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SURVEY-INVENTORY ACTIVITIES

PART XV. WOLF

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ARCTIC OCEAN

ALASKA

GAME MANAGEMENT UNITS



STATEWIDE HARVEST AND POPULATION STATUS

The statewide harvest of wolves during the 1983-84 regulatory year was approximately 730-750 animals. At the time this report was prepared, statewide sealing records showed a minimum harvest of 731 wolves, but hearsay evidence indicates that additional wolves were taken but not sealed. This level of harvest is below the annual mean number of wolves sealed (959), since sealing began in 1971-72. In several areas of the state, conditions for tracking wolves were poor during the spring; therefore, harvest of wolves by the land-and-shoot method was below average.

The geographic distribution of the harvest, based on sealing records, is presented below.

The annual estimate of wolf harvest is based on the number of wolf pelts sealed. Since the Department does not have offices or sealing agents in each community in Alaska and since pelts are in high demand locally, particularly for use as ruffs on parkas, some pelts are "home dressed" and put to use without ever being sealed. The number that are taken and not sealed is unknown. To overcome this problem it will be necessary for us to inform people of the importance of harvest information to our wolf management program and for us to make it easy for individuals to comply with the sealing requirement, especially in rural areas of the state.

In most areas of the state, the wolf population is either stable or increasing.

Number of wolves sealed during 1983-84, by Game Management Unit:

<u>Game Management Unit</u>	<u>Number Sealed</u>	<u>Game Management Unit</u>	<u>Number Sealed</u>
1	49 (51)*	14	13
2	27	15	40
3	17	16	15
4	0	17	7
5	10	18	0
6	2	19	39
7	11	20	111
8	0	21	54
9	18	22	5
10	0	23	45
11	33	24	45
12	23	25	47
13	116 (118)*	26	4

* Number reported by area biologists.

Herbert R. Melchior
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WOLF
SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS: 1A and 2

GEOGRAPHICAL DESCRIPTION: Ketchikan and Prince of Wales

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting Regulations No. 24.

Population Status and Trend

No wolf surveys were flown during the past winter because of poor snow conditions. There was a large increase in the wolf harvest from Revilla Island this year and indications are that the population increased from 1983. There are no indications of noticeable population changes over the rest of the area, however.

Population Composition

No data available.

Mortality

The wolf harvest in Subunit 1A was 33 this year, compared to 20 last year. The mainland part of the harvest dropped from 7 wolves last year to 5 this year but the Revilla Island harvest went from 13 in 1983 to 28 this year. Trapping effort stayed about the same and it is probable that most of the increase is a result of increased numbers of wolves.

Sex ratio of the Subunit 1A harvest was 42% males. Thirty-six percent of the harvest was black and the rest were classed as the brown color phase. Eighty-one percent of the harvest was taken during the February-March period. Only 2 of the 33 wolves were shot. Trapping accounted for the other 31 wolves. Of 24 wolves from Revilla, 18 were pups and 6 were adults.

In Unit 2, the 1983-84 harvest was 24 wolves, up 50% from 1982-83. The sex ratio of the harvest was 47% males, and 79% of the wolves taken were brown phase. Slightly more than half of the wolves were shot; one was killed by a road vehicle and the rest were trapped. The harvest was scattered throughout the year, indicating the incidental nature of the Unit 2 harvest.

This is also shown by the high percentage of wolves shot in Unit 2 compared to Subunit 1A.

Management Summary and Conclusions

Wolf pelt prices are poor and interest in trapping them is low. It is unlikely that harvest by humans has any appreciable affect on wolf populations in this area. No changes in seasons or bag limits are recommended.

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SUBMITTED BY:

Steven R. Peterson
Acting Management Coordinator

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1B and 3

GEOGRAPHICAL DESCRIPTION: Subunit 1B - Southeast Mainland
from Cape Fanshaw to Lemesurier
Point
Unit 3 - Islands of the Petersburg,
Kake, and Wrangell Areas

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting
Regulations No. 24.

Population Status and Trend

Individual sightings by hunters and reports by trappers indicate increasing numbers of wolves on Zarembo and Kuiu Islands, and on the mainland. Populations appear to be stable in other areas. Trapping success is not a good indicator of wolf population sizes, since many factors regulate the harvest.

Mortality

Seventeen wolves were taken by trappers and hunters in Unit 3 in 1983-84 and 4 were taken in Subunit 1B. This compares to the 1982-83 harvest of 16 in Unit 3 and 8 in Subunit 1B. Not all wolves taken incidentally by moose and deer hunters are reported. Hides are not salvaged from most wolves killed in late summer and early fall and hunters fail to report kills. The annual Unit 3 wolf harvest has ranged from 9 to 82 since 1961. A bounty was in effect from 1962-1969.

All 4 wolves taken in Subunit 1B were black; 2 males and 2 females were caught. All 4 wolves were shot; 2 were shot in February while the other 2 were shot in September and October.

In Unit 3, 10 males and 6 females were taken (sex of 1 wolf was unknown). Nine were shot (53%) while 8 were trapped (47%). Most of the wolves were gray (53%), 12% were light enough to be called white, 12% were brown and the remaining 24% were black. February was the most successful month with 47% of the harvest, followed by March (18%), and May (12%). The months of July, November, December, and January accounted for 1 wolf each.

Management Summary and Recommendations

Interest in wolf trapping is currently low because of the effort involved and the expense associated with purchasing the larger traps. In the Petersburg area, trapping serves as a secondary source of income for people who have seasonal occupations such as logging or fishing. "Weekend trappers" (recreational trappers) usually concentrate on the smaller furbearers that are easier to trap and skin. Wolf predation is seen by many residents as the primary factor limiting deer populations in Unit 3; much of this unit has been closed to deer hunting since 1975. Research was begun in 1984 to assess wolf numbers, home range sizes and territories, and the extent of predation on deer. If wolves are found to be limiting deer populations, recommendations will be formulated to help alleviate the problem.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1C

GEOGRAPHICAL DESCRIPTION: Southeast Mainland North of Cape
Fanshaw to the Latitude of Eldred
Rock

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting Regulations, No. 24.

