often reflect pelt prices, trapper effort, and snow conditions as much as wolf abundance. This year snow depths were still well below those present since 1990. Low snow depth makes transportation very difficult for trappers. Plotting locations of wolf kills shows most of the wolf harvest in the northern portion of the unit. In more remote areas, wolf packs received little or no hunting or trapping pressure. Most trappers and hunters concentrate their activities near access points, especially those areas along the Nabesna and McCarthy Roads, the only roads that lead into this unit and along the Copper River adjacent to the Glenn Highway. Because unitwide hunting and trapping pressure is low and not expected to increase, we expect Unit 11's wolf population will continue to fluctuate yearly, based on intense localized harvests and dispersal.

**Project Location:** Unit 13 (25,000 mi<sup>2</sup>)  
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 1996, and March 1997. The area covered during these



flights included large portions of Units 13B, 13C, and 13D, but only small segments of Units 13A and 13E. We used reports from hunters and trappers, incidental sightings by department personnel, and track survey data to estimate wolf densities for Unit 13. A fall 1996 Unit 13 population estimate was between 390-420 wolves in 50-60 packs. Observed pack size was as high as 17 wolves. This yielded a unitwide density estimate of 9 to 10 wolves/1,000 km<sup>2</sup>. The preliminary spring 1997 population estimate was between 220-260 wolves.

A wolf census was also conducted in a 4,400 km<sup>2</sup> portion of Unit 13A during late March 1996. This area was flown by research personnel as part of ongoing predator-prey studies. We observed 19 wolves during the census; the estimate was 23-37 wolves at the 90% CI. This resulted in a population density estimate of 5-8 wolves/1000 km<sup>2</sup>. A spring 1997 wolf population estimate for Unit 13 was completed by extrapolating densities found in the Subunit 13A study area. The extrapolated wolf estimate was 260 animals.

Preliminary harvest figures showed 138 wolves (79 males, 59 females) reported taken by 58 hunters and trappers during the 1996-97 season. The current harvest was 13% above the previous year's take of 122 wolves. Method of take during the 1996-97 season included 78 (57%) wolves trapped, 32 (23%) ground shot, and 28 (20%) snared. Snowmachines were the most popular method of transportation (73%), followed by foot trappers (10%) and aircraft (8%). The average take per trapper/hunter was 2.4 wolves. Unit residents took 67 (48%) wolves, nonlocal Alaskans took 70 (51%) wolves, and nonresidents only 1 (1%). Unit 13E had the highest wolf harvest, but harvest in all subunits were very close (24-32). The preliminary wolf harvest rate in Unit 13 was approximately 34% of the estimated fall population.

**Progress Meeting the Project Objectives:** The spring 1997 population estimate of 220-260 wolves in Unit 13 does not meet the spring population objective for Unit 13 set by the Board of Game; the estimate is over the objective by 60 or more wolves. The closest the spring population estimate has come to approaching the posthunt management objective for wolves was in 1995 when an estimated 180 wolves remained postharvest. The population has increased since then. 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, the herd migrated into Unit 12 during the winter of 1996-97. As a result, caribou were often unavailable to wolves during the winter 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 overwintered in Unit 13, predation rates were quite high.

The 1996-97 wolf harvest was up by 13% from the previous year's take of 122 wolves but still well below the record take of 179 wolves in 1993-94. The lower harvests in 1995-96 and 1996-97 reflect, in part, poor snow conditions that limited travel and trapping activities. Snow depths especially affected trappers in 1995-96. However, in most years, given average snow conditions and current legal methods and means of harvesting wolves, trappers do not harvest enough wolves to reduce the spring wolf population enough to approach current management objectives.

No changes in season length or bag limit are recommended.

**Project Location:** Unit 14 (6,600 mi<sup>2</sup>)  
Upper Cook Inlet

**Project Objectives:**

*Units 14A and 14B:* Maintain a posthunting population of 35 wolves.

*Unit 14C:* Maintain a posthunting population of 20 wolves.

