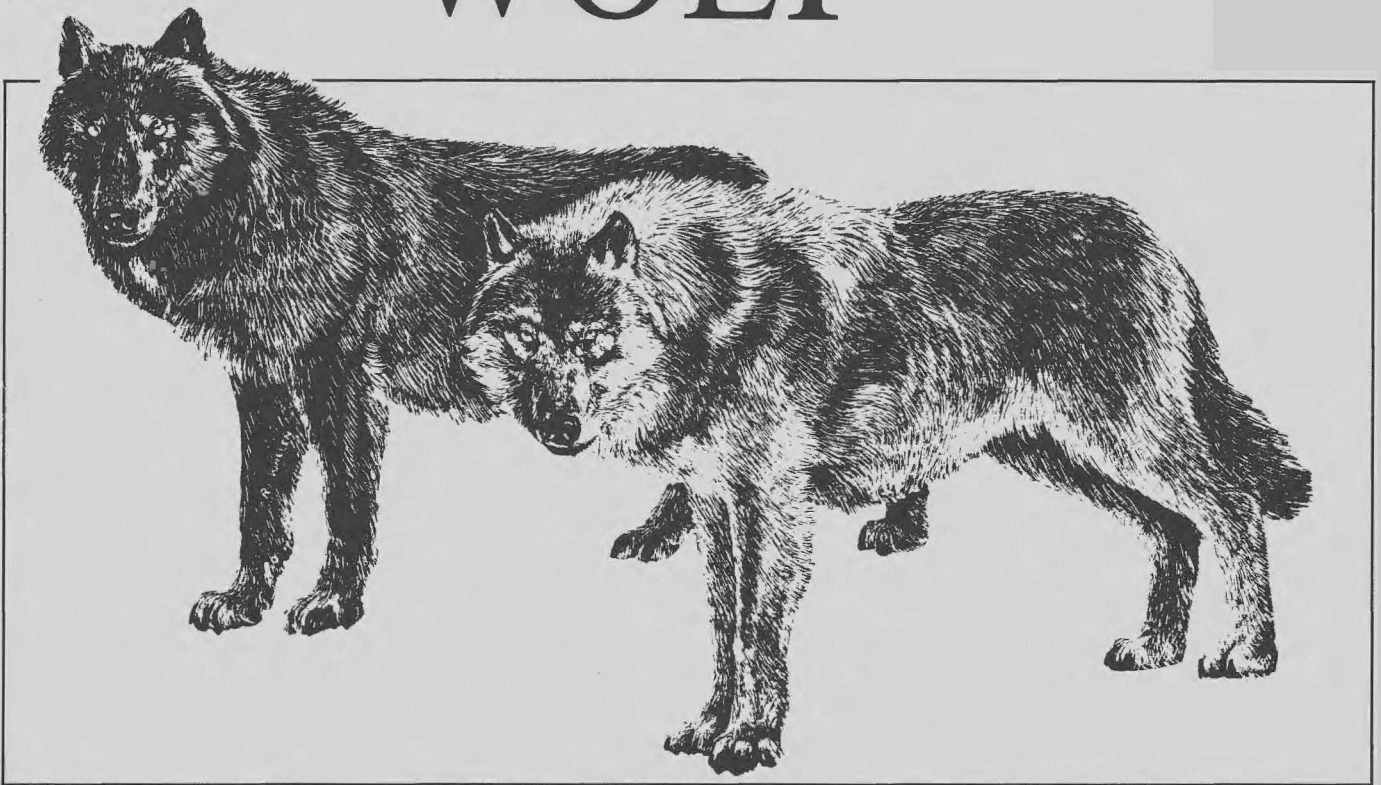


Alaska Department of Fish and Game
Division of Game
Federal Aid in Wildlife Restoration
Annual Report of Survey—Inventory Activities

WOLF



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ARCTIC OCEAN

ALASKA

GAME MANAGEMENT UNITS

GULF OF ALASKA

Juneau

Aleutian Islands



STATEWIDE POPULATION STATUS AND HARVEST OF WOLVES

Game Division staff estimate that the pretrapping, fall-winter wolf population in Alaska was between approximately 5,000 and 6,300 animals in 1986. Estimates of the number of wolves, number of packs, and the 5-year trend by game management unit (GMU) or subunit are provided in Table 1. It is important to recognize that these are conservative estimates whose quality varies among the GMU's because the information from which they were derived is not comparable between units. Sources of information include aerial surveys, incidental sightings, sealing records, and reports from the public and other agencies. However, different combinations of information were used to derive estimates for each GMU, so direct comparisons of estimates between two or more units should not be made. Finally, population estimates (Table 1) for a particular GMU may differ from those provided in the following report. For example, the estimates in Table 1 were made, for the most part, during fall and winter before trapping had occurred, while some of the estimates included in the following report were made in the spring after the trapping season had closed.

The statewide harvest of wolves during the 1986-87 regulatory year is approximately 805-900 animals. At the time this report was prepared, statewide sealing records showed a minimum of 805 wolves harvested, and hearsay evidence indicates that approximately 100 additional wolves were harvested but not sealed. The geographic distribution of the harvest, based on sealing records, is given in Table 2. The reader should be aware that the number of animals sealed may not agree with the number reported in the GMU S&I reports. Any differences are usually attributable to information received after the individual GMU reports had been prepared. In most cases, the differences are small.

The documented statewide harvest of wolves during the 1986-87 season was 19% higher than that for the previous season and 13% above the 10-year mean of 710 wolves. Compared with the previous season, the 1986-87 harvest was higher in 18 units and lower in 8 units. Although the harvest was higher in 1986-87 than in 1985-86, the percent of wolves taken by ground shooting vs. trapping or snaring remained similar (Table 3).

The annual estimated wolf harvest is based on the number of wolf pelts sealed. Because the Department does not have offices or sealing agents in each community and because pelts are in high demand locally, particularly for use as ruffs on parkas, some pelts are "home dressed" and put to use without ever having been sealed; that number is unknown. To overcome this problem, it will be necessary for us to make people aware

of the importance of the harvest information to our wolf management program. It will also be necessary to make it easy for individuals to comply with the sealing requirement, especially in rural areas of the state.

Herbert R. Melchior
Statewide Furbearer Coordinator

Table 1. Estimated statewide wolf population status (fall/winter 1986).

GMU/Subunit	Wolf population	Number of packs	5-Year trend
<u>Region I</u>			
1A	170	25	Stable
1B	40	6	Stable
1C	100	16 - 19	Stable
1D	30	4	Slightly decreasing
2	120 - 140	16 - 20	Stable
3	55	10 - 12	Stable
4	0	0	--
5A	50	5	Slightly increasing
5B	15	2	Stable
Subtotal	580 - 600	84 - 93	--
<u>Region II</u>			
6	70 - 88	10	Increasing
7	35 - 45	4 - 5	Stable
8	0	0	--
9	135 - 165	14	Stable or slightly increasing
10	15 - 25	2	Unknown
11	100 - 125	12	Stable
13	245 - 270	28	Stable
14 ^a	50 - 55	10	Stable
15	150 - 160	14 - 16	Stable
16	60 - 75	7	Stable
17	190 - 240	22	Increasing
Subtotal	1,050 - 1,248	123 - 126	--
<u>Region III</u>			
12	140 - 150	15 - 20	Stable
19A	100 - 130	14 - 18	Increasing
19B	110 - 125	21 - 27	Increasing
19C	90 - 100	15 - 20	Stable
19D	135 - 150	20 - 25	Increasing
20A	220 - 240	25 - 30	Increasing
20B	140 - 180	21 - 27	Increasing
20C	120 - 140	20 - 25	Stable or slightly increasing

Table 1. Continued.

GMU/Subunit	Wolf population	Number of packs	5-Year trend
20D	60 - 80	11 - 13	Stable or slightly increasing
20E	160 - 180	25 - 30	Stable
20F	60 - 100	10 - 15	Stable or slightly increasing
21A	145 - 165	25 - 29	Stable
21B	100 - 120	10 - 15	Increasing
21C	50 - 60	4 - 6	Stable or increasing
21D	175 - 190	20 - 25	Stable or increasing
21E	90 - 100	12 - 17	Stable
24 ^b	320 - 350	30 - 35	Stable or increasing
25A	220 - 270	30 - 40	Stable
25B	100 - 120	15 - 20	Stable
25C	50 - 60	8 - 10	Stable or increasing
25D	150 - 180	20 - 25	Stable
26B	15 - 25	3 - 4	Slightly increasing
26C	25 - 30	5 - 6	Stable
Subtotal	2,775 - 3,245 ^a	379 - 482	--
<u>Region V</u>			
18	25 - 50	5	Stable
22	50 - 150	7 - 20	Stable
23	350 - 720	65 - 130	Stable
26A	145 - 310	14 - 30	Stable to slightly increasing
Subtotal	570 - 1,230	91 - 185	--
TOTAL	4,975 - 6,323	677 - 886	--

^a No change from corrected 1985-86 estimates; in 1985-86 two large packs in the Talkeetna River and Chickaloon River areas were reported also in Unit 13 estimates.

^b Better information on pack sizes and distribution based on improved survey data.

Table 2. Number of wolves sealed by game management unit during the 1986-87 harvest season.

GMU	No. sealed	GMU	No. sealed
1	49	14	3
2	39	15	29
3	10	16	9
4	-- ^a	17	28
5	14	18	12
6	3	19	75
7	19	20	97
8	-- ^a	21	101
9	34	22	8
10	4	23	33
11	15	24	38
12	37	25	57
13	84	26	7

^a None sealed for this unit.