Population Status and Trend

We have no quantitative data on the population status and trend of wolves in Subunit 1C. However, the annual number of sealed hides, which has fluctuated from 4 to 9 under trapping pressure varying from 3 to 4 individual trappers (Table 1), suggests that the wolf population in Subunit 1C has remained fairly stable during the past 5 years.

Mortality

Eight wolves were harvested and sealed in Subunit 1C during the 1983-84 regulatory season, compared to 6 during the 1982-83 season. The sex composition of the 8 wolves was 3 males and 5 females, compared to 2 males and 4 females in 1982-83, and 2 males, 2 females in 1981-82. Seven wolves were identified as adults; the age of 1 wolf was not recorded. Six wolves were gray, 1 black, and 1 brown. The 6 wolves caught in traps were taken during December through March; 2 were shot during May.

Management Summary and Recommendations

Trapping pressure on wolves in Subunit 1C has remained nearly constant during the past 5 seasons, varying from 3 to 4 trappers each season (Table 1). The number of wolves harvested each year has also remained fairly constant, ranging from 4 to 6 taken by trappers with up to 4 more taken by hunters. Current hunting and trapping regulations are believed to be appropriate at these levels of harvest.

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Table 1. Wolf harvest by trapping and sport hunting in Subunit 1C, and the number of hunters and trappers, 1979-84. Data were obtained from sealing documents.

Season	No. of wolves taken by trappers	No. of trappers	No. of wolves taken by hunters	No. of hunters
1979-80	4	3	0	0
1980-81	5	4	4	4
1981-82	4	4	0	0
1982-83	6	4	0	0
1983-84	6	3	2	2
Total	25		6	

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1D

GEOGRAPHICAL DESCRIPTION: Upper Lynn Canal

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting Regulations No. 24.

Population Status and Trend

Based on trapper comments, and on incidental observations during survey flights for other species, we know wolves continue to exist in low to moderate numbers in Subunit 1D. During a moose survey on 30 November 1983, 8 wolves were observed on the Tsirku fan and 4 were seen at the mouth of Rosaunt Creek.

Mortality

Four sportsmen took 6 wolves during the period covered (4 adult males and 2 adult females); 3 wolves were trapped, 3 were shot. No natural mortality was documented.

Management Summary and Recommendations

Wolves are present in moderate numbers in Subunit 1D and hunting and trapping pressure is low. Increased access to remote locations as a result of increased logging activity should be monitored to assess impact on wolf populations. At this time no changes in season and bag limits are recommended.

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Steven R. Peterson
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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 5

GEOGRAPHICAL DESCRIPTION: Cape Fairweather to Icy Bay,
Eastern Gulf Coast

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting Regulations No. 24.

Mortality

A total of 10 wolves was taken by trappers in Unit 5 during the reporting period: 2 adult males, 4 adult females, 1 adult of unknown sex and 3 pups of unknown sex. Two adult females were brown and the rest of the wolves were gray. Eight wolves were shot and 2 were trapped. Animals were taken from the lower Alsek River drainage (8), the Situk watershed (1), and the Italio River area (1).

Table 1 indicates that a harvest of 10 wolves has been exceeded only 3 times between 1963-64 and 1983-84. With no apparent changes in wolf population status or trends in GMU 5, no changes in season or bag limit are recommended at this time.

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Table 1. Game Management Unit 5 historical wolf harvest.

Year	Harvest ^a
1963-64	1
1964-65	4
1965-66	7
1966-67	3
1967-68	6
1968-69	8
1969-70	2
1970-71	10
1971-72	2
1972-73	5
1973-74	2
1974-75	9
1975-76	11
1976-77	7
1977-78	1
1978-79	9
1979-80	11
1980-81	6
1981-82	4
1982-83	11
1983-84	10
Mean	6

^a 1963 thru 1970-71 data are from aerial permits and bounty records while the remainder are from mandatory sealing certificates.

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 7 and 15

GEOGRAPHICAL DESCRIPTION: Kenai Peninsula

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Fur Animal Hunting Regulations No. 24 and Trapping Regulations No. 24.

Population Status and Trend

Wolf surveys were flown over portions of the Kenai Peninsula during November in conjunction with moose composition surveys. Additional population data were collected in the northwestern portion of Unit 7 and Subunit 15A during a wolf ectoparasite control program. Population data from the remaining portions of Units 7 and 15 were obtained from local trappers. Observations indicated that the size of the early winter population was 203 wolves. The average pack size was 10 wolves, which remained unchanged from previous years. Comparison of wolf population estimates over the past several years suggests that the number of wolves on the Kenai Peninsula is stable.

Population Composition

Sex and age data are available for 5 packs of wolves in Units 7 and 15. These data were collected through 2 sources: 1) wolves taken by local trappers and presented to ADF&G for sealing; and 2) wolves captured and released during an ectoparasite infestation control program. A summary of these data are shown in Table 1.

Composition data from these 5 packs suggest that each pack contained an alpha pair plus 1 to 8 additional adults and an average of 4 pups. Sex composition was 19 (42%) males and 26 (58%) females. Pack size averaged 9 wolves and ranged from 5 to 18. These data indicate a normal sex and age composition for a hunted population of wolves.

Mortality

Fifty wolves were killed during the 1983-84 hunting and trapping seasons. Two additional wolves were killed during a program to control an exotic ectoparasite infestation in Subunit

15A and Unit 7. The sport harvest was comprised of 24 (48%) males and 26 (52%) females. Nine (18%) wolves were taken by ground shooting; 15 (31%) by trapping and 25 (51%) by snaring. The chronology of the harvest was as follows: September, 2 (4%); November, 4 (8%); December, 15 (31%); January, 18 (38%); February, 7 (15%); March, 1 (2%); and April, 1 (2%). Forty-seven of the 50 wolves killed this winter were classified as 28 pups and 19 adults.

Management Summary and Recommendations

The sport harvest of 50 wolves indicated a 25% harvest of the early winter population estimate of 203 wolves. At this rate of harvest, the Kenai Peninsula wolf population is expected to remain stable or increase slightly.