**Work Accomplished During the Project Segment Period:** During the 1996-97 season, 1 wolf was found dead, possibly killed by other wolves near Peters Creek in Unit 14C. Another wolf was killed in defense of life and property to protect goats also in 14C. Of the 17 taken by trappers and hunters, 10 were taken in Unit 14A, 4 were taken in Unit 14B, and 3 were taken in Unit 14C. A questionnaire was mailed to all trappers who sealed fur taken in Unit 14. Although few trappers made sets specifically for wolves, those that did were very effective.

During September 1996 biologists working on Fort Richardson radiocollared 1 male and 1 female wolf. The male was shot near Hiland Road during January 1997 by a person claiming the wolf threatened his livestock. The female, snared during January, was 1 of 4 wolves taken on the Palmer Hay Flats State Game Refuge. This was one of several indications during the winter that wolves crossed the mouths of the Knik and Matanuska Rivers to hunt on the Hay Flats.

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-Eagle River, and Twenty-mile River/Portage Creek.

**Progress Meeting Project Objectives:** Through incidental observations and discussions with trappers and hunters, we estimated the spring (pre-pupping) wolf population in Unit 14 at 66-115 wolves, including 36-75 in Units 14A and 14B and 30 in Unit 14C. Population objectives were met, and prey densities generally remain high. To adequately assess wolf numbers, the department should continue to refine a systematic method to estimate wolf numbers and apply the method every 5 years.

**Project Location:** Unit 16 (12,300 mi<sup>2</sup>)  
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 1996-97 trapping season, 26 wolves (5 from Unit 16A; 21 from Unit 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. Weather conditions produced favorable travel and trapping conditions; 54% of the harvested wolves were taken by ground shooting.

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

**Progress Meeting Project Objectives:** The population objectives were met. With information from sealing certificates and public and staff observations, we estimated 36-61 wolves inhabited Unit 16 during the spring (pre-pupping) 1997. Assuming average reproduction of 5 pups per pack, there will be 80-100 wolves by fall. At that level, the population could sustain a harvest of more than 25 wolves annually.

**Project Location:** Unit 17 (18,800 mi<sup>2</sup>)  
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 52 wolves, including 34 males (65%), 15 females (29%), and 3 (6%) unknown sex during FY97. This level of harvest is higher than the 5-year average of 44.6 wolves. Twelve (23%) wolves were killed in Unit 17A, 32 (62%) in Unit 17B, and 8 (15%) in Unit 17C. Unit 17 residents reported killing 43 wolves (83%), nonlocal Alaska residents harvested 8 (15%) wolves, and a nonresident hunter killed 1 (2%).

All trappers used either snowmachines (73%) or aircraft (27%) for access. Eighty-four percent of the wolves harvested during this reporting period were shot, 12% were snared, and 6% were trapped. Seven percent of the wolves were killed during the main big game hunting season (August - October), none was taken in November, 10% were killed in December, 44% in January, 29% in February, and 10% in March. Harvest was again affected by extremely low snow cover throughout much of the unit in 1996-97.

**Progress Meeting Objectives:** We have no objective data on the population density of wolves in the unit. Local trappers noted that wolf populations seemed to be increasing unitwide during this reporting period. Wolves were responding favorably to increasing ungulate populations and trappers/hunters were able to harvest a large number of these wolves without artificial incentives.

**Segment Period Project Costs:**

	<u>Personnel</u>	<u>Operating</u>	<u>Total</u>
Planned	12.6	24.5	37.1
Actual	12.6	24.5	37.1
Difference	0.0	0.0	0.0

Submitted by:

Michael G. McDonald  
Assistant Management Coordinator

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

**Project Location:** Unit 12 (9978 mi<sup>2</sup>)

**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 1996-97, 14 hunters and trappers harvested 30 wolves (16 males, 10 females, 4 unknown sex) in Unit 12. The average annual harvest for the past 5 years was 46. During 1996-97, fur market value for wolf pelts was low, and most trappers did not actively select for wolves. Harvest was higher than expected due to the success of one trapper who had 1-2 large packs traveling his line throughout the season and a higher than average incidental harvest by sheep and moose hunters. The reported harvest removed 15-17% of the fall 1996 population estimate of 180-200 wolves. This harvest is below the sustainable rate of 25-30%. Trapping, snaring, and ground shooting accounted for 23%, 60%, and 17% 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 reports from trappers, hunters, and pilots. Wolf numbers have been increasing the past 2 years due to low harvest. The wolf population declined between 1990 and 1994 due to high annual harvests. During this period, 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 1996-97.