Table 3. Number and percentages of wolves harvested in 1985-86, and 1986-87 by method of take.

Season	Ground Shooting		Trapping or Snaring	
	Number	Percent	Number	Percent
1985-86	275	41	335	50
1986-87	335	42	430	53

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS: 1A and 2

GEOGRAPHICAL DESCRIPTION: Ketchikan and Prince of Wales

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

No surveys were conducted during 1986-87; however, the wolf populations in either Units 1A or 2 probably did not significantly change. The harvest in both units was up from last year. Generally, harvest figures do not represent changes in wolf population numbers because of yearly differences in trapping pressure and success. Deer populations are increasing in both units and, if wolf populations increase as expected, there should be a long-term gradual increase in the number of wolves taken.

Mortality

The wolf harvest in Subunit 1A was 21 this year, compared with 11 last year (Table 1). In the mainland portion of the subunit, the harvest increased from four in 1985-86 to 9 wolves. The harvest on Revilla Island also increased from 7 to 11 wolves in 1985-86 and 1986-87, respectively. One wolf was taken on Gravina Island.

Sex composition of the harvest in Subunit 1A was 52% males. Twenty-four percent of the harvest was black; the color phase of the animals was classified as gray. Seventy-six percent of the harvest was taken during the January-March period; three of the 21 wolves were shot, and trapping accounted for the others.

In Unit 2 the 1986-87 harvest was 39 wolves, an increase of 117% from that in 1985-86. The sex composition of the harvest was 58% males; 84% of the wolves were gray. Ground shooting accounted for 41% of the wolves. The extensive road system contributed to the high percentage of wolves taken by shooting in Unit 2. The harvest occurred from August through

May, but it was concentrated in the December 86-February 87 period when 67% of the 39 wolves were taken.

Management Summary and Conclusions

Prices for wolf pelts were poor, and trapping interest was relatively low. It is unlikely that harvest by humans has any appreciable effect on wolf populations in this area. No changes in seasons or bag limits are recommended.

PREPARED BY:

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SUBMITTED BY:

Rod Flynn
Survey-Inventory Coordinator

Table 1. Wolf harvest for Subunit 1A and Unit 2, 1978-87.^a

Year	Area		Subunit 1A	Unit 2
	1A Mainland	1A Revilla		
1978-79	4	17	21	10
1979-80	6	14	20	10
1980-81	3	16	19	35
1981-82	4	14	18	20
1982-83	7	13	20	16
1983-84	5	28	33	24
1984-85	8	7	15	43
1985-86	4	7	11	18
1986-87	9	12	21	39

^a Data collected from mandatory sealing records.

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SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1B and 3

GEOGRAPHICAL DESCRIPTION: UNIT 1B - Southeast mainland from
Cape Fanshaw to Lemesurier Point

UNIT 3 - Islands of the Petersburg,
Wrangell, and Kake areas

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Reports and observations from trappers and hunters of wolf sign indicate that wolf populations are stable on the mainland and islands. No aerial surveys of wolf populations were conducted during the period, but ADF&G personnel observed abundant wolf sign on Etolin Island during aerial and ground elk surveys.

Mortality

The wolf harvest increased from four in 1985-86 to 11 in 1986-87 in Unit 1B; seven (64%) were males and four (36%) were females. Methods used in taking wolves varied; eight (73%) were trapped, two (18%) were snared, and one (9%) was shot. The months of harvest are shown in Table 1.

In Unit 3, 10 wolves were taken in 1986-87, compared with nine taken in 1985-86. The harvest in Unit 3 has varied greatly since 1961 (Table 2) because of bounties, weather, fur prices, and other factors. Chronology of harvest is shown in Table 1.

Most trappers used boats for accessing trapping areas in both units (Table 3). Eighty-two percent of the trappers in Unit 1B and 60% of those in Unit 3 used boats to take wolves. Most successful wolf sets were made on beaches below the mean high-tide level (Table 4).

Management Summary and Recommendations

The difficulty associated with trapping wolves discourages most trappers. Trappers concentrate on smaller furbearers

that area easier to trap and skin; e.g., mink and marten.

Trappers in Petersburg have recently formed a trapper's association to train young people in the art and ethics of trapping. Game Division should continue to encourage this group's effort by providing assistance and information when possible.

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SUBMITTED BY:

Rod Flynn
Survey-Inventory Coordinator

Table 1. Chronology of wolf kill in Units 1B and 3, 1986-87.

Month of kill	Unit 1B					Unit 3				
	Males	Females	Unk	Total	%	Males	Females	Unk	Total	%
January	1	1	0	2	18	0	0	0	0	0
February	0	1	0	1	9	5	1	1	7	70
March	2	1	0	3	27	0	1	0	1	10
April	2	0	0	2	18	0	0	0	0	0
September	1	0	0	1	9	1	0	0	1	10
October	0	0	0	0	0	0	1	0	1	10
November	0	1	0	1	9	0	0	0	0	0
December	1	0	0	1	9	0	0	0	0	0
Totals	7	4	0	11	100	6	3	1	10	100

Table 2. Wolf harvest in Unit 3, 1961-1987.

Season	No. of wolves
1961-62	18
1962-63	27
1963-64	34
1964-65	29
1965-66	52
1966-67	43
1967-68	85
1968-69	15
1969-70	75
1970-71	42
1971-72	61
1972-73	27
1973-74	31
1974-75	13
1975-76	28
1976-77	20
1977-78	12
1978-79	20
1979-80	23
1980-81	16
1981-82	19
1982-83	22
1983-84	25
1984-85	9
1985-86	9
1986-87	10

Table 3. Method of transportation used by wolf hunters and trappers in Units 1B and 3, 1986-87.

Method	Unit 1B		Unit 3	
	Number	% ^a	Number	%
Boat	9	82	6	60
3 or 4 wheeler	2	18	0	0
Highway vehicle	0	0	1	10
All other	0	0	3	30
Totals	11	100	10	100

^a Percentages of total harvest for unit.

Table 4. Wolf harvest by method in Units 1B and 3, 1986-87.

Method	Unit 1B		Unit 3	
	Number	% ^a	Number	%
Shooting	1	9	1	10
Trapping	8	73	7	70
Snaring	2	18	1	10
All other	0	0	1	10
Totals	11	100	10	100

^a Percentages of total harvest for unit.

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SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1C

GEOGRAPHICAL DESCRIPTION: Southeast mainland from Cape
Fanshaw to Eldred Rock

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Mortality

Six trappers killed 4 male and 4 female wolves in December (12%), January (38%), February (25%), March (13%), and April (12%). Five gray and 3 black wolves were trapped (63%), snared (25%), and shot (12%). Four wolves were taken in Berners Bay and one each from Hobart Bay, Eagle River, Whiting River, and Salmon River. Trappers went afield via boats (75%), highway vehicles (13%), and unknown conveyances (12%).

Management Summary and Recommendations

The harvest of 8 wolves from Subunit 1C in 1986-87 was similar to the 1975-86 average harvest of 8.4 (Table 1). No age data is available from this harvest, and no other indications are on hand to indicate any change from the static population level of wolves in the subunit. No changes are recommended in seasons or bag limits at this time.

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SUBMITTED BY:

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Rod Flynn
Survey-Inventory Coordinator

Table 1. Subunit 1C historical wolf harvest, 1976-87.^a

Year	Male	Female	Unknown	Total
1974-75	1	1	0	2
1975-76	0	0	12	12
1976-77	-- ^a	--	--	--
1977-78	0	0	8	8
1978-79	1	6	0	7
1979-80	0	0	0	4
1980-81	0	0	9	9
1981-82	0	0	4	4
1982-83	0	0	6	6
1983-84	0	0	4	4
1984-85	0	0	6	6
1985-86	0	0	14	14
1986-87	4	4	0	8
Mean				8.4

--^a Information not available

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SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1D

GEOGRAPHICAL DESCRIPTION: Upper Lynn Canal

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

No data were collected. Incidental information suggests that no major changes in wolf numbers were noticed by trappers, hunters, or other outdoorsmen.

Mortality

Three trappers took 5 male and 3 female wolves from the Chilkat drainage in Subunit 1D. Two, 4, and 2 animals were trapped in December, January, and February, respectively. Seven wolves were taken by snares and one was shot; 5 wolves were grey and three were black.

Management Summary and Recommendations

The harvest of 8 wolves in Subunit 1D was similar to the 1972-86 average of 7.9. While trapping effort in 1986-87 was possibly lower than that for the 1985-86 season, an abundance of wolf snares set along the Haines Highway created problems for wintering moose. Several moose were entangled in snares that had been improperly set, causing at least one mortality.

No changes in season or bag limit are recommended at this time.

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Table 1. Wolf harvests for Subunit 1D, 1972-87.

Year	Males	Females	Unknown	Total
1971-72	4	4	5	13
1972-73	3	3	3	9
1973-74	8	1	3	12
1974-75	9	5	1	15
1975-76	2	1	0	3
1976-77	7	6	0	13
1977-78	4	0	0	4
1978-79	8	1	0	9
1979-80	5	3	1	9
1980-81	3	2	0	5
1981-82	0	1	0	1
1982-83	3	0	0	3
1983-84	4	2	0	6
1984-85	3	1	0	4
1985-86	10	3	0	13
1986-87	5	3	0	8
Means	4.9	2.8	0.8	7.9

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SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 5

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

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

No data were collected. Discussions with local hunters and trappers indicated no change in the abundance of wolves in the unit.