No changes in seasons or bag limits are recommended.

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SUBMITTED BY:

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Survey-Inventory Coordinator

Table 1. Sex, age and pack affiliation of wolves in 5 packs in Units 7 and 15A during March of 1984.

	Point Possession ^a	Elephant Lake	Swanson River ^a	Skilak Lake ^a	Silver Tip ^a	Totals
Male adults						
Trapped	2	1	1	0	1 ^b	5
Captured and released	3	1	1	1	0	6
Male pups						
Trapped	1	2	1	1	1	6
Captured and released	1	0	1	0	0	2
Female adults						
Trapped	1	2	1	0	0	4
Captured and released	4 ^c	0	1	2	1	8
Female pups						
Trapped	5	3 ^d	0	0	2	10
Captured and released	1	0	1	2	0	4
Estimated pack size	18	9	7	6	5	45
Number of wolves handled in pack	18	9	7	6	5	45

^a Infested with lice.

^b Collected by ADF&G.

^c Tagging mortality.

^d Two pups captured and transported to Fairbanks for study.

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 9 and 10

GEOGRAPHICAL DESCRIPTION: Alaska Peninsula and Unimak Island

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Fur Animal Hunting Regulations No. 24 and Trapping Regulations No. 24.

Population Status and Trend

Wolves occur throughout Unit 9 and on Unimak Island in Unit 10. Observations recorded by biologists, trappers, and hunters are the only sources of trend information. Wolf numbers are stable or increasing in Subunits 9C, 9D, 9E, and on Unimak Island. Trends in Subunits 9A and 9B are not apparent because of a lack of consistent observations. The number of wolves, as determined from occasional observations, has been conservatively placed at 15 in Subunit 9C outside Katmai National Park and 40 in the northern half of Subunit 9E.

Population Composition

No current data are available.

Mortality

Wolf harvest in Unit 9 has been relatively stable since 1962, averaging 23 wolves annually. Approximately half of the harvest comes from Subunit 9E (Table 1). Seventy-eight percent of the harvest since 1980 has been taken by shooting. Chronology of harvest for the 1980-84 seasons is presented in Table 2. During the 1983-84 season, approximately 15% of the population (8 of 55) was harvested in Subunits 9C and 9E where minimum wolf population estimates can be made. Overall, I believe wolves in Units 9 and 10 are underharvested.

Management Summary and Recommendations

Peterson, et al. (1984) concluded that sustainable wolf harvest rates were often near 30% of the population. Given an adequate prey base, wolf numbers usually increased when harvest rates were below 30%. Wolves on the Alaska Peninsula are probably

harvested at a rate of 15-20%. Given a prey base in Subunits 9C and 9E of 19,000 caribou, and 3,000+ moose, wolf numbers will likely increase, and could exert an increasing impact on moose and caribou populations. The failure of moose in Subunit 9E to recover from the recent population decline (Sellers and McNay 1984) may in part reflect the impact of the increasing wolf population. Current seasons and bag limits for wolves are liberal and allow opportunity for increased harvest. Therefore, no changes in season or bag limits are recommended.

Literature Cited

Peterson, R. O., J. D. Woolington, and T. N. Bailey. 1984. Wolves of the Kenai Peninsula, Alaska. Wildl. Monogr. 88. 52pp.

Sellers, R. A. and M. E. McNay. 1984. Report to the Board of Game: Population status and management considerations of brown bear, caribou, moose, and wolves on the Alaska Peninsula. Alaska Dep. Fish and Game, King Salmon. 53pp.

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Table 1. Wolf harvest in Units 9 and 10, 1978-1984.

Year	Subunit					Total ^a Unit 9	Unit 10
	9A	9B	9C	9D	9E		
1977-78	5	8	1	4	8	26	0
1978-79	0	4	4	2	7	17	9
1979-80	0	4	0	3	5	19	0
1980-81	0	1	1	6	14	23	1
1981-82	0	0	3	2	13	18	0
1982-83	0	1	3	1	8	13	0
1983-84	0	0	2	2	11	18	0

^a Difference between subunit summation and total Unit 9 represents harvest for which a subunit was not specified on the sealing certificate.

Table 2. Chronology of Unit 9 wolf harvest from 1980-84.

Month	Percent of total harvest
August	1
September	10
October	15
November	11
December	19
January	14
February	18
March	9
April	3
Total	100%

WOLF
SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 12

GEOGRAPHICAL DESCRIPTION: Upper Tanana and White River
Drainages

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting Regulations No. 24.

Population Status and Trend

No standardized surveys were conducted in Unit 12 during this reporting period, but incidental observations suggest that wolf numbers have not changed. Wolf density is estimated to be 1 wolf/32-35 mi² based upon previous aerial surveys.

Population Composition

Based upon wolf sealing documents and 1 unreported kill, pups (5) composed 21% of the harvest compared to 18% in 1982-83 and 36% in 1981-82. Females (12) composed 50% of the harvest compared to 46% in 1982-83 and 60% in 1981-82.

Mortality

Sealing documents indicated 23 wolves were taken in the Unit. In addition, 1 mature female was observed in a snare after the season had closed. This compares to harvests of 38 wolves in 1982-83 and 26 in 1981-82. Only 1 wolf was taken by department personnel compared to 7 the previous winter. Two wolves were taken in the previously approved wolf control area north of the Alaska Highway compared to 11 during winter 1982-83. Total harvest during the 1983-84 season accounted for less than 10% of the estimated wolf population in Unit 12.

In a pattern similar to that of the 1982-83 season, most wolves were taken in the southern and eastern portions of the Unit. Eight wolves were taken in the Chisana River drainage, 6 in the Nabesna drainage, 3 each in the White and Little Tok drainages, 2 in the Tanana, and 1 in the Tok River drainage.

Of the known-color wolves taken, 17 were gray (77%) and 5 were black (23%).

Management Summary and Recommendations

The wolf population in Unit 12 is estimated at 200-250 wolves, a density of 1 wolf/32-35 mi² in suitable habitat. The population is considered high both in relation to the ungulate prey base and in comparison to other areas. The prey base has declined in recent years. Dall sheep numbers have declined 30% since 1981, due primarily to snow conditions on winter range. Moose populations are at extremely low densities in most areas.