**Progress Meeting Project Objectives:** The Unit 12 wolf management objectives were met during 1996-97. Maintaining natural ecosystems in much of the unit and providing consumptive use by local residents have been identified as the Unit 12 management priorities. These goals are being met through our existing wolf management objectives, and I recommend no changes in objectives or wolf seasons and bag limits.

**Project Location:** Units 19, 21A, and 21E

**Project Objectives and Activities:**

1. Determine distribution, abundance, and population trends of wolves in selected areas.
  - Radiocollar and monitor selected packs.
2. Maintain a population of wolves capable of sustaining an annual harvest of at least 100 wolves.

- Seal hides taken by hunters and trappers; interview hunters and trappers to assess relative abundance of wolves.
- 3. Manage to reduce wolf numbers in areas where wolf predation is thought to be significantly affecting ungulate populations through calf or adult mortality.
- 4. Refine annual wolf population estimates in the area based on incidental sightings, hunter interviews, and sealing documents.
- 5. Delineate wolf survey area boundaries in each of the 6 subunits and attempt to survey these respective areas beginning in March 1991.
  - 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 1200-1768 wolves in 170-200 packs during 1996. Since that time, it appears that wolf population densities in at least a portion of the area have declined due to a lack of available prey. During spring 1995, a 5,000 mi<sup>2</sup> area in upper Unit 19D was subjected to a wolf population estimate, leading to a population estimate of 164 wolves ( $\pm 25\%$ ). In spring 1996, moose populations in the upper portions of Unit 19D were approximately 0.37 moose/mi<sup>2</sup>. Comparing the 2 population estimates (predator and prey) resulted in a ratio of about 12 moose per wolf. Additional efforts in spring 1997 resulted in a wolf population estimate of 53 wolves in the same 5,000 mi<sup>2</sup> area, indicating a major decline, but bringing the moose/wolf ratio to 35/1.

During the 1995-96 season, final analyses of sealing documents indicated hunters and trappers took 107 wolves from Unit 19, 21A, and 21E. This harvest represents approximately 6-7% of the population. Harvest by unit was 19A, 19; 19B, 27; 19C, 19; and 19D, 16. Reported harvests in 21A and 21E were 4 and 22 wolves, respectively.

During 1994-95 the reported wolf harvest was almost 5 times that of the previous 2 years, but declined again during the 1995-96 regulatory year. The 1994-95 harvest, along with the trapper questionnaires, indicates an increasing wolf population during that period. Certainly a higher harvest can be sustained. Previously, when land-and-shoot methods were allowed, harvests were commonly between 100 and 150 per year.

**Progress Meeting Project Objectives:** We estimated wolf distribution and abundance. Pelts were sealed and analyses of harvest data were completed. Statistically sound estimates of wolf densities were not achieved over large expanses due to lack of money and personnel, although the population estimate from 19D-East was completed with relatively tight confidence intervals. Because of political constraints, we did not attain our objective of reducing wolf numbers in areas where wolf predation is thought to significantly affect ungulate populations through adult and/or calf mortality.

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

**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.
  - 2a. Maintain a sample of radiocollared wolves in the Tanana Flats portion of Unit 20A to facilitate aerial surveys and moose/wolf research.
  - 2b. Conduct a TIP (Track Intercept Probability Estimator) in the Minto Flats portion of Unit 20B.
  - 2c. Conduct aerial surveys in Units 20C, 20F, and 25C by spring 1998.
3. Conduct calf mortality study of moose and/or caribou in Unit 20A.

**Work Accomplished During the Project Segment Period:** Wolves were radiocollared in the 20A Foothills and Tanana Flats. A SUPE survey was conducted on the 20A Flats.

According to a preliminary count of sealing certificates from this reporting period (1996-97), the number of wolves harvested by trappers or hunters was 40 in Unit 20A. In Unit 20B, hunters and trappers harvested 60, with 22 in Unit 20C, 6 in Unit 20F, and 14 in Unit 25C.