Mortality

Nine hunters and trappers killed 13 wolves in Subunit 5A during the 1986-87 season; 10 wolves were gray and the color of three was unknown. Eleven wolves were shot, one was snared, and the harvest method of one has not been determined. Wolves were harvested in September (3), October (4), November (1), December (2), January (2), and May (1). Transportation to harvest sites was by aircraft (4), boat (2), highway vehicle (6), and unknown conveyance (1). One wolf was taken east of the Alsek River, five from the area between the Alsek and Dangerous Rivers, six between the Dangerous River and Yakutat Bay adjacent to the road system, and one from an undocumented location in the subunit.

Management Summary and Recommendations

The 1987 harvest of 13 wolves from Unit 5 was twice that of the 1964-86 mean of 6.4 (Table 1). A relatively mild, snow-free winter (112 inches compared with the 1949-86 average of 210 inches) restricted access by ski-equipped aircraft, and a large portion of the higher than average harvest was due to hunters incidentally taking wolves while seeking moose and bears.

Recent fall sex and age composition surveys of moose point to increased calf to cow ratios, indicating a possible increase in the Yakutat Forelands moose population. Wolf harvests in

four of 5 years since 1982-83 have been well over the long-term average; this may have been the result of the wolf population's response to an increased prey base. The knowledge of wolf dynamics in Unit 5 would be furthered by determining the subadult:adult ratio of harvested wolves.

No changes are recommended in seasons or bag limits at this time.

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Survey-Inventory Coordinator

Table 1. Wolf harvests for Unit 5, 1963-87.

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
1984-85	14
1985-86	4
1986-87	13
Mean	6.7

^a Data from aerial permits and bounty records for 1963-64 to 1970-71; data from mandatory sealing certificates for 1971-72 to 1986-87.

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SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 6

GEOGRAPHICAL DESCRIPTION: Prince William Sound, north Gulf Coast

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Population data were collected only as incidental observations and reports from the public. Based on these observations, the population estimate ranged from 60 to 88 wolves in 10 packs in the fall of 1986.

The 1986 estimate represented a 30-50% increase over the fall 1985 estimate (Griese 1987); however, the larger estimate was due, in part, to discovery of a pack that used a portion of Subunit 6D. Population increases were only indicated in Subunits 6B and 6C. The number of wolves per pack in these subunits increased from 4 to 5 in 2 packs in 1985 to 5-9 in 3 packs in 1986.

Mortality

Three wolves (1 male, 1 female, and 1 unknown sex) were sealed by hunters and trappers. Two were trapped in Subunit 6A, and one was shot in Subunit 6B; 1 wolf was harvested in each of the following months: October, January, and March.

In the last 5 years, only 10 wolves were taken, including 5 males, 4 females, and 1 unknown sex. Seven wolves were taken in Subunit 6A, and one each were taken in Subunits 6B, 6C, and 6D. The mean annual harvest of 2.0 wolves is comparable to the historical mean harvest since 1963 of 2.1 wolves (Table 1).

From 1972 through 1978, snow conditions were favorable for trapping and hunting wolves and wolverines. Good snow conditions made it possible to land planes in remote areas; this factor produced higher interest by local trappers and hunters. Since that period, poor snow conditions have prevailed during most trapping seasons (Greise 1988).

Management Summary and Recommendations

Wolf populations continued to increase, while hunter and trapper harvests remained at low levels. Wolves harvested this year represented 5% of the lowest population estimate. The low utilization rate of wolves was due to poor fur quality for coastal canids (L. Kritchen, pers. comm.) and poor snow conditions, which together reduced interest by hunters and trappers.

I recommend retaining current seasons and bag limits.

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PREPARED BY:

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Carl A. Grauvogel
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Table 1. Historical wolf harvest in Unit 6, 1963-1986.

Regulatory Year	Harvest ^a
1963-64	1
1964-65	1
1965-66	5
1966-67	0
1967-68	0
1968-69	0
1969-70	1
1970-71	0
1971-72	0
1972-73	3
1973-74	6
1974-75	4
1975-76	7
1976-77	4
1977-78	3
1978-79	3
1979-80	0
1980-81	2
1981-82	1
1982-83	1
1983-84	2
1984-85	3
1985-86	1
1986-87	<u>3</u>
Total	51
$\bar{x}$	2.1

^a Data from 1963 through 1970-71 are from aerial permits and bounty records; data from 1971-72 to present are from sealing records.

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 7 and 15

GEOGRAPHICAL DESCRIPTION: Kenai Peninsula

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Wolf surveys were not conducted during this reporting period because of unfavorable snow conditions during early winter. Harvest data, observations by Department staff, and reports from trappers suggested little change occurred in wolf numbers from the previous year. Subunit 15A continued to show a slight decline over the peak population estimate in 1983; however, the discovery of a new pack in Subunit 15C during 1985-86 maintained the current population estimate at 200 wolves (21 packs) in Units 7 and 15.

Mortality

Forty-nine wolves were killed during the 1986-87 hunting and trapping seasons in Units 7 and 15. The harvest was composed of 24 (49%) males and 25 (51%) females. The combined harvest represents 25% of the estimated population. The historical harvest by subunit is summarized in Table 1.

Ten (20%) wolves were taken by ground shooting, 16 (33%) by trapping, and 22 (45%) by snaring; one (2%) was killed by a highway vehicle. The chronology of the harvest was as follows: August, 1 (2%); October, 1 (2%); November, 10 (20%); December, 10 (20%); January, 8 (16%); February, 8 (16%); March, 8 (16%); and April, 3 (6%). Thirty-five (71%) of the 49 wolves harvested were classified as either pups or adults; of those, 14 (40%) were pups and 21 (60%) were adults.

Management Summary and Recommendations

The harvest of 49 wolves represents 25% of the early winter population estimate of 200 for Units 7 and 15. With this rate of harvest, the wolf population is expected to remain stable or slightly increase over most of the Kenai Peninsula.

Subunit 15A should continue to be monitored closely because of high harvests from 1981 through 1984. Subunit 15A should be managed on a quota system and closed to hunting and trapping if it is suspected that continued harvest would reduce the total post-season number to below 25 wolves. This management strategy has worked well for the past 2 seasons and appears to be generally accepted by trappers.

To prohibit trapping of wolves during their breeding season and to reduce incidental wolverine harvest, I recommend a reduction in the trapping season to 10 November-28 February for both units. No change in bag limits are recommended.

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Table 1. Reported wolf harvest in Units 7 and 15 by subunit, 1973-87.

Year	Unit 7	Subunit 15A	Subunit 15B	Subunit 15C	Total
1973-74	1	0	0	1	2
1974-75	1	0	1	4	6
1975-76 ^a	7	3	1	8	19
1976-77 ^a	3	5	2	3	13
1977-78 ^a	16	5	7	8	36
1978-79 ^a	12	24	5	14	55
1979-80 ^a	6	15	13	12	46
1980-81 ^a	12	18	1	11	42
1981-82	12	28	15	7	62
1982-83 ^a	8	27	10	3	48
1983-84	10 ^a	27 ^{b,c}	5 ^b	8 ^a	50
1984-85	5 ^a	32 ^b	3 ^b	7 ^b	47
1985-86	13 ^a	23 ^{b,d}	13 ^b	16 ^b	65
1986-87	20 ^a	8 ^b	13 ^b	8 ^b	49

^a Trapping season 10 November-31 March.

^b Trapping season 10 November-15 March.

^c Trapping and hunting closed in western portion of on
12 February 1984, due to lice control efforts.

^d Trapping and hunting closed 15 February 1986 (quota set at 20).

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 9 and 10

GEOGRAPHICAL DESCRIPTION: Alaska Peninsula and Unimak Island

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Wolves occur throughout Unit 9 and on Unimak Island in Unit 10. Although no specific data have been collected on wolf population densities, general observations and comments from local residents, trappers, and hunters suggest that the wolf population is relatively stable in most of Unit 9. Within the past year, there have been comments from the public about increased wolf numbers in Subunit 9D and on Unimak Island, but no substantiating information is available.

Mortality

The 1986-87 reported wolf harvest was 34 (21 males and 13 females) in Unit 9 and three (2 males and 1 female) in Unit 10 (from Unimak Island). Shooting accounted for 70% of the wolf harvest. Inaccurate reporting of method of transportation used for taking wolves limits analysis; however, it is believed that approximately 80% of the wolf harvest was taken with the use of aircraft. The harvest chronology follows: September, 4; October, 5; December, 4; January, 9; February, 11; and March, 4.

Management Summary and Recommendations

Wolf harvests on the Alaska Peninsula vary widely, primarily because of weather conditions and the activity of several trappers using aircraft for access. The level of harvest over the past 10 years (i.e., averaging 27/year) has had little impact on the wolf populations in Units 9 and 10.

PREPARED BY:

SUBMITTED BY:

Richard A. Sellers
Game Biologist III

Carl A. Grauvogel
Survey-Inventory Coordinator

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 11

GEOGRAPHICAL DESCRIPTION: Wrangell Mountains

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Wolf track surveys are currently not being conducted in this unit; therefore, population estimates are derived from field observations made by Department biologists and from reported sightings by trappers and hunters. The current population estimate and trend in GMU 11 are approximately 100-125 wolves and increasing, respectively.

Mortality

Fourteen wolves (7 males, 6 females, and 1 sex unknown) were sealed in Unit 11 during 1986-87. This is a 75% increase from that of the previous year (8 wolves), but it is still well below the 5-year (1981-85) mean of 26 wolves. Nine (64%) wolves were taken by trapping, three (21%) by snaring, and two (14%) by shooting. The harvest chronology follows: September, 2 (14%); January, 6 (43%); February, 5 (36%); and March, 1 (7%).