A temporary reduction in wolf numbers will be necessary to achieve a wolf/ungulate ratio that will allow for growth of the moose population. Unless this is accomplished, moose numbers will remain low and perhaps decline. Eventually, wolf numbers are also expected to decline unless the prey base increases.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 13

GEOGRAPHICAL DESCRIPTION: Nelchina and Upper Susitna Rivers

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Fur Animal Hunting Regulations No. 24 and Trapping Regulations No. 24.

Population Status and Trend

The spring 1984 wolf population estimate for Unit 13 was approximately 120 wolves (Ballard, pers. commun.). This figure was similar to the 1982 and 1983 spring population estimates of 109 and 120-135 wolves, respectively.

Population Composition

No current data are available.

Mortality

Information from sealing certificates indicated 118 wolves were killed in Unit 13 during the 1983-84 season. This is an increase of 29 wolves over the previous year's harvest of 89. The harvest consisted of 70 (59%) males, 43 (36%) females and 5 (5%) sex unknown. The method of take and chronology of harvest are summarized in Table 1.

Management Summary and Recommendations

Through the spring of 1984, a population estimate of wolves in Unit 13 was possible because most of the wolf packs contained radio-collared individuals and were closely monitored. Wolf research was terminated in Unit 13 during 1984. Future population figures will be based on less accurate censuses.

Wolf harvest in Unit 13 increased during 1984. Trapping was the largest known mortality factor controlling the number of wolves. Despite a harvest of 40 to 50% of the fall (pre-season) population, the spring (post-season) population remained near the desired level of 125 wolves. Unless hunting

and trapping pressure on wolves increases appreciably, or a decline in the ungulate prey base occurs, changes in season dates or bag limits are not recommended.

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Table 1. Unit 13 wolf harvest for 1983-84^a.

Method of take/ chronology of harvest	Number harvested	Percent
Method of take:		
Ground shooting	76	65%
Trapping	31	26%
Snaring	7	6%
Unknown	4	3%
Chronology of harvest:		
August	2	2%
September	3	3%
November	16	14%
December	17	14%
January	24	20%
February	41	35%
March	13	11%
April	2	2%
Total wolf harvest	118	

^a Harvest information is based on sealing data only.

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 17

GEOGRAPHICAL DESCRIPTION: Northern Bristol Bay

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Fur Animal Hunting Regulations No. 24 and Trapping Regulations No. 24.

Population Status and Trend

No wolf surveys have been conducted in Unit 17. Incidental observations of wolves and wolf sign by biologists, hunters, and trappers have suggested an increase in population size since 1981. This increasing trend in wolf density may be associated with the rapid expansion of the Mulchatna Caribou Herd and a succession of mild winters which has made wolf trapping more difficult.

Population Composition

No data are available.

Mortality

This year's harvest of 7 wolves (4 males and 3 females) was the lowest recorded in 14 years. One wolf was taken in January, 4 in February, and 1 in March. All 7 were shot in Subunit 17B. The average annual take since the 1971-72 season has been 33 wolves. A peak was reached in the 1974-75 season when 111 were killed; the harvest remained high for 2 years following the peak when 47 and 45 were killed. This high peak harvest occurred during a succession of severe winters when maximum monthly snow depths from December through April of 1974-77 averaged 34 inches.

Management Summary and Recommendations

The annual kill of wolves in Unit 17 fluctuates widely depending on snow conditions. Consequently, harvest is a poor indication of wolf abundance. Area residents have reported increasing numbers of wolves since 1982 and have expressed concern regarding the extent of predation on moose populations. Aerial surveys scheduled to be flown in 1983 in Subunit 17B

were not completed due to a lack of suitable snow for tracking. Surveys should be flown throughout Subunit 17B and in the Nushagak River portion of Subunit 17C to determine wolf density.

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Leland P. Glenn
Survey-Inventory Coordinator

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 18

GEOGRAPHICAL DESCRIPTION: Yukon-Kuskokwim Delta

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting Regulations No. 24.

Population Status and Trend

Wolves continue to be absent or extremely uncommon throughout most areas of Unit 18. Wolves are consistently sighted only in the eastern portion of the Unit near Russian Mission and Paimiut, and their distribution appears to reflect the distribution of moose. Although this area supports numerous moose, the density of wolves appears to be lower than that observed in other areas of Interior Alaska. Wolves are occasionally sighted in the Kilbuck Mountains, although their density is reported to be extremely low. Wolves are, for the most part, absent from the vast lowland of the Yukon-Kuskokwim Delta due to a scarcity of ungulates. Although local residents occasionally report seeing wolves in the Delta area of Unit 18, we believe these animals are transient rather than resident to the area.

No aerial surveys were conducted to specifically determine the population status and distribution of wolves in Unit 18.

Mortality

Sealing certificate information indicates that no wolves were reported harvested during the 1983-84 season. The reported harvest is normally very low and has never exceeded the high of 5 wolves reported in 1982-83. Because the domestic demand for wolf pelts is quite high, much of the harvest is probably unreported. Due to poor snow conditions, however, trapping pressure on all terrestrial furbearers was unusually low in 1983-84, and we believe the harvest of wolves was minimal.

We did not receive reports of illegal aircraft hunting of wolves as in the past. Although such practices are occasionally used by fox hunters, we do not believe that aerial wolf hunting is a problem in Unit 18 due to the scarcity of wolves and the availability of better hunting opportunities elsewhere.

Management Summary and Recommendations

Wolves remain extremely uncommon in Unit 18, and few individuals have the opportunity to hunt or trap them. Wolves are confined primarily to the eastern portion of the Unit where moose are more common. Although we do not believe that wolf densities are sufficient to affect moose numbers in this area, additional surveys should be done to verify this belief. Efforts to establish additional sealing officers and to inform the public of the sealing requirement should continue.

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WOLF
SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 19

GEOGRAPHICAL DESCRIPTION: Upper and Middle Kuskokwim River
Drainage

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting Regulations No. 24.