**Progress Meeting Project Objectives:**

Monitoring harvest through sealing records was accomplished and is 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 TIP (Track Intercept Probability Estimator) in Unit 20B in spring 1998. I also recommend we plan aerial surveys in Units 20C, 20F, and 25C during spring 1998.

A caribou calf mortality study was conducted in 1995-97 in Unit 20A. A moose calf mortality study began in 20A in 1996.

**Project Location:** Unit 20D (5,637 mi<sup>2</sup>)

**Project Objectives and Activities:**

1. Manage for a population of 15-125 wolves.
2. Determine distribution, abundance, predation rates, and population trends in selected areas.
  - a. Seal hides taken by hunters and trappers; interview hunters and trappers to assess relative abundance of wolves.
  - b. Conduct 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 hunters and trappers took 28 wolves during 1996-97. Eighteen wolves were taken from southern Unit 20D and 10 were taken from northern Unit 20D.

We conducted aerial surveys and interviewed trappers to estimate the Unit 20D wolf population. Interviews have not been completed at this time; thus, we have not yet completed the 1996-97 wolf population estimate.

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

**Project Location:** Unit 20E (10681 mi<sup>2</sup>)

**Project Objectives and Activities:**

1. Monitor wolf numbers, population characteristics, and harvests.
  - a. Monitor harvest through sealing records and trapper questionnaires.
  - b. Conduct fixed-wing aerial surveys during the winter in selected areas.
  - c. Radiocollar and monitor selected packs.
2. Provide for the maximum harvest of wolves in western Unit 20E.
  - 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 Unit 20E declines below 75 wolves.
3. Reduce the number of wolves on the Fortymile caribou herd's calving and summer range by relocating all members of up to 15 packs other than the dominate pair and controlling fertility among dominant pairs.
  - a. Monitor relocated wolves to determine survival, homing instinct, and establishment of territory.
  - b. Monitor sterilized wolves to determine pack size, territory size and use, and kill rates.
4. Close trapping if the wolf population in the control area is reduced to 30 wolves.

**Work Accomplished During the Project Segment Period:** During the 1996-97 regulatory year, 15 hunters and trappers harvested 53 wolves (24 males and 22 females, and 7 unknown sex). The average annual harvest the past 5 years was 68 wolves. Harvest has ranged between 20 and 37% of the fall population size since 1992. Wolf pelt value was high in 1992 and 1993 yet declined in 1994. In 1995 fur market value for wolves was still low, but a privately funded incentive program was offered to area wolf trappers in an attempt to increase wolf harvest to benefit the Fortymile caribou herd. Trappers responded to the program and increased their efforts in the central portion of the subunit. The program continued during 1996, but trapping pressure declined due to lower trapper participation. During 1996 snaring, trapping, and ground shooting accounted for 81%, 6%, and 11% of the harvested wolves, respectively. The harvest of 53 wolves represents about 27% of the fall population estimate of 200-215 wolves. This harvest rate is within the sustainable rate of 25-30%.



The 1996 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. We estimated the wolf population declined by 10% due to high harvest in 1995.

During 1996-97, we captured 10 wolves associated with 4 packs. Throughout the year we monitored 22-26 radiocollared wolves associated with 12 packs. We collected data on population demographics, pack and territory size, and movement patterns in relation to caribou wintering and calving areas.

#### **Progress Meeting Project Objectives:**

The management objectives were met during 1996-97. For trappers to cause a decline in the wolf population in a specific area, at least 2 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 accessible. During 1995-96 wolf pelt prices were low, but an incentive was offered by a private group to area trappers and, consequently, harvest was higher than expected. Trappers did catch wolves within the summer range of the Fortymile caribou herd, including the Yukon-Charley Rivers National Preserve, but did not exceed sustainable levels. 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.

Beginning in fall 1997, nonlethal wolf control will begin in western Unit 20E (excluding Yukon-Charley Rivers National Preserve) and northern Unit 20D. These actions require the following objectives: 3) Reduce the number of wolves on the Fortymile caribou herd's calving and summer range by relocating all members of up to 15 packs other than the dominate pair and controlling fertility among dominant pairs; a) Monitor relocated wolves to determine survival, homing instinct, and establishment of territory; b) Monitor sterilized wolves to determine pack size, territory size and use, and kill rates. 4) Close trapping if the wolf population in the control area is reduced to 30 wolves.