Management Summary and Recommendations

The current wolf population estimate in GMU 11 is somewhat higher than previous estimates because of an increase in the number of wolves and wolf tracks observed by both by ADF&G biologists and trappers working in the unit. Wolf numbers are especially high from the Dadina River north to the Unit 12 boundary.

Wolf harvests in Unit 11 have declined during the past 2 years. Reduced harvests are attributed both to poor snow conditions that limit snowmachine access and the 1986 Board of Game decision to eliminate land-and-shoot trapping in Unit 11. Elimination of the land-and-shoot trapping method will probably decrease the yearly harvests; consequently, the wolf

population is expected to increase. Now that trapping regulations have become highly restrictive, wolf survey areas should be established to monitor wolf numbers and trends.

PREPARED BY:

Robert W. Tobey
Game Biologist III

SUBMITTED BY:

Carl A. Grauvogel
Survey-Inventory Coordinator

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 12

GEOGRAPHICAL DESCRIPTION: Upper Tanana and White River
drainages

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Aerial surveys during March 1987 and a cooperative predation rate study with the U.S. Fish and Wildlife Service (USFWS) during January and February 1987 greatly increased knowledge of wolf populations on the Northway-Tetlin Flats during this reporting period. During winter 1986-87 virtually all packs in the flats were telemetered and relocated daily for 29 consecutive days by ADF&G and USFWS personnel to determine rates of predation. Predation rate and pack size were positively correlated, and calf moose were the preferred prey; they were taken more often than was predicted by their availability in the moose population. Based on the results of these 2 studies, I have concluded that wolves are the major predator responsible for controlling moose population growth in northern Unit 12. The estimated number of packs (25) and wolves (170-190) have remained essentially unchanged from the fall of 1985; the population is below the historic high. The population has also apparently remained stable at this lower level in recent years because prey animals are not as numerous as in the past.

Wolf pack sizes and pup production in the unit appear to vary with year-round big game prey availability. Near the foothills of the Mentasta and Nutzotin Mountains where moose, caribou, and sheep are usually available, packs are large (i.e., up to 15) and pup production is apparently high. Packs inhabiting the Northway-Tetlin Flats (i.e., where sheep are absent and moose and caribou are only seasonally available) are smaller, hold larger territories, and probably produce fewer pups. Little is known about wolves in the extreme southern, mountainous portion of the unit, and they were not surveyed during this reporting period.

Mortality

Wolves throughout Unit 12 are probably regulated more by natural mortality, emigration, and low pup production than by human-caused mortality. Thirty-seven wolves (18-21% of the estimated fall 1986 population) were removed as a result of human activity during 1986-87. Other wolf populations have sustained human-caused mortalities of twice this rate without declining.

The sex of 33 of the harvested wolves were known; 20 (61%) were females and 13 (39%) were males. Of the 35 wolves taken by hunters and trappers, 23 (66%) were trapped, six (17%) were snared, and six (17%) were shot. The harvest was well distributed throughout Unit 12; 12 wolves were taken in the Chisana, seven in the Tetlin, six in the Little Tok, five in the main Tok, and three each in the Tanana and Nabesna drainages. Land-and-shoot wolf trappers were less successful during this reporting period than during winter 1985-86 because snow cover was much poorer.

Management Summary and Recommendations

Moderate numbers of wolves occur in Unit 12, and the population is believed stable. The unit supported more wolves in the 1960's (i.e., when moose and caribou were numerous) than it does today. However, wolves remain abundant in relation to their prey, and I think wolf predation is responsible for depressed moose and caribou populations in Unit 12. Wolf harvests by humans have been insufficient to reduce the wolves to the point that prey populations can increase. Conversely, wolf numbers in Unit 12 are not expected to increase significantly until prey abundance increases.

I think wolf predation is currently keeping moose and caribou numbers below those specified in management plans. Achievement of moose and caribou management goals will probably require reduction and maintenance of wolf numbers at lower levels unitwide. Hence, I recommend regulations controlling wolf harvest be liberalized to allow the public more efficient means of taking wolves. Even then, departmental effort may be necessary to achieve and maintain the level of reduction required to allow prey population growth.

PREPARED BY:

SUBMITTED BY:

David G. Kelleyhouse
Game Biologist III

Wayne E. Heimer
Survey-Inventory Coordinator

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 13

GEOGRAPHICAL DESCRIPTION: Nelchina and Upper Susitna Rivers

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

The spring 1987 population estimate in Unit 13 was 150 wolves (range = 140-190). This figure is lower than the 1986 estimate (200 wolves) but higher than that for 1985 (125 wolves).

Mortality

Hunters and trappers sealed 84 wolves in Unit 13 during the season. This is an increase of 15 (22%) wolves from the previous year's harvest of 69. Males comprised 64% (54) of the harvest; females, 36% (30). The land-and-shoot trapping method accounted for 37 (44%) wolves, trapping for 31 (37%), snaring for 6 (7%), ground shooting for 7 (8%), and method of take unknown for 3 (4%). The harvest chronology follows: August, 1 (1%); September, 5 (6%); October, 1 (1%); November, 10 (12%); December, 6 (7%); January, 27 (32%); February, 20 (24%); March, 14 (17%).

Management Summary and Recommendations

The decline in the estimate of the wolf population in Unit 13 was attributed, in part, to existing survey conditions. Wolf and wolf track sightability were poor during spring surveys because of the lack of snow cover in March. Given the poor survey conditions, the current population estimate of 150 wolves is considered conservative.

The wolf harvest in Unit 13 increased during 1986-87, but it was still slightly below the 5-year (1981-85) mean of 92 wolves per year. Wolf harvests for Unit 13 that exceed 100-125 wolves appear to result in a decrease in the overall unit wolf population. The management goal for the wolf population in Unit 13 is to maintain a posthunting season

population of 150 wolves. In order to achieve this goal, the hunting and trapping season should be closed by emergency order in those years when harvest rates suggest the total wolf harvest could exceed 100 wolves. Since current population estimates approach the management goal, no further changes in season dates, bag limits, or methods and means are recommended.

PREPARED BY:

Robert W. Tobey
Game Biologist III

SUBMITTED BY:

Carl A. Grauvogel
Survey-Inventory Coordinator

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 14

GEOGRAPHICAL DESCRIPTION: Upper Cook Inlet

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Wolves only occur in the more remote portions of Subunit 14A and 14C that have little human disturbance. They are found in low numbers throughout most of Subunit 14B.

Population trend information is determined from field observations of biologists, trappers, and air taxi operators. A pack of 7-10 wolves was reported in the upper Ship Creek drainage in Subunit 14C. No other reports of wolf activity were received during this reporting period, and it is not possible to establish an accurate population estimate. It is believed 50 to 60 wolves inhabit Unit 14.

Mortality

One wolf was reported harvested in Subunit 14A, none in Subunit 14B, and one in Subunit 14C during this reporting period. This compares with a harvest in Unit 14 of 10 during the 1985-86 season and six during the 1984-85 season. The wolf taken in Subunit 14C was shot in Peters Creek drainage outside Chugach State Park. It had been previously injured and was in very poor condition.

Management Summary and Recommendations

The harvest technique of land-and-shoot trapping was prohibited in Unit 14 beginning with this reporting period. The elimination of this trapping method is believed responsible for the low reported harvest. It is also responsible for the diminished number of reports regarding wolf numbers and distribution.

PREPARED BY:

David B. Harkness
Game Biologist III

and

Nicholas C. Steen
Game Biologist II

SUBMITTED BY:

Carl A. Grauvogel
Survey-Inventory Coordinator

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 16

GEOGRAPHICAL DESCRIPTION: West Side of Cook Inlet

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Mortality

Nine wolves (6 males and 3 females) were harvested in Subunit 16B. No wolves were reported taken in Subunit 16A. A hunter shot 1 wolf during September, and the remainder were taken during the winter. During the trapping season, 6 wolves were shot by individuals using aircraft for transportation and one was shot by a person using a snowmachine. The remaining wolf was trapped.

Management Summary and Recommendations

Wolves are not abundant in Unit 16. Highest harvests occur in years when snow conditions are suitable for landings by ski-equipped aircraft. No changes in seasons or bag limits are recommended.

PREPARED BY:

Jim B. Faro
Game Biologist III

SUBMITTED BY:

Carl A. Grauvogel
Survey-Inventory Coordinator

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 17

GEOGRAPHICAL DESCRIPTION: Northern Bristol Bay

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

While wolf densities continue to remain at very low levels in Subunit 17A, they have been increasing throughout Subunits 17B and 17C, apparently because of the increasing prey base in these subunits. The Mulchatna caribou herd has been increasing at an average rate of 16% per year since 1981; the estimated October 1987 population is over 52,000 caribou. Moose populations are increasing and appear to be stable in most portions of Subunit 17B. Deep-snow conditions persisted from January through March in the Upper Nushagak drainages of Subunit 17B, and moose throughout this area were highly vulnerable to wolf predation.

Mortality

The 1986-87 reported wolf harvest by 14 successful trappers was 28, including 14 males, 11 females, and 3 sex unknown. Unlike previous years, most (57%) wolves were taken in January. The harvest chronology was as follows: December, 1; January, 16; February, 6; and March, 5. Trapping conditions for wolves are generally poor in Unit 17 because of frequent changes in weather conditions. Most (82%) wolves taken were shot, conforming to historical data (Table 1).