Population Status and Trend

Poor tracking conditions prevailed throughout Unit 19 for most of the 1983-84 winter. Based on limited surveys and reports from hunters and trappers, there were at least 33 wolves in 6 packs residing within the Upper Kuskokwim Controlled Use Area (Subunit 19D). In addition, a minimum of 49 wolves in 5 packs occupy adjacent areas and probably utilize the Controlled Use Area intermittently. Five other packs containing at least 37 wolves occur in other portions of Subunit 19D.

Mortality

Twenty-three males, 11 females, and 5 wolves of undetermined sex were reported taken in Game Management Unit 19 in 1983-84. In the years since the sealing requirement for wolves went into effect, only last year's harvest of 32 wolves was less than the 39 sealed for this report period. The mean annual take since 1971-72, when wolf sealing was instituted, has been 58 wolves. Only 15 hunters and trappers reported taking wolves in Unit 19 during 1983-84. Since 1971-72, this is also the 2nd lowest number of hunters and trappers who have had wolves sealed.

The low harvest was due, in part, to the poor tracking conditions that existed in Unit 19 throughout most of the winter. Hunters who normally track wolves from aircraft, and then land and shoot, were particularly affected. Only 15 wolves were reported taken in this manner compared to the previous 12-year average annual take (41) by this means. However, the 23 wolves taken by trapping or snaring was the highest take by these methods. February and March continued to be the most productive months for wolf hunters and trappers.

Aerial wolf hunting permits were not issued for any Unit 19 Subunits during 1983-84.

Five wolves were reported taken in Subunit 19A, where historically the wolf harvest has been small. Three of the 5 were reportedly taken on the Stony River by hunters who normally hunt in Subunit 19B. Thus, it is suspected that these wolves may actually have been taken in the 19B portions of the Stony River.

All 8 wolves taken in Subunit 19B were reportedly taken on the Stony River. This is the 3rd lowest harvest on record and represents only half the average annual take recorded during the past 12 years.

Minimal wolf harvests occurred in Subunit 19C for the 2nd consecutive year, as only 3 wolves were taken. The wolf take in Subunit 19C has been closely related to snow conditions during early March when pilots associated with the Iditarod sled dog race are in the area. During 1983-84, the weather turned unseasonably warm at that time and tracking was exceedingly difficult.

Over half of the Unit's harvest (23 of 39 wolves) occurred in Subunit 19D. This was the highest take in the Subunit since 1975-76. A significantly higher proportion of the harvest (17 of 23 wolves) were taken by trapping or snaring than in previous years. Many hunters who normally track wolves, land, and shoot were forced by poor tracking conditions to trap around moose and caribou kills. Thus, nearly all the harvest occurred during the period January-March. Fifteen of the 23 wolves were taken from 2 packs (8 from the Nixon pack and 7 from the lower Big River pack). The other 8 wolves came from 3 or 4 packs occupying other parts of Subunit 19D.

Management Summary and Recommendations

The wolf population in Subunit 19D and associated parts of Subunits 19C and 21A maintained their healthy status. Only 2 packs received any significant harvest. The wolf populations in Subunit 19D and the upper Innoko and upper Nowitna portion of Subunit 21A are probably contributing to the low moose calf survival in those areas. Apparently the harvest by hunters and trappers using standard methods and means is insufficient in regulating wolf populations during years with poor tracking conditions.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 20

GEOGRAPHICAL DESCRIPTION: Central Tanana Valley

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting Regulations No. 24.

Population Status and Trend

Wolf numbers continued to increase in Subunit 20A. Pack sizes and distribution are similar to those prior to wolf control in 1976.

Wolf harvests in Subunits 20B, 20D, and 20E were affected by a court injunction that halted the Department's wolf control program in November 1983. Wolf numbers increased in Subunit 20B and the portion of Subunit 20D north of the Tanana River following cessation of control. Intense hunting and trapping by the public kept wolf numbers depressed in the portion of Subunit 20D south of the Tanana River. An increased take by the public in Subunit 20E caused the wolf population to stabilize during the 1983-84 season.

Less is known about wolf numbers in Subunits 20C and 20F. Both the harvest and reported pack sightings have increased. Wolf numbers are probably high compared to the abundance of ungulate prey.

Approximate fall 1984 wolf population statistics and moose/wolf ratios are shown in Table 1.

Population Composition

Based on sex and age composition data from sealing certificates, females and pups composed 43% and 26%, respectively, of the Unit 20 harvest. The percentage of pups in the harvest was down 40% from the previous year. Pups are normally taken in higher proportion than they exist in the population when harvested by conventional methods (trapping, snaring, and shooting from the ground).

Mortality

During the 1983-84 season, 124 wolves were taken in Unit 20 (Table 2). This is a 20% decrease from the previous year's take. The reduced harvest was a direct result of the court injunction halting the Department's wolf control program in November 1983. Subunit 20B was most affected by the court injunction with a 74% decrease in wolf mortality over the previous year.

Management Summary and Recommendations

Throughout Unit 20, except south of the Tanana River in Subunit 20D, wolf numbers are high when compared to the ungulate prey population.

Moose are below their carrying capacity throughout the Unit. Management goals call for a 100% or more increase in the moose populations in Unit 20. Caribou populations in the Fortymile and Macomb Herds are far below carrying capacity and management population goals. A moose/wolf ratio of 50/1 should be reached and maintained through a variety of means until desired ungulate numbers are established.

More information needs to be gathered on wolf pack distribution, territory sizes, and moose/wolf ratios in Subunits 20C and 20F.

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Table 1. Unit 20 fall 1984 wolf population levels and moose/wolf ratios.

Subunit	Number of packs	Single wolves	Total wolves	Moose/ wolf
20A	26	16	240	21-26
20B	25	11	168	28
20C	-- ^a	--	--	--
20D (north of Tanana R.)	--	--	70-90	15-20
20E	17	10-20	120	16
20F	--	--	--	--

^a No data.