**Project Location:** Units 21B, 21C and 21D (20,655 mi<sup>2</sup>)

#### **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<sup>2</sup> 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 have probably not changed considerably since winter of 1995-96 when a cooperative SUPE survey with the U. S. Fish and Wildlife Service was conducted in Unit 21B. In the 3700 mi<sup>2</sup> area, 52-83 wolves (90% confidence interval) were found.

Within Unit 21C, wolf populations were subjectively estimated based on sealing documents, wolf trapper surveys, and estimates of density in surrounding areas.

Within Unit 21D, wolf numbers have probably not changed much since winter 1994-95 when a probability estimator survey for wolves was conducted cooperatively with the USFWS. We estimated a spring population of 256.0 wolves (+ 14.2% at 80% CI) and density estimates of 8.16 wolves/1000 km<sup>2</sup> (SE = 0.91).

The subunit estimated fall wolf populations are listed:

Unit 21B - 52-83 wolves in 12-15 packs

Unit 21C - 40-50 wolves in 6-10 packs

Unit 21D - 219-292 wolves in 34-37 packs

Preliminary results from fur sealing records indicate hunters and trappers harvested 29 wolves during the 1996-97 season, a decline from 47 the previous year. 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. The wolf radiotelemetry projects conducted in cooperation with the USFWS were completed during this reporting period, and a final report is being prepared. The SUPE population estimation method used in Unit 21B the previous reporting period is a good technique to assess wolf numbers, but financial constraints limit its use.

**Project Location:** Unit 24 (26,055 mi<sup>2</sup>)

**Project Objectives and Activities:**

1. Reduce wolf density to 1 wolf/1000 mi<sup>2</sup> during a sufficient length of time 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<sup>2</sup> with the intent to sustain an annual harvest of 30 wolves in the southern part of Unit 24, south of Hughes (6,150 mi<sup>2</sup>).
  - 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 for wolves was not conducted during this reporting period.

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

Preliminary results from sealing records indicate hunters and trappers harvested 83 wolves during the 1996-97 season. This is down from 112 wolves taken during the previous season. Sealing compliance in some of the rural villages is 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 hinders moose population growth.

**Project Location:** Units 25A, 25B, 25D, 26B, and 26C (73,756 mi<sup>2</sup>)

**Project Objectives and Activities:**

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

We have made progress 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 usually sealed.

**Segment Period Project Costs:**

	<u>Personnel</u>	<u>Operating</u>	<u>Total</u>
Planned	127.2	66.0	193.2
Actual	70.3	94.0	164.3
Difference	56.9	-28.0	28.9

*Explanation:* A combination of staff position vacancies, charges to nonfederal aid projects, and charges to federal aid research rather than S&I resulted in lower than expected personnel costs. The operating costs were more than expected because an additional aerial survey was conducted in Unit 25D, and additional survey and radiocollaring work was accomplished in Unit 20A.

Submitted by:

David James  
Management Coordinator

**Project Title:** Western Alaska Wolf Management

**Project Location:** Unit 18 (42,000 mi<sup>2</sup>)

**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 certificates show 13 wolves were harvested in Unit 18 during the 1996-1997 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 not sent out in March 1997 due to the death of the area biologist. Trappers and hunters have seen increasing numbers of wolves in the Kilbuck and Kuskokwim Mountains and the river corridor between Marshall and Paimiut. Reports from the general public show wolf 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 should be sealed after they are harvested.

**Progress Meeting Project Objectives:** Observations by department staff and the public indicate several wolf packs occupied the entire length of the Yukon River in Unit 18, portions of the Kilbuck Mountains, and the Kuskokwim River near the Unit 19A boundary. The overall Unit 18 population is estimated to range from 75 to 100 wolves in 8-10 different packs.

Due to low fur prices and high local demand for wolf pelts for parka ruffs, some local trappers may not have sealed their harvest. Wolf harvest is normally very low in Unit 18. 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. 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<sup>2</sup>)  
Seward Peninsula and eastern Norton Sound.