Management Summary and Recommendations

Quantitative data on the status of wolves in Unit 17 are lacking. No comprehensive surveys to provide population estimates have ever been made. Most observations of wolves or carcasses of prey that appear to be wolf kills occur in Subunit 17B, although reports of wolves along the lower Nushagak River, Wood River, and in the Muklung Hills in Subunit 17C have become more frequent in recent years. The

scarcity of wolves in Subunit 17A is assumed to be due to the extremely low densities of ungulates in this subunit.

Since 1971-72 annual wolf harvests in Unit 17 have fluctuated between a high of 111 wolves (1974-75) and a low of 7 (1983-84). The mean annual harvest for the past 5 seasons (1982-87) was 27 wolves. Annual harvests generally reflect the quality of hunting conditions rather than the status of the wolf population. Conditions for hunting and trapping wolves in this unit are generally poorer than in adjacent interior units because of frequent periods of above-freezing temperatures typical in the coastal areas of southwest Alaska. It is unlikely that these harvest activities have adversely affected this wolf population. No changes in seasons or bag limits are recommended.

PREPARED BY:

Kenton P. Taylor
Game Biologist III

SUBMITTED BY:

Carl A. Grauvogel
Survey-Inventory Coordinator

Table 1. Unit 17 historical wolf harvest, 1971-87.

Year	Males	Females	Unk.	Total	% shot	% trapped
1971-72 ^a	16	9	3	28	100	0
1972-73 ^a	10	9	1	20	80	20
1973-74	13	7	0	20	30	50
1974-75	56	54	1	111	94	6
1975-76	18	28	1	47	91	9
1976-77	31	12	2	45	89	11
1977-78	7	10	0	17	53	47
1978-79	13	7	0	20	--	--
1979-80	11	12	2	25	--	--
1980-81	4	3	1	8	--	--
1981-82	12	6	0	18	78	22
1982-83	25	13	3	41	65	35
1983-84	4	3	0	7	100	0
1984-85	18	21	4	43	67	33
1985-86	8	3	0	11	71	29
1986-87	16	11	3	28	82	18

^a Aerial hunting was legal during this regulatory year.

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 18

GEOGRAPHICAL DESCRIPTION: Yukon-Kuskokwim Delta

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Reported observations from trappers, fur buyers, and agency biologists indicate that the wolf population in Unit 18 is extremely low in density but may be increasing slightly in size. The distribution of wolves in Unit 18 appears to reflect the number and distribution of moose. Although moose have been attempting to colonize the Yukon and, to a lesser extent, the Kuskokwim drainages in Unit 18 during the last 20-30 years, the density of both moose and wolves remains extremely low.

Reported observations indicate that one pack of 8-11 wolves ranged in the upper Kisaralik, Tuluksak, and Fog River drainages of the Kilbuck Mountains in Unit 18 as well as in the adjacent Salmon River drainage of Unit 19B. A group of 2-3 wolves, possibly part of the same group, apparently extended their movements during the winter of 1986-87 along the Kasigluk River towards the Kuskokwim River. Wolf predation has not yet been documented to occur on the growing Kilbuck caribou herd. This closely monitored herd found in the mountains southeast of Bethel currently numbers over 600 caribou. We received no other reports of wolves in the lower Kuskokwim drainages or Kilbuck Mountains during the reporting period.

The number of reported observations from the Yukon has increased dramatically during the past 2 years. Whether this represents more active reporting or an actual population increase is unknown. A female wolf with pups was observed on 12-mile Slough near the eastern border of GMU 18 in the Yukon drainage. Tracks of another small group of wolves were seen by a U. S. Fish and Wildlife Service (USFWS) biologist on a sandbar near Ohogamuit and Devil's Elbow on the Yukon River. A small pack of 3-4 wolves reportedly wintered in the hills east of Marshall. A larger pack of 8-10 wolves was reported

in the Atchuelinguk and Andreafsky River drainages north of the Yukon River. A single black wolf was observed by an ADF&G biologist in June 1987 near the confluence of the Nageethluk and Atchuelinguk Rivers. Two USFWS biologists observed wolf tracks near the Nageethluk River 20 miles north of Marshall. A pack of 6 animals was observed near their village by residents of Scammon Bay on Kusilvak Mountain south of the Yukon River and in the Askinuk Mountains.

Mortality

No wolves were reported taken from the Kuskokwim drainage in Unit 18 during the reporting period. Two wolves, however, were harvested near Marshall north of the Yukon River. One adult wolf was apparently from a pack that reportedly wintered near Marshall. The other wolf was an immature animal believed to have been solitary. Both animals were caught incidentally in fox snares. Since wolves are scarce in Unit 18, few individuals deliberately attempt to harvest them.

Management Summary and Recommendation

Wolf dispersal from Units 19A and 21E is currently occurring in Unit 18, presumably in response to the colonization of the lower Yukon riparian corridors by moose. Wolves and moose are especially common in the Yukon River drainages of Unit 21E, particularly in the Innoko drainage. The number of reported wolf sightings in Unit 18 is increasing, especially along the lower Yukon River. We are unsure whether this represents better documentation or an actual increase in numbers. Compared with Units 19A and 21E, however, the absolute number of wolves and moose in Unit 18 remains extremely low. Apparently, the wolf packs residing in Unit 18 are transitory and also occupy GMU's 17, 19A and B, 21E and 22A. I foresee no need for changes in seasons or bag limits at the present time.

PREPARED BY:

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SUBMITTED BY:

Steven Machida
Survey-Inventory Coordinator

WOLF
SURVEY-INVENTORY REPORT

GAME MANAGEMENT UNIT: 19

GEOGRAPHICAL DESCRIPTION: Upper and middle Kuskokwim River drainages

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

No wolf surveys were conducted during this reporting period. Harvest statistics and prey population data have remained relatively stable, so I assume the wolf populations have remained stable or have increased slightly.

Population Composition

According to sealing certificates for the 1986-87 wolf season, the wolf harvest was 38 males, 34 females, and three of unspecified sex. This sex composition in the harvest is not significantly different ($P > 0.05$) from the previous 15-year mean of 55% males. The proportion of pups taken is not available from sealing data. It is not known if the composition of the harvest reflects the composition of the wolf population in Unit 19.

Mortality

Sealing certificates indicated a harvest of 75 wolves during this reporting period. This is slightly higher than the 15-year-mean harvest of 60.7 wolves. Subunit 19A yielded 8 wolves, 19B accounted for 16, 19C produced a harvest of 22, and the 19D harvest was 29 wolves. Twenty-two trappers were responsible for the harvest of these 75 wolves ($\bar{x} = 3.4$ wolves/trapper). Fourteen of the 22 trappers were residents of the unit (64%), seven were from other Alaskan locations (32%), and one was a nonresident (5%).

Shooting wolves from the ground was the most common method of harvest in Unit 19 (40 of 75, 53%). Twenty-two wolves were taken with traps (29%), nine with snares (12%), and 4 (6%)

wolves were sealed without method of capture being recorded. Airplanes were the most commonly used transportation method (60 of 75, 80%), followed by snowmachines (6 of 75, 8%). The number of wolves taken by land-and-shoot trapping equaled the number shot from the ground. However, this figure cannot be calculated; it must be determined by examining each individual sealing certificate.

Chronologically, the highest wolf harvest (27 and 28, respectively) occurred during February and March, accounting for 73% of the year's harvest. November harvests totaled 9 wolves (12%), December and January had five each (7%), and 1 wolf was taken in April (1%).

Three particular areas usually produce the major portion of the wolf harvest in Unit 19. The upper reaches of the South Fork Kuskokwim River, including the drainages of the Post and Hartman Rivers, are easily accessible to aircraft-assisted trappers. This area produced a harvest of 18 wolves during the 1986-87 season. The middle and upper reaches of the Holitna and its tributaries yielded a harvest of 17 wolves, and the Nixon Fork flats contributed 10 wolves to the harvest. Relatively easy access for aircraft also characterizes the Holitna River and the Nixon Fork flats.

Management Summary and Recommendations

Systematic wolf surveys should be reinstated throughout portions of Unit 19. In particular, attention should focus on obtaining wolf density estimates where predation appears to be limiting caribou and/or moose numbers. These areas are the upper reaches of the Stony, Holitna, Hoholitna, Nixon Fork, and Big Rivers. Current plans are to conduct limited track count surveys in these areas during the spring of 1988. At this time, no changes are recommended in seasons, bag limits, or method-of-take regulations for Unit 19.

PREPARED BY:

Jackson S. Whitman
Game Biologist III

SUBMITTED BY:

Wayne E. Heimer
Survey-Inventory Coordinator

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS: 20A, B, C, D, F

GEOGRAPHIC DESCRIPTION: Central Tanana Valley

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Department personnel have been radio-collaring wolf packs in Subunit 20A to obtain a more accurate population estimate. Presently, the 6 packs that have been radio-collared range in size from 3 to 14 animals. Based on radio-collared packs, sealing certificates, track counts, and hunter and trapper observations, we estimate a 1986 fall population in the range of 200-240 wolves, compared with a 1985 fall estimate of 195 wolves.

The Lignite pack of 6 wolves and the Snow Mountain Gulch pack of nine were collared during early spring 1986. During fall 1986, they had 10 and 12 pack members, respectively, an increase of 47%.

There are presently about 40-60 wolves in western Subunit 20B where wolf control occurred during the late winters of 1984-85 and 1985-86. Two wolves still have functional radio collars in the control area. A recent telemetry flight revealed that the 1 remaining wolf from the Standard Creek pack was with 4 additional wolves in the Tatalina River drainage. The Lower Tolovana pack of three had grown to eight. With an increasing number of moose in western 20B, we expect the wolf population to reach or exceed precontrol numbers in the near future. Very little new information is available for the remainder of Subunit 20B, but we estimate the area supports at least 92-103 wolves in 13 packs averaging 7.1-7.9 wolves per pack.

