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ANNUAL REPORT OF SURVEY - INVENTORY ACTIVITIES

PART IV. WOLF, FURBEARERS, WOLVERINE, SMALL GAME AND WALRUS

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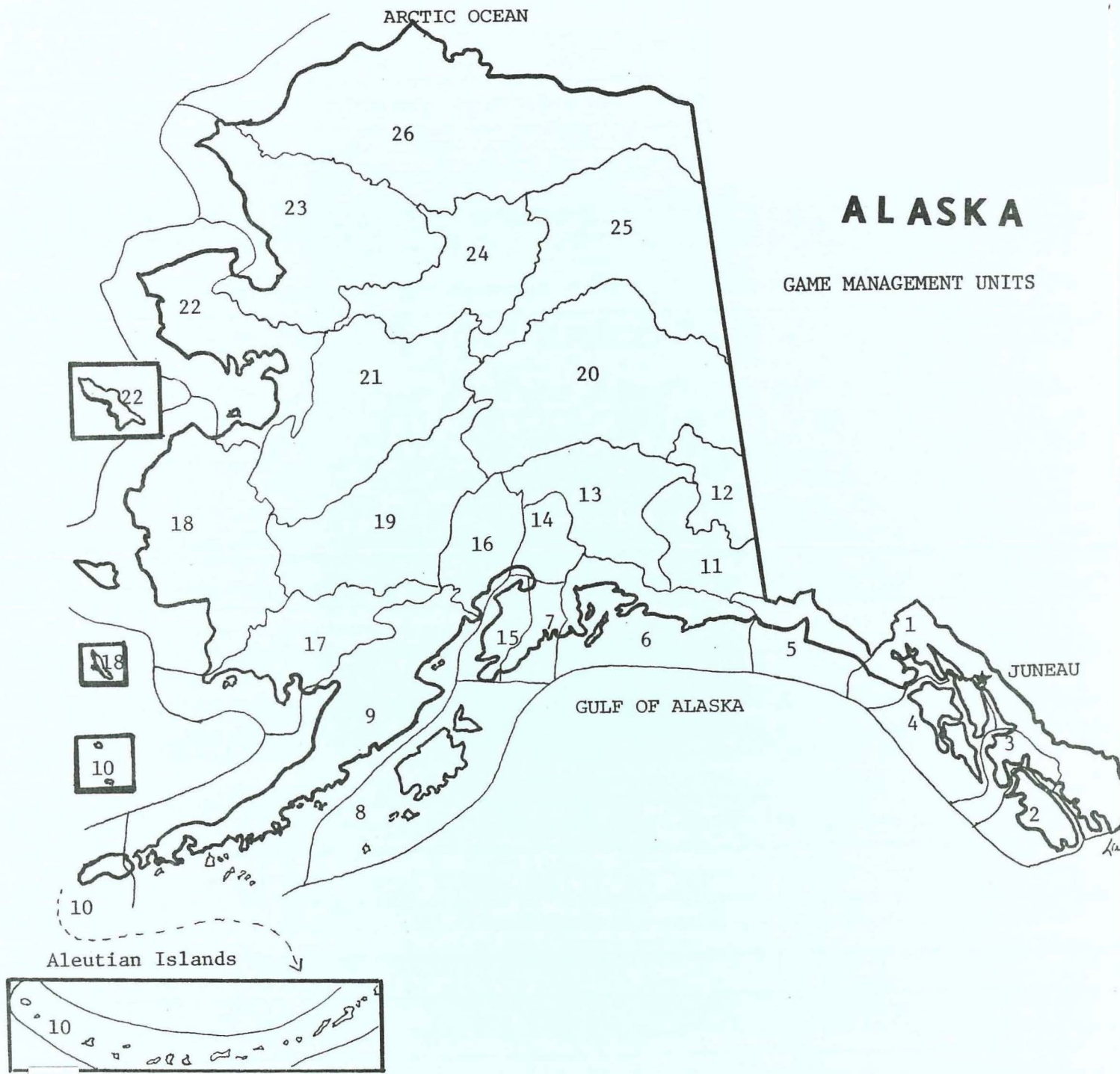
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(Printed March 1981)



STATEWIDE HARVEST AND POPULATION STATUS

Wolf

Wolves were abundant in much of their range in the State, particularly in Units 7 and 15, 11, 19, 20, 21 and 24. On the Arctic Slope (Unit 26) populations are low. At the same time, harvests were considerably reduced in most units, reflecting the mild winter that made trapping and shooting difficult. Harvests in Units 11, 20, 23 and 24 were particularly reduced; that for Unit 23 (16 wolves) was the lowest on record.