**Project Objectives:**

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:** The furbearer sealing records indicate that hunters and trappers harvested 11 wolves (8 males, 3 females) in Unit 22. Five were harvested in Unit 22A and 6 came from Unit 22B. Most were taken by ground shooting, but 2 were trapped. All 11 were taken with the aid of snowmachines. The reported pack sizes from which these wolves were harvested were small, ranging from 1 to 3 animals.

We spent considerable time answering questions from the public and supporting local license vendors. We held several meetings and informal discussions with reindeer herders and other interested people 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 probably 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 increased during the reporting period from the influx of wolves accompanying a portion of the western arctic caribou herd that wintered in Unit 22. Wolf densities have increased during the last several years, particularly in Unit 22B. 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 are lower.

We did not update the population management objectives during the reporting period.

**Project Location:** Unit 23 (43,000 mi<sup>2</sup>)  
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. Hunters and trappers in Unit 23 sealed 58 wolves (27 males, 18 females, and 13 sex unknown). Twenty hunters ground shot 46 wolves and trapped 10. Three hunters resided outside the region (1 resident and 2 nonresidents). Hunters harvested all but 12 wolves using snowmachines. Four wolves were taken by aircraft, 3 by boat, and 5 by a hunter using a dogteam. Only 4 wolves were reported taken in the fall, and those were by the 3 nonlocal hunters. In addition to our own observations of wolves and wolf tracks, we collected observations and opinions on population trends from local residents with recent field experience.

**Progress Meeting Project Objectives:** Healthy populations of wolves and liberal trapping regulations continue in Unit 23. Wolf 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 1996-1997 affected wolf numbers or distribution.

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

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

**Project Location:** Unit 26A (53,000 mi<sup>2</sup>)  
Western North Slope

**Project Objectives:**

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, attempt to 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 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 with observations made during past counts.

**Work Accomplished During the Segment Project Period:** During the reporting period 19 wolves were sealed. Eleven (58%) were males and 8 (42%) were females. Four (20%) animals were ground shot and 4 (80%) were trapped. Eighteen (95%) animals were taken using snowmachines for transportation and 1 (5%) was taken using an airplane. The chronology of the

harvest was as follows: August - 1; October - 1; December - 1; January - 4; February - 11; March - 1.

A Sample Unit Probability Estimator (SUPE) sample design was used to census wolves in a 10,343 km<sup>2</sup> 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<sup>2</sup>. This compares favorably to the 1992 density estimate of 4.2 wolves/1000 km<sup>2</sup> generated from a transect-intercept probability sampling design.

Wolf sightings were logged during moose survey flights in Unit 26A. Two wolves were sighted during 9 hours of flying during 1-2 April 1997. Previously, 29 wolves were recorded during 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<sup>2</sup> in 1987 to 4.1 wolves/1000 km<sup>2</sup> in 1994. However, fewer wolves per hour were seen during moose surveys in 1995, 1996, and 1997 than during the period 1991-1994. We do not know if this reflects a change in the wolf population.

The 19 wolves sealed during 1996-1997 was much lower than the 46 wolves sealed in 1994-1995. The department sealing program does not always effectively measure harvests in villages, so it is unknown if the decline in harvest reflects poor compliance with sealing requirements or if the actual harvest was greatly reduced.

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

The number of moose counted during surveys along the Colville, Anaktuvuk, and Chandler rivers declined by 50% between 1991 and 1995, and this may be partly attributed to wolf predation. We will continue to conduct wolf and moose surveys to monitor hunters' effects on wolves, and the combined effects of hunters, bears, and wolves on moose. The decrease in observations and sealing of wolves in 1996-1997 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, we held public meetings in North Slope villages and consulted local governments and federal management agencies.



### Segment Period Project Costs:

	<u>Personnel</u>	<u>Operating</u>	<u>Total</u>
Planned	29.2	11.9	41.1
Actual	5.0	0.0	5.0
Difference	24.2	11.9	36.1

*Explanation:* Cost summary is approximate. Region V did not have administrative support for a fiscal summary at the close of the reporting period. Unit 18 activities were not completed after the accidental death and subsequent vacancy of the Unit 18 area biologist. Due to time constraints with other projects, surveys were not fully completed in Units 22, 23, and 26A. This resulted in surplus personnel and operating monies at the close of the reporting period.