The National Park Service is conducting a study of the demography and distribution of wolves in Denali National Park and Preserve, which is located primarily in Subunit 20C. They monitor 6 radio-collared packs ranging in size from 2 to 10 animals. Preliminary results suggest a mean density of 1 wolf/144 mi² of suitable wolf habitat within the park and

preserve. This may be a typical density for the rest of Subunit 20C.

No wolf surveys were conducted in Subunit 20D, but based on reports from trappers and pilots, the Delta area biologist estimated a population of 68-86 wolves in the spring of 1987. No wolf surveys were conducted in Subunit 20F; however, trappers and hunters reported observing wolf packs in all the major drainages.

Mortality

Sixty-nine wolves were harvested in Subunit 20A, B, C, D, and F during the 1985-86 season (Table 1). Snaring, steel traps, and ground shooting accounted for 75%, 13%, and 9% of the harvest, respectively (Table 2). Denali National Park employees recovered 2 wolves that had been killed by other wolves.

Management Summary and Recommendations

All of the radio-collared wolf packs in the foothills of the Alaska Range in Subunit 20A and in western 20B have increased in numbers during the past year. We suspect that wolf numbers have increased or at least remained stable in the remainder of Unit 20. The harvest by the public has had very little impact on the wolf population.

We should continue radio-collaring and monitoring wolf packs in Subunit 20A to get an accurate population estimate. A wolf survey covering all of Subunit 20B should be conducted.

Wolf reduction is still the most effective and efficient tool wildlife managers have to increase ungulate populations. If the people of Alaska want ungulates and wolves to increase to numbers closer to carrying capacity in Unit 20, then wolves should be temporarily reduced to a ratio of 1 wolf:50 moose until ungulate population goals are met.

PREPARED BY:

Edward B. Crain
Game Technician V

SUBMITTED BY:

Wayne E. Heimer
Survey-Inventory Coordinator

Table 1. Wolf harvest in Subunits 20A, B, C, D, and F, 1986-87.

Subunit	Males	Females	Unknown sex	Total
20A	20	16	1	37
20B	3	3	0	6
20C	1	3	0	4
20D	12	7	1	20
20F	1	1	0	2
Totals	37	30	2	69

Table 2. Method of take for wolves in Subunits 20A, B, C, D, and F, 1986-87.

Subunit	Ground shooting	Trapped	Snared	Other	Total
20A	3	6	27	1	37
20B	1	2	3	0	6
20C	2	0	1	1	4
20D	0	0	20	0	20
20F	0	1	1	0	2
Totals	6	9	52	2	69

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 20E

GEOGRAPHICAL DESCRIPTION: Fortymile, Charley, and Ladue River drainages

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Aerial wolf censuses were conducted throughout Unit 20E during this reporting period. These included a survey of the Yukon-Charley Rivers Preserve that was funded by the National Park Service. Approximately 190 wolves in 25 packs have territories in Subunit 20E. Wolf numbers have apparently stabilized since the wolf population increases that followed cessation of wolf control efforts from 1981 to 1983. Wolf populations now exist at levels that can be sustained by present prey densities, but prey populations in most of Subunit 20E cannot increase. Wolf population growth is expected in northwestern 20E, in response to increasing prey abundance as the Fortymile Caribou Herd increases. However, the present density of wolves, in relation to that of their ungulate prey species, is sufficiently high to permit the attainment of stated population objectives for moose and caribou in the near future. Thus actual realization of wolf management goals depends on attaining moose and caribou population objectives.

Mortality

The wolf management goal of providing for maximum opportunity to hunt and trap wolves is currently being met, but few hunters or trappers are actually taking advantage of the opportunity. Hunter harvest of wolves has always been low, and the economics of trapping wolves is not sufficiently attractive to interest trappers at this time. In the late 1960's, when wolves were more abundant and pelt prices were higher, trappers were more active and the management goal was actually reached before prey declined.

Total human-caused mortality reported for wolves during this

period was 27; 21 wolves were harvested by trappers and six were collected by Department moose biologists for research purposes. Of the wolves taken, 56% (15) were males and 44% (12) were females. Fifteen black wolves equaled 56% of the take, and 12 gray wolves equaled 44%. Of the 21 wolves taken by the public, 67% (14) were snared, 24% (5) were trapped, and 10% (2) were shot by hunters. Liberalized seasons and method changes to allow taking wolves with 3X or larger snares and/or land-and-shoot trapping during October and April resulted in the snaring of 2 wolves in October and one in April. Overall, the harvest rate of wolves by hunters and trappers in Subunit 20E was only about 11%, far below the 40% rate usually required to hold wolf populations at stable levels.

Management Summary and Recommendations

According to annual aerial censuses, wolf numbers increased after wolf control efforts were halted in 1983. Approximately 190 wolves in 25 packs now have territories in Subunit 20E. Wolf numbers are expected to increase in northern Subunit 20E as the Fortymile Caribou Herd increases. Wolves inhabiting areas not frequented by caribou are not expected to increase. I recommend increased wolf harvests be effected to allow prey population objectives for moose and caribou to be reached.

Although grizzly bears are a major factor in Subunit 20E, wolf predation on caribou and moose contributes to slow growth rates of these prey populations. If wolves increase in response to continued growth of the Fortymile Caribou Herd, the effects of wolf predation on moose inhabiting wolf pack territories, which are seasonally vacated by migratory caribou, may be detrimental to these resident populations. I recommend simultaneous, temporary reduction of the grizzly bear and wolf populations. This should allow moderate rates of growth of both moose and caribou populations that, in turn, should eventually result in an increased carrying capacity (prey base) for wolves in Subunit 20E.

Provisions should be made to increase the public take of wolves above sustained-yield levels (approximately 75 wolves annually) to achieve desired wolf population reductions and maintain low wolf:prey ratios for the immediate short-term future. Additional Department efforts most likely would be necessary to achieve and maintain such high wolf harvests in this area.

PREPARED BY:

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SUBMITTED BY:

Wayne E. Heimer
Survey-Inventory Coordinator

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 21

GEOGRAPHICAL DESCRIPTION: Middle Yukon River

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Limited wolf surveys were conducted in March during wolf-collaring activities. However, additional population data were available from personal observations and discussions with hunters and trappers. These observations suggested that wolf packs continue to exist in traditional territories, and the number of wolves per pack has increased. Information is still lacking from half of the unit. The fall population for the unit is estimated to be between 560 and 635 wolves in 71-92 packs; however, this is a minimum estimate.

Mortality

Hunters and trappers reported harvesting 92 wolves during this reporting period. Good aerial-tracking conditions and snow cover contributed to a slightly higher than average harvest. In the northern part of Unit 21, the harvest was similar to previous years, and I think the population is stable. The harvest by subunit was as follows: 21A, 40 wolves; 21B, 10 wolves; 21C, 4 wolves; 21D, 28 wolves; and 21E, 10 wolves. The harvest included 46 males, 34 females, and 12 wolves of unknown sex whose pelt colors were as follows: 64 gray, 21 black, 4 white, and 3 unknown.

Movements

Three wolves were radio-collared during April 1986 as a result of a cooperative study with the U.S. Fish and Wildlife Service to delineate home ranges and pack sizes. An additional 4 wolves were collared in March 1987. Three of these wolves were from different packs, and one was from a pack with a marked wolf.

One female wolf in the Three-day Slough area was located 15 times since being collared in April 1986. She was never found

outside a 50-mi² area. Movements between sightings ranged from 2.5 to 9.0 miles. In July 1986 she was with 3 black pups, but we were unable to determine if she was the mother. During the winter she was also accompanied by 2 gray wolves. Sometime between 12 and 17 February 1987, this pack had a fight with a pack from the mouth of the Kateel River, and she was killed. Tracks and signs observed at the kill site indicated other wolves also suffered injuries.

An adult male collared in this Kateel River pack in 1986 was relocated 14 times. He remained alone until January 1987. The wolf ranged over 93 mi², from west of Three-day Slough to the Kateel-Honhosa River mouth and south to the mouth of the Gisasa River. Movements between sightings ranged from 0.25 to 15.25 miles. The wolf lost its visual collar and was shot by a trapper on 28 February 1987.

The 3rd wolf, collared in 1986 at the base of the Kaiyuh Mountains at North Creek, was an adult male. He has been relocated 20 times to date (15 Sep. 1987). This wolf ranged from 3.0 to 17.5 miles between relocations over a 230-mi² area. In December 1986 this wolf joined a pack with 4 other wolves. One of those wolves was collared in March 1987.

Two wolves were collared from the Bonanza Creek pack on the Kaiyuh Flats in March 1987. These wolves were located 9 times within a 100-mi² area before their radios quit working. One other wolf that was collared in the lower Bear Creek pack, north of Galena, remained in a 75-mi² area during 7 relocations.

The home ranges of the 3 wolves collared in 1986 are smaller than the average pack range (256 mi²) found on the Tanana Flats (Gasaway et al. 1983). At least two of those wolves live in areas that have moose densities around the 3-4 moose/mi² range. The higher moose densities are probably the reason for the smaller home ranges.

Management Summary

Present data suggest pack locations are stable, but numbers within packs have increased. Consequently, the harvest was higher than the 10-year average. The lack of information for half of the unit is a problem that should be addressed. Most of this unknown area is only lightly trapped for wolves and has not been surveyed for other species.

LITERATURE CITED

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84. 50pp.