Furbearers

Furbearer reports are included for southeast, interior and arctic units, and on a variety of species depending on data available and relative importance in each area. Wolf data, covered in wolf reports elsewhere, are included here in Units 1A and 2; similarly, wolverine, lynx and land otter (subjects of separate species reports in some units) are reported for Units 18-26.

Results of a trapper questionnaire in Interior Units (12, 19, 20, 21, 24 and 25) are presented.

Although it is difficult to generalize for so many species in such a wide area, furbearer populations are generally healthy and little affected by trapping, with possible exception of beavers in a few areas. Harvest levels vary, depending on market and environmental conditions.

Wolverine

Reports on wolverines are presented for 5 units. Statewide populations appear to be generally stable. Harvests presented are near the long-term average. Of units covered, Unit 13 leads in harvest with 81 followed by Unit 9 (64 wolverines) and Unit 16 (55 wolverines).

Small Game

Reports on small game (grouse, ptarmigan, hares) are presented for Interior Alaska (Units 12, 19, 20, 24 and 25) and Units 22 and 23. Results of the statewide small game abundance survey are also presented. Grouse populations increased statewide, except in western Alaska; ptarmigan were at moderate levels, except in Unit 9 (low) and in western Alaska (high). Hare populations were low to moderate except in western Alaska and the Arctic where they were high.

Walrus

Because walrus management is presently under Federal jurisdiction, the only report included here is that concerning management of the Walrus Islands State Game Sanctuary. Management of this area is for non-consumptive and scientific purposes.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 5

GEOGRAPHICAL DESCRIPTION: Malaspina and Yakutat
Forelands, Gulf of Alaska

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting	No closed season	No Limit
Trapping	Nov. 10 - April 30	No Limit

Population Status and Trend

Observations indicate the general population trend for wolves in Unit 5 is stable to increasing, with good reproduction and survival, particularly on the Yakutat Forelands (5A). This increase is probably attributable to an increasing moose population, a good variety of alternate food sources (the most abundant and widespread being salmon), and six relatively mild winters back to back.

Population Composition

No aerial surveys were conducted specifically to locate wolves but sightings and tracks were recorded incidental to other big game surveys and local trappers and pilots were interviewed to gather supplemental information on wolf densities. Wolf sightings were numerous, providing new data on which to base population estimates. Based on these data, the wolf population on the Yakutat Forelands is estimated to be 45-50 animals. Distribution, pack size, and observed spring production is shown in Table 1.

Wolf sightings and sign observations have increased on the Malaspina Forelands (5B) in recent years, indicating an increase in the population. Although actual sightings are rare, sign is readily observed along the beach in early spring and summer. Reports of increased wolf activity in the Icy Bay area have also been received from big game guides utilizing that area. A conservative minimum population estimate is about 10 wolves across the Forelands.

TABLE 1: Distribution, pack size and observed production of wolves on the Yakutat Forelands during the period from July 1, 1979 to June 30, 1980.

Pack Location	Estimated Winter Pack Size	Observed Spr. Composition	
		Adults	Pups
Situk River	9-11	5	4
Dangerous River	9-10	5	3
Italia River - Akwe River	11	11	-
Alsek River	10-12	5	5
East River - Doame River	7	3	3

Management Summary and Recommendations

Wolf numbers throughout Unit 5 appear to be increasing in spite of an annual harvest level of approximately 20 to 25 percent of the estimated population for the past 2 years. This increase probably reflects good pup survival and is related to a series of mild winters and abundant food in the form of moose, goats, salmon, snowshoe hares and beavers. To reduce the threat of increased predation on moose and goats caused by rising wolf population levels, the liberal hunting and trapping seasons should be retained and the public should be encouraged to take advantage of an opportunity for additional recreation and a possible cash return from furs. No change in season or bag limits is recommended at this time.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS 7 and 15

GEOGRAPHICAL DESCRIPTION: Kenai Peninsula

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting	Aug. 10-April 30	Two wolves-Unit 7 Four wolves-Unit 15
Trapping	Nov. 10-March 31	No Limit

Population Status and Trend

Wolf surveys were not conducted during winter 1979-80. The number of wolves, however, was probably unchanged from the U.S. Fish and Wildlife Service's estimate of 186 which was determined in 1978.