Table 2. Unit 20 wolf harvest 1983-84.^a

Subunit	Males	Females	Sex unk	Adults	Pups	Age unk	Ground shot	Trapped	Snared	Other	Total ^a
20A	18	6	--	16	7	1	8	7	9	--	24
20B	9	5	1	10	3	2	3	7	3	2	15
20C	8	5	--	8	4	1	5	7	1	--	13
20D	6	14	--	16	2	2	3	5	8	4	20
20E	19	15	--	24	10	--	6	12	11	5	34
20F	3	2	--	3	1	1	3	1	1	--	5
Total	62	47	1	76	27	7	28	38	33	11	111 ^a

^a In addition to these totals, fourteen wolves were taken by Department personnel: 3 in Subunit 20B, 4 in Subunit 20D, and 7 in Subunit 20E.

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 21

GEOGRAPHICAL DESCRIPTION: Middle Yukon

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting Regulations No. 24.

Population Status and Trend

No Department surveys were conducted during the report period. However, personal observations and discussions with aerial hunters, trappers, and pilots suggest that wolf packs occupied traditional areas, and pack sizes were either stable or larger than in 1982-83. Scant snow cover in the southern part of the Unit contributed to lower than average wolf harvests, and wolf populations in the area probably increased. In the northern part of Unit 21, wolf harvest was similar to previous years' harvests and the population is believed stable.

Mortality

Wolf mortality due to trapping (55) was down from a 6-year average of 72. Harvest in Unit 21 is dependent more on weather conditions during March than population numbers or fur prices. The number of wolves taken by using an aircraft to land and shoot is highest in years when flying and tracking conditions are excellent. Seventy-five percent, or more, of the wolf harvest is taken by the land-and-shoot method during years of good flying weather. During the 1983-84 season only 58% of the wolves were taken by using this method.

The reported harvests for Subunits 21A, 21B, 21C, 21D, and 21E were 14, 10, 1, 28, and 2, respectively. Among wolves for which sex was determined, 25 were males and 29 were females. Pups (11) composed 25% of the known-age animals. The coloration of pelts was 17 black, 35 gray, 2 brown, and 1 white.

Management Summary

A low harvest and a mild winter probably resulted in an increased wolf population. Ungulate populations in Unit 21 would

benefit from a higher annual wolf harvest. A trapper education program for local trappers may increase catches and compensate for years when poor weather or snow conditions preclude effective use of aircraft to harvest wolves.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 22

GEOGRAPHICAL DESCRIPTION: Seward Peninsula

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting Regulations No. 24.

Population Status and Trend

No specific surveys or research projects were conducted on the Seward Peninsula wolf population during the reporting period. Limited information on wolf densities came from biologists conducting other surveys and from conversations with residents of the Unit.

Although wolf sign was again observed in all major drainages within the Unit, wolves were most abundant in Subunits 22A and 22B. Wolf densities appear to be increasing throughout the Peninsula with the population presently estimated at 100-150 animals. Because the Unit supports a relatively high moose population and because reindeer are increasing, wolf numbers are expected to continue increasing as well.

Mortality

The reported harvest during the past year was 5 wolves (3 males, 2 females). A single trapper took 4 of these in January on the Koyuk River (Subunit 22B); the remaining animal was shot in the Kougarok drainage (Subunit 22D) in October by a moose hunter.

Natural mortality of wolves in the Unit is thought to be minimal; wolf numbers are presently low, and prey species (primarily moose and reindeer) are abundant.

General conversations with villagers again indicated that only a portion of the harvested wolves were actually sealed. The demand for wolf hides, specifically ruffs, remains high in most villages. Based on this, I estimated the Unitwide annual harvest to be 15-20 wolves.

Management Summary and Recommendations

Even though wolves have been observed in all major drainages of the Seward Peninsula and the population appears to be increasing, Unit 22 trappers do not spend much time actually trapping wolves. Most of the harvest continues to be incidental to other activities.

Because most wolf hides are cut into ruffs, compliance with wolf sealing requirements is low within Unit 22. Villagers still seal only those hides that are to be tanned or otherwise sold. Active I&E efforts and enforcement programs are needed to improve compliance with sealing regulations and to increase the reliability of harvest data.

Reindeer continue to increase on the Seward Peninsula, and reports of wolf depredation are becoming more common in some drainages within the Unit. No aerial wolf hunting permits were requested this year, and it is still questionable whether a Unitwide predator control program is necessary. If actual predation by wolves on reindeer is verified, requests for aerial wolf hunting permits may be considered in the future.

A program should be initiated to improve our understanding of local wolf habits and population dynamics, as well as to determine the impact of wolf predation on local moose and reindeer populations.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 23

GEOGRAPHICAL DESCRIPTION: Kotzebue Sound

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting Regulations No. 24.

Population Status and Trend

Wolf numbers in GMU 23 did not appear to change greatly since the 1981-82 and 1982-83 reporting periods. Reports from trappers and hunters, and incidental observations made by staff suggested a slight numerical increase. No confirming evidence was available because unsuitable survey conditions precluded aerial surveys in spring 1984. Limited available information suggests that the wolf population is stable at a moderate to moderately low level.

No wolf surveys were conducted because of poor weather and/or poor snow cover. However, an airplane-equipped trapper estimated that 65 wolves were present in an area including the headwaters of the Buckland River and the headwaters of some Norton Sound and Koyukuk River tributaries adjacent to the Buckland River. His observations suggested a wolf density comparable to or perhaps slightly above the 1982 estimate of 1 wolf/64-97 mi² reported by James (1983). It would be invalid to extrapolate this density estimate to all of Unit 23 because of the lack of information from other Unit drainages.

Mortality

The reported Unitwide harvest of wolves was 45 including 29 (69%) males, 13 (31%) females, and 3 of undetermined sex. This value exceeded twice the reported harvest for each of the last 2 years, (17 in 1981-82 and 19 in 1982-83) but was well below the 1980-81 reported harvest of 70. As in past years, unreported harvest was probably a significant proportion of the number of wolves actually killed and may have accounted for an additional 35-70 wolves.