PREPARED BY:

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 22

GEOGRAPHICAL DESCRIPTION: Seward Peninsula

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Little is known about the population status and distribution of wolves in Unit 22. Limited information is obtained annually from incidental observations by biologists, an annual Trapper Questionnaire, and reports by reindeer herders and other local residents. Wolf densities appear to be extremely low unitwide, although numbers may be increasing in Subunits 22A and 22B during winter when Western Arctic Herd caribou are seasonally present.

Mortality

Eight wolves (4 males, 2 females, and two of unknown sex) were harvested and sealed during the reporting period (Table 1). Sixty-three percent (5) of the wolves were taken in Subunit 22A, and the remaining 37% (3) came from Subunit 22B. Six and 2 wolves were reported taken during December and March, respectively. Snowmachines were the method of transportation used in harvesting these wolves. Seven wolves were shot and one was trapped.

Results of a Trapper Questionnaire indicate that at least 5 additional wolves were harvested from the Unit during the reporting period but not sealed. Based on results of the questionnaire and general conversation with local residents, I estimate that the actual Unit 22 harvest for 1986-87 was 15-20 wolves.

Management Summary and Recommendations

Although Unit 22 supports relatively large numbers of moose, reindeer, and caribou (Western Arctic Herd) that seasonally occupy Subunits 22A and 22B in winter and spring, wolf density remains low. Some residents of Subunits 22A and 22B and

respondents to the Trapper Questionnaire have suggested that wolf numbers are increasing in the southern and eastern portion of the unit, presumably in response to increasing seasonal use by caribou.

The reported harvest of wolves in Unit 22 during the past 16 years averaged 7 animals per year, similar to the 1986-87 harvest of eight (Table 1). Most of the harvest occurs in Subunits 22A and 22B. It appears that few residents of Unit 22 set traps specifically for wolves; rather, they take them on an opportunistic basis. Snow conditions and temperature are major factors influencing size and chronology of the harvest, because shooting from snowmachines is the primary method of harvesting wolves.

There are several prioritized goals that should be addressed to ensure the effective management of wolves on the Seward Peninsula:

1. A long-term management plan, based on public input, should be prepared and implemented. It is currently unclear whether we are managing for high or low numbers of wolves in the unit.
2. The annual Trapper Questionnaire indicates that compliance with sealing requirements unitwide is poor. Some village residents seal only those furbearer pelts that are commercially tanned or sold to fur buyers. Improving the accuracy of our harvest data may be accomplished by a more active information and education program as well as more active enforcement of our current sealing regulations.
3. Quantitative information on wolf populations in Unit 22 is lacking. Research to improve our understanding of wolf population dynamics and the impacts of wolf predation on local ungulate populations in Unit 22 is recommended.

No changes in seasons and bag limits are recommended at this time.

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Table 1. Reported wolf harvest in Unit 22 from 1971 through 1987.

Year	Sex			Total	Harvest Chronology								Subunit					Method of take ^a				
	M	F	U		Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unk	A	B	C	D	E	1	2	3	4	5
1971-72	9	2	0	11	0	8	1	0	1	1	0	0	0	0	0	0	0	3	0	0	8	0
1972-73	3	2	0	5	0	2	0	0	0	3	0	0	0	0	0	0	0	3	2	0	0	0
1973-74	4	2	1	7	1	0	0	1	2	2	1	0	0	0	0	0	0	7	0	0	0	0
1974-75	12	8	1	21	0	0	1	11	7	2	0	0	0	0	0	0	0	16	0	0	0	5
1975-76	1	1	0	2	0	0	0	0	1	1	0	0	0	0	0	0	0	2	0	0	0	0
1976-77	7	3	0	10	0	0	0	0	0	4	6	0	0	0	0	0	0	10	0	0	0	0
1977-78	1	1	1	3	0	0	0	2	0	1	0	0	0	0	0	0	0	2	1	0	0	0
1978-79	4	1	0	5	0	0	1	0	1	3	0	0	2	1	1	1	0	4	0	0	1	0
1979-80	2	2	0	4	0	0	1	0	0	2	0	1	0	0	0	0	0	4	0	0	0	0
1980-81	2	3	2	7	0	0	0	0	0	6	0	1	2	5	0	0	0	7	0	0	0	0
1981-82	1	1	2	4	0	0	2	2	0	0	0	0	0	5	0	0	0	3	0	0	1	0
1982-83	3	2	0	5	0	2	0	1	1	1	0	0	0	4	0	1	0	1	4	0	0	0
1983-84	3	2	0	5	1	0	0	4	0	0	0	0	0	4	0	1	0	1	4	0	0	0
1984-85	5	6	1	12	0	2	0	1	1	2	0	6	4	8	0	0	0	7	0	5	0	0
1985-86	0	1	2	3	0	0	2	0	0	1	0	0	0	3	0	0	0	3	0	0	0	0
1986-87	4	2	2	8	0	0	6	0	0	2	0	0	5	3	0	0	0	7	0	1	0	0

^a

- 1 = Ground shot
- 2 = Trapped
- 3 = Snared
- 4 = Shot from aircraft
- 5 = Unknown

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 23

GEOGRAPHICAL DESCRIPTION: Kotzebue Sound

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

During March and April 1987, Department staff spent 107 hours conducting aerial wolf-furbearer track surveys in Unit 23. During April 15-17, Department staff worked cooperatively with the National Park Service (NPS) and the U. S. Fish and Wildlife Service (USFWS) locating and radio-collaring 11 wolves in the upper Selawik and Kobuk River areas. Results of these surveys and collaring efforts, as well as comments from the public, indicate that the wolf population in Unit 23 has increased from its 1985-86 level.

Mortality

Thirty-four wolves (23 males, 10 females, and one unspecified) were sealed by residents of Unit 23 during the 1986-87 season, representing nearly a two-fold increase from the 18 wolves sealed during 1985-86 (Table 1). Twenty-five wolves taken during 1986-87 were shot and six were trapped; the method of take for three was unspecified. Twenty wolves were taken by aircraft users, two by dog sled users, eight by snowmachine users, and four by unspecified users. Reported pack size averaged 3.9 wolves ($N = 25$, $SD = 1.98$).

Management Summary and Recommendations

The reported annual wolf harvest in Unit 23 has varied widely during the past 10 years. Although the magnitude of the actual harvest is unknown because of poor compliance with sealing regulations by some hunters and trappers, we do not believe that the 1986-87 reported harvest of 34 is excessive. We believe that the wolf population is presently healthy, although the size of the population is unknown.

During spring 1988, we plan to expand upon the track surveys initiated during spring 1987. Working cooperatively with the NPS and the USFWS, we plan to implement the survey technique developed by Golden (1987) as a means of determining the status and distribution of the wolf population in Unit 23.

No changes in seasons and bag limits are recommended at this time.

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Table 1. Reported wolf harvest from Unit 23, 1977-1987.

Year	Male	Female	Unknown	Total
1977-78	--	--	--	64
1978-79	--	--	--	50
1979-80	12	6	0	18
1980-81	33	17	0	50
1981-82	10	7	0	17
1982-83	25	19	4	48
1983-84	30	14	2	46
1984-85	45	20	0	65
1985-86	10	8	0	18
1986-87	23	10	1	34
TOTAL	188	101	7	410

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 24

GEOGRAPHICAL DESCRIPTION: Koyukuk River drainage above Dulbi River

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

No surveys were conducted during the report period; however, discussions with hunters and trappers suggested that wolf abundance and distribution were similar to previous years. Wolf censuses were conducted within the Gates of the Arctic National Park and Preserve. Data gathered there defined known wolf pack locations for over 70% of Unit 24. In addition, during a cooperative study with the National Park Service in Unit 23, wolves were tracked to 2 dens within Unit 24. The fall population for the unit is estimated between 320 and 350 wolves in 30-35 packs; however, this is a minimum estimate. Wolf populations are apparently stable or increasing.

Mortality

Hunters and trappers reported harvesting 38 wolves during the period. The harvest included 24 males and 14 females (23 gray and 15 black wolves).

Management Summary

Present population levels are apparently stable or increasing. This year's harvest was lower than the 10-year average. The lack of state funds for surveys has precluded more detailed assessment of wolf populations in Unit 24; however, National Park Service and other cooperators in the northern part of the unit have gathered information that is increasing our knowledge of the wolf population.

No changes to the current management regime are recommended.

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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 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

No systematic wolf surveys were conducted in Unit 25 during the reporting period; however, surveys during past years and recent observations indicate a total population of 520-630 wolves. Wolf population density is lowest in Subunit 25D (West). Wolf numbers are probably stable in all subunits; however, Subunit 25C may have an increasing population.

Mortality

Sealing records of the wolf harvest provided the only reliable mortality information; these data indicated 57 wolves were taken (Table 1). More males (37) than females (12) were reported taken, and the most common pelt color was gray (32). Most animals were taken by trapping (18); snowmachines (36) were the most common method of transportation (Table 2). The bulk of the harvest occurred during November (11), December (13), and March (18) (Table 3).

Total harvest during this reporting period was six more than in 1985-86. Among individual subunits, the largest change occurred in Subunit 25D where harvest increased by 19 wolves. Harvest in the other subunits declined, with Subunit 25B showing the largest reduction (from 20 to 3).

During 1985 a trapper education program was initiated in Subunit 25D (West) because wolf predation appeared to be a major factor limiting recovery of the low-density moose population in that area. The objective of the program was to increase the harvest of wolves and reduce their numbers during the fall from an average of about 50 to no less than 20. One aspect of this program was to increase trapper efficiency by

providing education on trapping techniques. Supplying trappers with information concerning pack movements and territories during routine survey programs was another facet of the program.