Population Composition

No data were available.

Mortality

The chronology of wolf harvest, obtained from sealing documents, is summarized below:

August	0
September	2 (5%)
October	0
November	1 (3%)
December	6 (15%)
January	7 (18%)
February	12 (30%)
March	12 (30%)
April	0

Forty wolves were reported killed in Units 7 and 15 during the hunting and trapping season. The harvest was composed of 20 (50%) males, 19 (48%) females and 1 (3%) sex unknown. Four additional wolves were reported taken as non-sport kills.

Age data derived from known age tagged animals or by examination of front leg bones indicated that 54 percent of the harvest was adults and 46 percent was pups (N=26).

Management Summary and Recommendations

The sport harvest of 40 wolves in Units 7 and 15 indicates 22 percent harvest, assuming the pre-harvest population estimate of 186 wolves was correct. The low harvest probably resulted from poor hunting and trapping conditions, primarily in Unit 7.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 11

GEOGRAPHICAL DESCRIPTION: Wrangell Mountains

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting Aug. 1-April 30 Two wolves

Trapping Oct. 1-April 30 No limit

Population Status and Trend

Field observations and comments from the public suggested an abundance of wolves in Unit 11.

Population Composition

No data were available.

Mortality

Six wolves, three males and three females, were reported killed in Unit 11. Four wolves were trapped and two were shot.

Management Summary and Recommendations

The wolf harvest decreased dramatically from the previous year's harvest of 40 wolves (Tobey 1980). Several wolf hunters known to be successful in past years did not hunt in the Unit during the 1979-80 season. It is possible that some wolves killed in Unit 11 were intentionally reported as killed in other units because Unit 11 includes the Wrangell-St. Elias National Monument where sport hunting and commercial trapping are prohibited.

Unit 11 can sustain a higher wolf harvest than reported this year. Therefore no changes in season or bag limit are recommended.

Literature Cited

Tobey, R. W. 1980. Wolf Survey-Inventory Progress Report. In R. A. Hinman, ed. Annual Report of Survey-Inventory Activities, Part IV. Alaska Fed. Aid in Wildl. Rest. Rep., AK. Dept. Fish and Game, Juneau. 1p. (Multilith).

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 13

GEOGRAPHICAL DESCRIPTION: The Nelchina Basin

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting Aug. 10-April 30* No limit

Trapping Oct. 1-April 30* No limit

* That portion of Subunit 13A which includes all drainages that flow into the Susitna River west of the Lake Louise Road, the west shore of Lake Louise, Susitna Lake, Tyone Lake and River to its confluence with the Susitna River was closed to taking of wolves by emergency order from November 1, 1979 until March 31, 1980.

Population Status and Trend

The Unit 13 wolf population decreased from 1975-77 because of heavy trapping pressure by the public and control by the Department for research purposes (Ballard et al., In Press). Since 1978 the size of packs and the number of packs under study have increased. Due to immigration, wolves are now present in control areas where they were eliminated or greatly reduced during the past 3 years. The wolf population is comprized of 20-30 packs (Ballard et al., In Press). Additionally, wolf sightings and track observations indicated that unknown numbers of single wolves are present within the Unit.

Population Composition

No data were available.

Mortality

The harvest for 1979-80 was 57 wolves which included 28 males, 28 females and 1 sex unknown. Trapping was the most successful method of harvest. The choronology of harvest and the method of take data are shown in Appendix I.

Management Summary and Recommendations

The wolf harvests have declined over the past few years in Unit 13. Concurrent with this decline, wolf numbers have increased since 1978. The cessation of Department wolf control and the closing of all or part of Unit 13A for 2 years aided this recovery. The overall wolf population, however, has not increased to the 1975 level.

Literature Cited

Ballard, W. B., R. O. Stephenson, and T. H. Spraker.
In Press. Report on Nelchina Basin Wolf Studies.
Alaska Fed. Aid Wildl. Rest. Proj., W-17-9 and
W-17-10.

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Appendix I. Wolf harvest data, 1979-80 - Unit 13^a.