### Literature Cited

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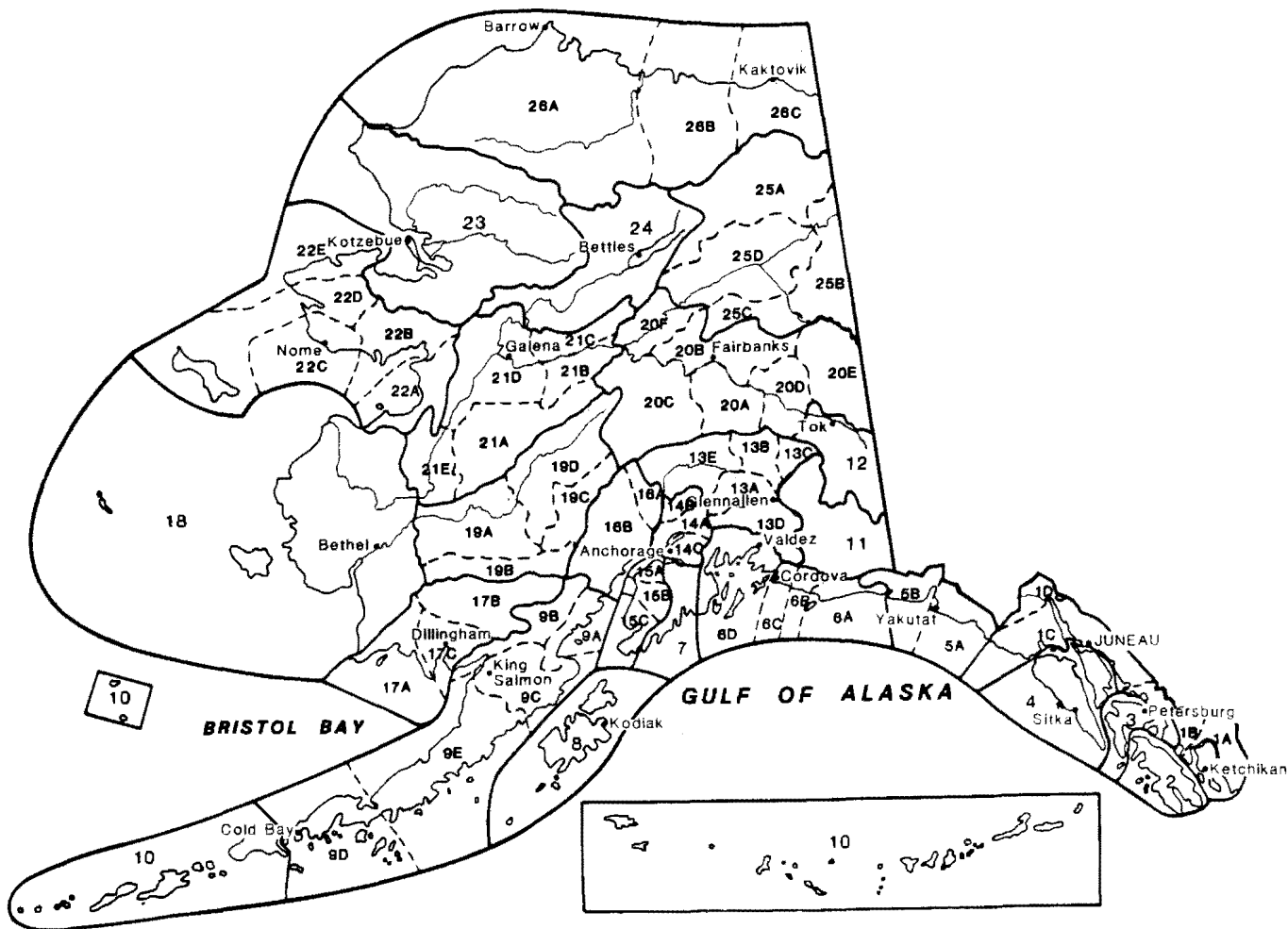
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Submitted by

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.



Ken Whitten

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