The program did not produce an increase in the take of wolves in Subunit 25D (West). The increased wolf harvest occurred in eastern Subunit 25D where trapping effort has traditionally been greater. Harvests for the 3 years before trapper education was implemented were 9, 0, and 9; the harvest during the 1st year of the program was 8 wolves, and during the 2nd year it was 1 wolf. This poor response was probably due to the inability to provide timely information on wolf pack activities. This information is impossible to collect on routine surveys in Subunit 25D (West) because wolf density is extremely low (1 wolf/140-160 mi²). Without timely information, trapper efficiency will be chronically low in this subunit. One apparent solution is to radio-collar packs and communicate information on pack activities immediately after relocations are obtained. Even then, the low wolf density would probably result in a low harvest.

The poor results from the program were not due to lack of effort by Department staff to provide trapper education or to lack of interest by local trappers. Workshops on trapping techniques were held in Stevens Village, Beaver, and Ft. Yukon during October 1985. Most of the local trappers attended these sessions and interest was high. Also, a video tape on techniques was produced and distributed to individual villages in the fall of 1986.

Management Summary and Recommendations

Wolves appeared to be abundant throughout most of Unit 25. Numbers are probably stable in all subunits, except Subunit 25C where they may be increasing. Harvest rate in Unit 25 was very low (9-11% of the population). No regulation changes are recommended.

The trapper assistance program to increase wolf harvest in Subunit 25D (West) was unsuccessful. The primary problem was lack of timely information on pack activities that could be communicated to trappers. A possible solution is radio-collaring individual packs and conveying information obtained during relocation flights to trappers.

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Table 1. Sex and pelt color of wolves taken in Unit 25, 1986-87.

Subunit	Sex			Color				Subunit total
	Male	Female	Unk	White	Gray	Black	Unk	
25A	6	3	0	0	5	3	1	9
25B	5	4	4	0	4	8	1	13
25C	1	0	0	0	0	0	1	1
25D	25	5	4	1	23	9	1	34
Totals	37	12	8	1	32	20	4	57

Table 2. Method of take and transportation used by wolf trappers in Unit 25, 1986-87.

Subunit	Method of take				Method of transportation				
	Ground shooting	Trapping	Snaring	Unk	Air-plane	Dog sled	Snow machine	Highway vehicle	Unk
25A	5	2	2	0	2	0	7	0	0
25B	0	9	3	1	1	0	11	0	1
25C	1	0	0	0	0	0	0	1	0
25D	11	7	16	0	13	3	18	0	0
Totals	17	18	21	1	16	3	36	1	1

Table 3. Month of take for wolves harvested in Unit 25, 1986-87.

Subunit	Nov	Dec	Jan	Feb	Mar	Unk
25A	1	3	0	1	3	1
25B	4	4	1	0	1	3
25C	0	0	0	0	1	0
25D	6	6	8	1	13	0
Totals	11	13	9	2	18	4

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 26A

GEOGRAPHICAL DESCRIPTION: Western Arctic Slope

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Wolf population status and trend for most of the western North Slope is not known at this time. The most recent estimate of population size was based on a survey conducted by R. Stephenson in 1982 (James 1982); during the winter of 1981-82, the population in Subunit 26A was approximately 144-310 wolves. Stephenson surveyed 10,044 mi² in the southeastern corner of the 53,643-mi² Subunit. Using the survey data, James (1982) assumed a density of 1 wolf/54-114 mi² for 25% of the Subunit and 1 wolf/653-1,524 mi² for the remaining 75%.

During April 1987, 8,226 mi² were surveyed in roughly the same area covered by Stephenson in 1982. Four or 5 packs totaling 37 wolves were observed. Combining visual sightings of wolves with track observations, an estimated 11 or 12 packs including 57-69 individuals were tentatively identified. The estimated density for the 1987 survey area was 1 wolf/119-144 mi².

Results of the 1987 surveys are similar to survey data collected in 1986 for the same drainages (Trent, unpubl. data). Methods and personnel were the same for both years. In 1986, 6,480 mi² were surveyed around Umiat, and 2 packs (9 wolves) were observed. Nine packs containing 44 wolves were tentatively identified. The estimated density for the 1986 survey area was 1 wolf/147 mi².

Surveys conducted by Adams and Stephenson (1986) in April 1986 indicated that wolf density is apparently higher in nearby Gates of the Arctic National Park and Preserve (GANP). Their survey results and the reported observations of Nunamiut residents of Anaktuvuk Pass indicated that the 10,800-mi² study area contained a minimum of 206 wolves (1 wolf/52 mi²).

Population Composition

Stephenson and Adams (unpubl. data) collected necropsy data on 43 wolves killed by Anaktuvuk Pass hunters during the 1986-87 season. Of 23 wolves reported taken from Subunit 26A, 12 were males and 11 were females. Stephenson and Adams determined ages from 14 of the 23 carcasses. Five were adults (3 males and 2 females) and 9 were pups (5 males and 4 females). Composition data from sources other than hunter harvest are not available at this time.

Mortality

The 1986-87 hunter harvest reported on sealing certificates for Subunit 26A is 4 wolves (2 males and 2 females). All were taken by one hunter from Anaktuvuk Pass. The minimum known harvest is 23 wolves, based on data provided by Stephenson and Adams. The actual number of wolves killed by hunters in Subunit 26A is certainly larger: about 51. Estimated undocumented harvest for other communities in Subunit 26A are as follows: Atqasuk, 5; Barrow, 5; Nuiqsut, 5; Point Lay, 3; and Wainwright, 10.

During 1985-86, hunters killed a minimum of 51 wolves in Subunit 26A, but the actual hunter-caused mortality was estimated to range from 72-90 wolves. Adams and Stephenson (1986) documented a minimum of 37 wolves harvested by Anaktuvuk Pass hunters during 1985-86. No estimate of harvest for Anaktuvuk Pass was available in 1984-85 for Subunit 26A. The reported 1984-85 harvest for Subunit 26A was eight, and the estimated total harvest was 16-24. The 1983-84 reported harvest was 2 wolves; in 1982-83, 7 wolves were reported harvested.

The higher reported mortality during the last 2 seasons (1986-87 and 1985-86) is partially due to better quality data obtained by National Park Service research efforts in Anaktuvuk Pass. However, the increase in hunter harvest from previous years is also probably accurate, according to observations made by Adams and Stephenson (1986) and by hunters in Anaktuvuk Pass.

Wolf track surveys conducted in 1987 indicated that hunter-caused mortality may be higher than in past years. In the open terrain north of and adjacent to GANP, we saw very little sign of undisturbed wolf activity. The only pack encountered in either the Anaktuvuk or Chandler River drainages consisted of 2 animals that were very wary.

It is difficult to determine whether the overharvesting of wolves has occurred recently in the the southeast portion of

Subunit 26A. Reliable harvest data from Anaktuvuk Pass have been available for the last 2 years, but this does not apply to the other 5 communities in the Subunit. There are also continuing problems in obtaining valid estimates of wolf density. Finally, we have not yet established biological criteria that adequately define an overharvest situation.

Management Summary and Recommendations

Heavy wolf hunting pressure has been documented for the southeastern portion of Subunit 26A during the last 2 seasons. This mortality is almost exclusively due to snowmachine hunters operating in open terrain (i.e., characterized by limited escape cover). Stephenson (pers. comm.) has expressed concern that intensive spring hunting may disrupt the breeding of adult females and temporarily eliminate packs from a geographic area. He suggests consideration of a 31 January closure, which would allow for uninterrupted breeding and a consequent increase in pack size. Stephenson believes that more wolves, especially pups, would be available to hunters and trappers when seasons open in the fall. This idea merits consideration by the residents of Anaktuvuk Pass. I plan to discuss this concept with the community during spring 1988.

Past reports have emphasized problems encountered with harvest reporting through use of fur sealing certificates (Trent 1984, 1985). These problems still exist and must be remedied. However, at this time the highest priority is to calculate density and population estimates for Subunit 26A so that the impact of relatively high wolf harvests of the past 2 seasons can be interpreted. It will also allow a better evaluation of the relationship between wolves and their prey species.

No changes in seasons and bag limits are recommended at this time.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS: 26B and 26C

GEOGRAPHICAL DESCRIPTION: Arctic Slope east of and including the Itkilik drainage and east of the east bank of the Colville River

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Hunting and Trapping Regulations No. 27.

Population Status and Trend

Wolf numbers in Subunit 26B have increased since the late 1970's; however, relative to available prey, they have remained low. Long-term trends are less well known in Subunit 26C, but the population currently appears to be stable.

No recent population estimates are available for Subunit 26B; there are probably no more than 30 wolves present. U.S. Fish and Wildlife Service biologists estimated a fall population of 30-40 wolves in Subunit 26C.

Mortality

Three male wolves were shot in Subunit 26B in November, and 1 female was trapped in December 1985. These data were not included in last year's report. Two females were shot in Subunit 26B during the 1986-87 regulatory year, and 2 males were shot in Subunit 26C. At least 1 additional wolf was shot in Subunit 26C during winter 1985-86. These are minimum harvest figures. It is likely that combined legal (including unreported) and illegal takes are limiting wolf numbers, at least in Subunit 26B.

Management Summary and Recommendations

General observations by Fish and Wildlife Protection officers indicate illegal take remains a problem, and continued enforcement efforts are necessary. Information and education programs are also necessary to inform local village residents of the requirement to seal wolves. Otherwise, no changes in seasons or bag limits are recommended at this time.

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