Total Wolf Harvest:	57
Harvest Chronology, Number (Percent)	
September:	4 (7%)
October:	0
November:	9 (16%)
December:	17 (30%)
January:	9 (16%)
February:	11 (19%)
March:	5 (9%)
April:	2 (3%)
Method of Take, Number (Percent)	
Ground Shooting:	20 (35%)
Trapping:	31 (54%)
Snaring:	4 (7%)
Other:	2 (4%)

a. Harvest data are based on sealing data only.

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 19

GEOGRAPHICAL DESCRIPTION: Upper and Middle Kuskokwim River Drainages

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting	Aug. 10 - Apr. 30	No limit
Trapping	Oct. 1 - Apr. 30	No limit

Population Status and Trend

Overall, wolves were moderately abundant in Unit 19, but numbers varied considerably within the Unit. Moderate wolf populations existed throughout Subunits 19A and 19B; in portions of 19C and 19D numbers were high. Aerial surveys in the North and Slow Forks (Subunit 19D) indicated a population of 28 wolves--three packs comprised of 12, 8, and 6 animals each plus 2 lone wolves. Elsewhere in Subunit 19D wolves were less abundant. Reports from guides and personal observations of tracks suggested high numbers of wolves along the foothills of the Alaska Range in Subunit 19C.

Population Composition

Only some of the wolves taken in Unit 19 were examined to determine age. Thirty-one percent of the animals examined were pups which is not significantly different from the proportion of pups in the 1978-79 harvest. Among the 47 wolves taken during the 1979-80 season, 21 were males, 23 were females, and 3 were of undetermined sex.

Mortality

Aerial hunting (by permit) to reduce wolf numbers in Subunits 19A and 19B was unsuccessful because of poor snow and weather conditions. The Unit 19 wolf harvest by all means, including aerial hunting, was 47 wolves. The impact of this small take on the Unit-wide wolf population is negligible.

Management Summary and Recommendations

Wolf hunting should be encouraged in portions of Subunits 19A, 19C, and 19D. Aerial permits should be used to increase

harvests in the North Fork drainage and Subunits 19A and 19B. A survey to determine wolf numbers in Subunit 19C is needed.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 20

GEOGRAPHICAL DESCRIPTION: Central Tanana Valley

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting	Aug. 10 - Apr. 30	No limit
Trapping	Oct. 1 - Mar. 31	No limit

Population Status and Trend

Wolf numbers remained high throughout most of Subunits 20B-E. Subunit 20A contained moderate wolf densities.

Survey data and reports from trappers and aerial hunting permittees indicated that wolf populations have stabilized at high levels in portions of Subunit 20A not affected by the wolf reduction program. Surveys were not conducted in Subunit 20B, or the Volkmar, Goodpaster, Salcha, Shaw, and Birch drainages, but there is no reason to suspect any significant change from the fall 1979 population of 205 wolves for this area. Likewise, the status of wolves in Subunit 20D probably remained unchanged from the 40 wolves present during the 1978-79 season. Current information from western portions of Subunit 20C was not obtained, but the status of ungulates in this area indicated that wolf numbers were high enough to retard increases of moose and caribou populations. Spring 1980 surveys were conducted in Subunit 20E and provided a population estimate of approximately 125 wolves. Because previous surveys have not been conducted in Subunit 20E, status and trend of this wolf population cannot be evaluated. Predation by wolves is however suspected to be a significant factor in the downward trend in the Subunit 20E moose population.

This period marked the fifth consecutive year of Department wolf reduction programs in portions of Subunits 20A and 20C south of the Tanana River between the Delta and Nenana Rivers (control area). Few wolves were taken during 1979-80 and in spring 1980 the population was 50-70 wolves. Low recruitment of pups into the population during 1980 may indicate a reduced rate of increase; nevertheless, the projected fall 1980 population is expected to be 70-100 wolves.

Population Composition

The total Unit 20 harvest consisted of 29 and 39 percent pups and females, respectively. Pups comprised 31 percent of the wolves taken in the control area. Elsewhere in the Unit, 29 percent of the harvest was pups. This suggests that production remained stable in the control area but declined 39 percent in the remainder of Unit 20 between winter 1978-79 and 1979-80. Twenty-three percent of the wolves taken in the control area was females. Elsewhere in the Unit females comprised 43 percent of the harvest.

Mortality

The reported harvest for the 1979-80 season was 82 wolves (Table 1), a 29 percent decline from the previous take of 115 wolves.