Management Summary and Recommendations

Unreported harvest is a continuing problem. Most wolf pelts are used locally and many are not sealed. The same trappers readily seal wolf pelts to be sold to fur buyers. Initially, I believed an appropriate information and education program would solve the problem. Repeated verbal and written explanations to several individuals, including fur-sealing agents, has not corrected the situation. Therefore, I conclude that a meaningful law enforcement effort in addition to an I&E effort is necessary to produce the desired results.

Inability to conduct scheduled wolf surveys continues to hamper wolf assessment programs in Unit 23. This is unavoidable and underscores the value of being able to conduct wolf surveys on an opportunistic basis when conditions are favorable. Without this flexibility it is necessary to record incidental observations and circumstantial evidence gathered during caribou, moose, and other surveys and from conversations with hunters and trappers.

Literature Cited

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 24

GEOGRAPHICAL DESCRIPTION: Koyukuk River Drainage above Dulbi River

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting Regulations No. 24.

Population Status and Trend

No Department surveys were conducted during the report period. However, discussions with aerial hunters and trappers suggested that wolf abundance and distribution were similar to that observed during the previous year. Wolf populations are apparently stable.

Mortality

During the 1983-84 hunting and trapping season, 45 wolves were reported harvested, according to a hand count of sealing certificates in Galena. Aerial trapping conditions were less than ideal and this effectively limited harvest. Sixty percent of the wolves were taken by landing and shooting. The harvest was comprised of 21 males and 24 females. Pelage coloration was 37 gray, 6 black, and 2 undetermined. Pups composed 36% of the known-age harvest.

Management Summary and Recommendations

Present population levels are apparently stable. The lack of funds for surveys has hampered efforts to manage wolves in Unit 24. Increased cooperation by trappers in reporting pack size and location has aided the Department.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 25

GEOGRAPHICAL DESCRIPTION: Yukon Flats, Chandalar, Porcupine,
and Black River Drainages; Birch and
Beaver Creeks

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting
Regulations No. 24.

Population Status and Trend

Subunit 25D(West) was the only portion of Unit 25 where a systematic wolf survey was conducted during this reporting period. Conditions were good to excellent during 3-5 March 1984 when the survey was done. Tracks of 7 packs, representing approximately 35 wolves, were observed during 36 hours of flying. However, only 9 wolves were actually seen. This low number of observations was probably because wolf density in the area is very low.

The total population of the survey area was estimated at 40-45 wolves for an overall density of 1/140-160 mi². The population estimate is 10-25% above the number indicated by tracks observed during the survey. This upward adjustment is necessary to account for single wolves which were undetected during the survey.

Public reports and incidental observations indicate that wolf populations in the remainder of Unit 25 are probably higher than those occurring in the survey area.

Mortality

Sealing records provide the only reliable mortality information. They indicate that 41 wolves were taken during the 1983-84 season, with most harvested in Subunits 25A and 25B (Table 1). Comparisons between last year and the current harvest revealed several changes. The total Unit take declined by 18 animals, with every Subunit except 25A showing a decreased take. The largest decrease was 11 in Subunit 25B. No wolves were reported harvested from Subunit 25D(West). Harvest in Subunit 25A increased by 7 animals.

Most wolves taken were adult males. Among wolves for which pelt color was determined, 22 were gray and 17 were black. Trapping was the most common harvest method (20), followed by ground shooting (11) and snaring (10).

Management Summary and Recommendations

Wolves appear to be abundant over most of Unit 25. The exception is Subunit 25D(West), where density is low. No information is available on population trend, and harvest appears to be lower than last year for most of the Unit.

In spite of their low density in Subunit 25D(West), wolves are probably overutilizing the moose population in that area. Moose are the primary prey species, and their density is critically low ($0.1/\text{mi}^2$). There are probably fewer than 20 moose per wolf. Studies of moose/wolf relationships elsewhere in interior Alaska indicate that at 20-30 moose per wolf, predation can be the primary factor controlling numbers of moose. Consequently, any management objectives which specify an increase in the moose population will require a reduction in wolf predation. This reduction would have to be made using methods other than conventional trapping because current harvest is having no depressing effect on the wolf population.

Wolf surveys should be conducted in Subunit 25D(East). No information is available from this area, where a major portion of both wolves and moose from Unit 25 are harvested.

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Table 1. Unit 25 wolf harvest sex and age composition, 1983-84.

Subunit	Sex			Age			Total
	Male	Female	Unknown	Adult	Pup	Unknown	
25A	8	6	2	11	4	1	16
25B	4	5	0	1	7	1	9
25C	2	0	0	0	2	0	2
25D(West)	0	0	0	0	0	0	0
25D(East)	8	4	2	8	2	4	14
Unit 25 Total	22	15	4	20	15	6	41

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 26A

GEOGRAPHICAL DESCRIPTION: Arctic Slope West of the Itkillik River

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Fur Animal Hunting Regulations No. 24 and Trapping Regulations No. 24.

Population Status and Trend

Wolf population status on the western North Slope is unknown at this time. The most recent population estimate was made by D. James, who placed the Subunit 26A population at 144-310 wolves during the winter of 1981-82. This estimate and more recent incidental observations suggest a relatively low population density within the Subunit (1 wolf/173-373/mi²).

No formal wolf surveys were done during the present reporting period. However, in 35 hours of moose surveys flown in spring 1984, 1 pack of 3 wolves was observed. During that same survey 1,473 moose, 7 brown bears, 11 wolverines, and 11 foxes were also seen. I saw no wolves at any other time during the reporting period.

Mortality

The 1983-84 reported harvest in Subunit 26A was 2 wolves. By comparison, 7 wolves were reported in 1982-83 and 21 in 1981-82. For the last 2 years, the entire reported harvest has been taken by residents of Anaktuvuk Pass. The decline in reported harvest (from 21 in 1981-82 to 7 in 1982-83) reflects a regulatory change that eliminated landing and shooting as a legal method of trapping wolves. The total harvest cannot be accurately estimated at this time because sealing is actively being done in only 1 of the 6 communities within the Subunit.