Permits to shoot wolves with the aid of fixed-wing aircraft in portions of Unit 20 were issued between 11 February and 24 March 1980. Although 36 permits were issued for Subunit 20B and that portion of Subunit 20C including the Salcha, Goodpaster, Shaw, and Volkmar drainages, permittees took only three wolves. No permits were issued for Subunit 20D even though permits were available. Nine permits were issued to hunt in Subunit 20A, but no wolves were taken. In many cases permittees lacked experience to effectively hunt wolves from the air. Furthermore, unfavorable tracking conditions hampered both permittees and Department hunters. In the control area Department hunters took only three wolves.

Conventional methods of harvesting wolves (trapping, snaring, and ground shooting) accounted for only 76 animals from Unit 20. This small harvest did not reflect a scarcity of wolves. The relatively low catch in 1979-80 resulted from unfavorable trapping conditions and reduced trapping effort resulting from declining wolf pelt values.

Management Summary and Recommendations

Imbalanced wolf/ungulate ratios throughout most of Unit 20 necessitate a more intense predator management scheme than has existed since the prohibition of aerial hunting. Declining moose populations are evident in portions of Unit 20 unaffected by wolf reductions. Efforts to increase wolf harvests by allowing limited aerial hunting were unsuccessful due to lack of experience and inadequate snow cover. Nevertheless, controlled aerial hunting by the public should continue until the downward trend in moose numbers is reversed. Terrain, vegetative cover, and poor tracking conditions often make aerial wolf hunting difficult in much of Unit 20. Therefore, in certain areas aerial hunting by Department personnel and employment of experienced trappers should supplement hunting by the public.

During winter 1979-80 wolves were not reduced to the desired level in all portions of the control area. Wolf numbers remain at low, moderate, and high levels in the Tanana Flats, eastern and central foothills, and southwest portions of the Subunit, respectively. Because of these variations in wolf densities, aerial hunting by Department personnel and the public should be directed to areas lying south and west of the Tatlanika drainage. Reduction of wolf numbers in this area will allow more uniform growth of moose populations.

Wolf distribution information should be obtained from the following portions of Subunit 20C: the area lying south and west of the Haul Road and north of the Tanana River; and that portion of Subunit 20C lying south of the Tanana River, west of the Nenana River, and north of McKinley Park. It is suspected that imbalanced wolf/moose ratios also exist in these areas. If this is true, these portions of Subunit 20C should be incorporated into existing wolf management programs.

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Table 1. Unit 20 wolf harvest, 1979-80 regulatory year.

Subunit	Age			Sex			Total
	Pup	Adult	Unknown	Male	Female	Unknown	
<u>Trapping/Sport Harvest</u>							
20A & 20C*	2	8	1	9	1	1	11
20B	5	9	-	7	7	-	14
20C	7	26	-	17	9	7	33
20D	2	3	-	2	3	-	5
20E	4	7	2	7	6	-	13
<u>Public Aerial Hunting</u>							
20C	1	2	-	2	1	-	3
<u>Departmental Harvest</u>							
20A & 20C*	2	1	-	1	2	-	3
Unit Total	23	56	3	45	29	8	82

* Control area.

WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 21

GEOGRAPHICAL DESCRIPTION: Middle Yukon River Drainage

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting	Aug. 10 - Apr. 30	No limit
Trapping	Oct. 1 - Apr. 30	No limit

Population Status and Trend

Wolf surveys conducted on State lands within the Innoko and Nowitna River drainages revealed populations of 61 and 58 wolves, respectively. Minimum population estimates made in 1979 for the drainages were 104 (Innoko) and 79 wolves (Nowitna). Wolf populations in both areas were higher during winter 1979-80 than the previous year primarily due to higher pup survival.

No surveys were conducted in other portions of Unit 21. Observations made during moose surveys in the Koyukuk drainage indicated wolf numbers similar to those observed in previous years. Wolves were notably abundant within the Melozitna River drainage.

Prior to the 1979-80 hunting and trapping seasons, wolf populations had increased throughout the Unit. Significant harvests of wolves from State lands in the Innoko and Dulbi River drainages substantially reduced wolf numbers. Harvests in the upper Nowitna drainage negated any population increase and may have slightly depressed wolf numbers. Elsewhere in Unit 21 wolf populations were not affected substantially by the 1979-80 harvest.

Mortality

During the 1979-80 season 95 wolves were reported harvested in Unit 21 compared to 72 the previous year. The majority of wolves (68) was taken from the Nowitna and Innoko drainages where the Department conducted wolf control activities and issued aerial hunting permits to residents. Twenty-one wolves were taken from the Koyukuk drainage and the remaining six were taken from scattered localities throughout the Unit.

The harvest was comprised of 48 percent adults and 52 percent pups (N=65); 56 percent female and 45 percent male wolves

(N=72); and 55 percent gray, 38 percent black, 4 percent brown, and 3 percent white wolves (N=69). Data from some wolves were not recorded on sealing forms. Additionally, in the Nowitna and Innoko areas 15 wolf carcasses were lost to other wolves or bears or were not retrieved during wolf control activities.

The percentage of pups in the 1979-80 harvest (52%) was considerably higher than in the 1978-79 harvest (30%) or 1977-78 harvest (24%). Age of wolves taken during the 1979-80 season had no apparent relationship to area or method of take. Pups comprised 48 percent of the take from the Koyukuk drainage (N=21), 64 percent of the Nowitna drainage take (N=11), and 54 percent of the take from the Innoko drainage (N=28). Most wolves (87%) were taken by either aerial or ground shooting--methods which are only slightly selective towards pups. The apparent high production and survival of pups may be related to the availability of snowshoe hares which have increased dramatically throughout Unit 21 during the last 2 years.

Management Summary and Recommendations

Hunting and tracking conditions were poor during most of the winter, with exception of a 7-10 day period in mid-March when much of the 1979-80 harvest occurred. The increased harvest during 1979-80 resulted from greater effectiveness of permittees hunting from the air (Innoko drainage) and Department wolf control efforts.

Wolf control programs were considerably more effective than the previous year. Wolf populations were reduced 41 percent and 67 percent on State lands in the Nowitna and Innoko River drainages, respectively. The level of harvest in the Innoko area will substantially benefit the moose population.

The percentage of pups in the harvest in some portions of Unit 21 indicates the potential for an increasing wolf population. Wolf numbers in these areas should be closely monitored. An increase in the wolf population, followed by a crash in the hare population, could significantly affect moose and caribou numbers, especially on Federal lands where landing and shooting wolves may be prohibited.

Efforts to control wolves in the Nowitna and Innoko areas should continue until ungulate populations are restored to former numbers. Aerial surveys should be conducted in Subunit 21C and adjacent portions of Units 24 and 25 to determine moose and caribou abundance in relation to wolf numbers.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 22

GEOGRAPHICAL DESCRIPTION: Seward Peninsula

PERIOD COVERED: July 1, 1979 - June 30, 1980

Season and Bag Limit

Nov. 1-Apr. 15

No limit

Population Status and Trend

The history of wolf management on the Seward Peninsula has been one of intensive predator control, primarily in conjunction with the reindeer industry. Since 1972, predator control has been ineffective because State and Federal regulations have, at times, precluded the efficient use of aircraft. In addition, the low wolf density and the spotty distribution of wolves made extensive predator control uneconomical except in those cases where there was a regular occurrence of wolf predation on closely managed reindeer herds. Consequently, the wolf population appeared to gradually increase in numbers and expand westward during the 70's. In recent years wolves have been sighted as far west as Shishmaref, and as far east as the Unit 22 boundary. However, wolves seen in "peripheral" areas were generally traveling alone or in small groups of two or three animals. Recent observations indicated the largest wolf concentration occurred in the central Seward Peninsula where evidence of three packs was seen. A pack of at least eight wolves was utilizing the upper Kuzitrin drainage in the vicinity of the lava fields. On several occasions, tracks of two or more packs totaling 20 individuals were observed in the Bendeleben Mountains primarily in the foothills surrounding McCarthy's Marsh. Tracks also indicated a small pack was regularly using the drainage of the upper Koyuk River. Unconfirmed reports were received of one or more small packs residing further to the east in the Ungalik drainage. Based on sealing data, wolf sign, and actual sightings, the wolf population in Unit 22 was estimated to be 50 to 100.

Population Composition

No surveys were conducted to determine the composition of the wolf population.

Mortality

No natural mortality was reported during this period; however, considering low wolf and high prey density mortality from natural causes was probably low, especially among adults.

Hunting mortality was light as well. The reported harvest was only four wolves, two animals of each sex. All of the wolves were taken by ground shooting which in part attested to the little effort to take wolves, particularly by trappers. The annual harvest for the last 18 years has averaged 9, and ranged from a low of 2 (1975) to high of 28 during the 1967-68 season.