Management Summary and Recommendations

Knowledge of both wolf population status and harvest in Subunit 26A continues to be unsatisfactory. Changes in wolf population density are not easy to detect. Only gross changes in numbers are likely to be recognized even though wolves are presently

expected to increase in response to recent rapid growth of caribou populations in northern Alaska. There are several reasons for our inability to accurately measure wolf population density. These include insufficient resources to conduct routine aerial surveys, generally poor survey conditions, unknown reliability of the aerial survey method in northern Alaska, and the absence of field research that would either validate present survey methods or develop further insights into wolf population dynamics and status.

The number of wolves actually killed by hunters in Subunit 26A certainly exceeds the 2 that were reported. There are several reasons why wolf harvest is often not reported in communities on the western North Slope. One is that fur sealing regulations are not actively enforced. Also, fur sealing does not work very well when pelts are not sent out to a tannery but are processed locally and cut up immediately into ruffs and other clothing items. It is also difficult to locate villagers who are willing to act in the State's interest as fur sealers. People who have accepted these or similar positions have often been regarded with suspicion or hostility by other village residents. In fact many North Slope residents are suspicious of state government and do not appear willing to recognize the State as having management authority over wildlife on the North Slope.

None of these problems are insurmountable, but they do demand significant allocations of money and personnel time. To date, wolf management has not been assigned a high enough priority in Subunit 26A to justify these costs.

Several strategies should be adopted to resolve these problems. Regarding harvest reporting, the Department of Fish and Game must commit itself to developing a strong management presence on the North Slope. This requires permanently resolving housing, office, and aircraft facility problems so that department representatives can spend more time both in the field and working with village residents. The Department must become known and accepted in North Slope communities before an atmosphere of trust and understanding can mature.

Understanding harvest patterns of people who have traditionally been subsistence hunters is basic to management of all species in Subunit 26A, not just to wolves. Development of methods to accurately estimate caribou harvest, presently a high management priority, should eventually aid in the development of methods to estimate wolf harvest.

Harvest estimation requires public understanding and participation, and is a problem with social, cultural and political aspects that are well outside the province of traditional

wildlife biology. Developing harvest estimates will require close coordination with Subsistence Division.

Accurate harvest accounting will most likely occur on a routine basis when someone living in each community is hired to collect harvest data on wolves and other species. If this individual could sell licenses and perform other nonregulatory functions, both the Department and the community would benefit. Villagers would be dealing with a familiar person who had job-related responsibilities to the Department. Employment could be on a part-time basis, and these positions could be coordinated and contracted through regional municipal government such as the North Slope Borough.

Aerial surveys, the best way of assessing wolf population status at this time, should be flown on a regular basis in Subunit 26A whenever weather and snow conditions are suitable. Weather and budget permitting, wolf surveys will be attempted in conjunction with 1985 spring moose surveys in at least some of the areas flown by D. James in 1982.

To obtain more detailed information, a cooperative research program with the National Park Service should be considered. The objective should be to determine wolf pack location and size on the north side of the Brooks Range in and adjacent to Gates of the Arctic National Park. This research would give the Park Service a more precise inventory of wolf distribution within the park and would measure the extent to which these animals cross park boundaries. The Department would benefit by obtaining recent and more detailed information on wolf population density and distribution on the north side of the Brooks Range, especially in reference to wintering moose and caribou populations. Such a project should fully use the expertise of Anaktuvuk Pass residents on the natural history of wolves in the Brooks Range.

Although wolf population density appears to be low in Subunit 26A, no changes in seasons or bag limits are recommended at this time. The highest priorities for wolf management in Subunit 26A are to develop reliable and valid means of assessing the harvest and to establish a routine method for monitoring changes in wolf abundance.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 26B and 26C

GEOGRAPHICAL DESCRIPTION: Arctic Slope East of and Including the Itkillik Drainage, and East of the East Bank of the Colville River

PERIOD COVERED: 1 July 1983-30 June 1984

Season and Bag Limit

See Trapping Regulations No. 24 and Fur Animal Hunting Regulations No. 24.

Population Status and Trend

Wolf numbers in Subunits 26B and 26C have increased since the late 1970's, but a high harvest of wolves continues to control the population throughout most of these Subunits. Wolves have not increased in proportion to the recent dramatic increases in the arctic caribou herds.

Resident wolves in Subunit 26B probably number between 15 and 25. During approximately 15 hours of low-level moose surveys in Subunit 26B in April 1984, I observed 4 gray wolves on the Kuparuk River and 2 blacks on Accomplishment Creek. Additional wolves likely occur in the Ivishak and Kavik drainages and possibly the Itkillik drainage.

Resident wolves in Subunit 26C probably number between 25 and 30. U.S. Fish and Wildlife Service biologists conducted an intensive wolf-collaring program and population survey in Subunit 26C in spring and summer 1984. Four wolf packs were collared, totaling 22-25 wolves, including pups born in 1984. Collared packs occurred in the Canning, Sadlerochit, Aichilik, and Kongakut drainages. In addition, 3 lone wolves were radio-collared between the Egaksrak and Clarence Rivers. These 3 wolves apparently departed Alaska with the Porcupine Caribou Herd in late June and July.

Mortality

One wolf was reported shot in Subunit 26B during this reporting period and one was reported taken in Subunit 26C. Sealing certificates were used to assess reported harvest. Unreported harvest by Kaktovik residents totaled 7-9 wolves, including a

mated pair from the Okpilak-Hulahula drainages, 3 or 4 from the Sadlerochit drainage, and 2 or 3 from the Jago drainage. Unreported wolf harvest by Nuiqsuit residents occurred, but the number killed and their locations are not known.

Management Summary and Recommendations

The short-term wolf management objective should be to increase wolf numbers. There is a high local demand for wolf pelts and predation levels on area ungulate populations are well below the levels at which these predators would be a concern. The overharvest of wolves by illegal methods is probably the primary factor limiting the wolf population. Illegal methods include the use of snow machines for driving, herding, or molesting wolves; shooting wolves from a snow machine; and same-day-airborne hunting of wolves.

Information and education programs are needed in Unit 26 to reduce the illegal wolf harvest and to increase compliance with reporting requirements. Subsistence Division personnel currently interview residents of Kaktovik and Nuiqsuit each year regarding the caribou harvest, but wolf and furbearer harvest information has not been part of that data base.

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