Although there were sealing officers in most villages, it is conceivable that not all the wolves killed were submitted for sealing. Commonly, wolf hides were used for garments shortly after the animal was taken, and in some cases the hide may not have been sealed. The actual harvest was estimated to be less than 10 wolves.

Management Summary and Recommendations

When emphasis on predator control declined in the early 1970's, a gradual increase in wolf numbers and an expansion of their range occurred throughout most of Unit 22. Wolf populations in the "peripheral" areas are still low, and are moderately high in the central Seward Peninsula where the greatest densities occur. If the present trend continues, the Department can expect more requests for active predator control, particularly from reindeer herders. Requests for aerial wolf hunting permits should be honored when predation problems actually exist. More enforcement effort should be directed toward gaining compliance with the sealing regulations so accurate information is available to document harvest trends. A realistic estimate of the wolf population should be obtained as well as an assessment of impact that wolf predation has upon ungulate populations. It is recommended that hunting season and trapping bag limits remain liberal.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 23

GEOGRAPHICAL DESCRIPTION: Kotzebue Sound

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting	Aug. 10 - Apr. 30	No limit
Trapping	Nov. 1 - Apr. 15	No limit

Population Status and Trend

No information was available.

Population Composition

No information was available.

Mortality

The 1979-80 reported harvest was 16 wolves (10 males, 6 females); 10 were gray, 3 black, 1 white and 2 of undetermined color.

Age analyses, determined by examining the fusing ends of radius and ulna bones, revealed 63 percent adults, 12 percent pups and 25 percent of undetermined age.

Ninety-four percent of the harvest was taken by ground shooting and 6 percent by trapping. The majority of the harvest was from the Kobuk drainage with 56 percent, 19 percent from the Noatak drainage, 12 percent from that area lying west of the Noatak drainage and 12 percent from the Selawik drainage.

Chronology of the harvest was as follows: November - 1; December - 2; February - 4; March - 7; April - 2.

Management Summary and Recommendations

The harvest of 16 wolves is the lowest on record. The take of 16 wolves is believed to be below the sustainable yield of the Unit's wolf population.

The low harvest was caused, in part, by the absence of trappers who have been using aircraft for transportation.

The current population status is unknown. In April 1980 an attempt was made to survey the Unit. The survey had to be aborted before it started because of deteriorating snow conditions.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 24

GEOGRAPHICAL DESCRIPTION: Koyukuk River Drainage

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting	Aug. 10	Apr. 30	No limit
Trapping	Oct. 1	Apr. 30	No limit

Population Status and Trend

For the second consecutive year no aerial surveys were conducted in Unit 24. Since the harvest declined considerably due to poor hunting conditions, the Unit 24 wolf population probably increased.

Mortality

Based on sealing certificates, 48 wolves (23 males, 19 females, 6 of undetermined sex) were taken during the 1979-80 season compared to a take of 89 the previous year. The decrease in harvest is generally attributed to poor tracking conditions from February through April. Snow depth was sufficient, but during the period of most wolf hunting and trapping only one snowfall deep enough for good tracking occurred. Similar to previous years, gray wolves outnumbered black wolves about 2 to 1 in the harvest. Of the 37 wolves for which age was determined, 36 percent was pups.

In many instances sealing certificates were not fully completed. Of the 48 wolves taken, 6 were of undetermined sex, 3 of unknown pelt color, 11 of unknown age, and 18 were taken in an unknown manner. In addition, 39 wolves were reported taken from the Koyukuk drainage. Since the entire Unit is a portion of this drainage, it is impossible to identify precisely where wolves were taken.

Management Summary and Recommendations

The harvest of wolves declined due to poor hunting conditions. A larger take is expected in the northwestern interior if normal winter weather patterns

return. Surveys should be conducted in specific areas to determine status and trend of wolf populations and to assess possible wolf/ ungulate problems. Better information on the location of take is necessary for management purposes.

PREPARED BY:

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SUBMITTED BY:

Oliver E. Burris
Regional Management
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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 25

GEOGRAPHICAL DESCRIPTION: All drainages into the north side of the Yukon River upstream from and including the Tozitna River

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting	Aug. 10 - Apr. 30	No limit
Trapping	Oct. 1 - Apr. 30	No limit

Population Status and Trend

At present the distribution and abundance of wolves in Unit 25 are unknown. An assessment of the population status and trend will not be possible until these basic data are obtained.

Population Composition

No surveys to indicate composition and productivity of the wolf population were conducted. Only harvest information is available and these data normally are biased because of the vulnerability of young wolves to trapping and hunting.

Mortality

Fifty-five wolves were harvested in Unit 25 during the 1979-80 season according to sealing records. This compares to 26 taken during the 1978-79 season and 37 taken during the 1977-78 season. It is difficult to determine whether the increased harvest was due to increased hunting and trapping effort, increased numbers of wolves, or improved reporting. Although the reported harvest has been low for the preceding 2 years, high harvests have occurred in the past. During the 1976-77 season 103 wolves were taken in Unit 25.

Distribution of the harvest was as follows: 14 from the Chandalar drainage, 8 from the Sheenjek drainage, 2 from the Coleen drainage, 9 from the Porcupine drainage, 19 from the Black drainage, and 3 from the Kandik drainage. Trapping and snaring accounted for 95 percent of the harvest. The remaining 5 percent was taken by ground shooting.

According to leg bone development, 30 percent of the harvest consisted of pups. Fifty-six percent of the wolves harvested were gray in color and 33 percent were black.

Management Summary and Recommendations

The annual harvest of wolves in Unit 25 has fluctuated from 26 to 103 during the past 7 years. The 1979-80 harvest was approximately equal to the average annual take for the preceding 6 years. From these harvest data no trend in wolf populations is evident. Trapping effort fluctuates annually depending on fur prices, availability of alternate income, and other factors.

Moose are in great demand as a source of human food in Unit 25. Since wolves are a major moose predator, further information should be gathered on the impact of wolf predation on moose populations. Surveys to determine wolf distribution and abundance will be scheduled for some portions of Unit 25 during winter 1980-81. Meanwhile, the harvest of wolves should be encouraged. There is no reason to suspect that an increased harvest of wolves would be detrimental to the wolf population; however, a temporary reduction in wolf numbers would almost certainly benefit low moose populations in the Unit.

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WOLF

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 26

GEOGRAPHICAL DESCRIPTION: Arctic Slope

PERIOD COVERED: July 1, 1979 - June 30, 1980

Season and Bag Limit

Hunting	Aug. 10-April 30	No limit
Trapping	Nov. 1-April 15	No Limit

Population Status and Trend

No wolf population surveys were conducted in Game Management Unit 26 during this period. However, aerial surveys conducted in spring 1980 for caribou throughout much of the unit and for moose in the Colville River drainage provided Department biologists an opportunity to look for wolves or their sign during several hundred man-hours of low altitude flying in both fixed-wing aircraft and helicopters. In addition, portions of the upper Utukok River drainage were flown intensively in connection with brown/grizzly bear and wolverine studies. Only a few wolves and sign (principally tracks) were observed. In July 1979, an active den was located by personnel of the U.S. Fish and Wildlife Service on a tributary of the Hulahula River. Based upon these surveys and additional casual observations, the wolf population in Unit 26 is very low. Densities vary within the unit, being highest in the mountain and foothill areas and lowest on the coastal plain. The low number of wolves in Unit 26 continues a trend that has existed for the past several years.

Population Composition

No composition surveys were conducted during the period covered by this report. The sex composition of the 15 wolves reported taken was 10 (67%) males, 4 (27%) females; the sex was not reported for 1. The age composition of the wolves killed was: adults, 67 percent; pups, 27 percent; unknown age, 6 percent.

Mortality

During the 1979-80 regulatory year, 15 wolves were taken in Unit 26 and presented for sealing. This number is less than the reported kill for the 4 previous years (1975-76: 34; 1976-77: 35; 1977-78: 36; 1978-79: 27). These records do not include wolves

killed but not sealed. Although other wolves probably died (or emigrated) in GMU 26, during the period covered, no other deaths were reported.

Of the reported harvest, 47 percent of the wolves killed were taken by nonresidents of the unit. Of the seven hunters/trappers that reported taking wolves, two were not Unit residents and one of these was not a resident of Alaska.

Management Summary and Recommendations

The wolf population in Unit 26 continues to remain low even though important prey species such as the caribou populations have remained stable (Porcupine and Central Arctic Herds) or have grown (Western Arctic Herd) during the past several years. Apparently hunting/trapping pressure and natural mortality factors have kept the wolves from increasing.

With the existence of the Gates of the Arctic National Monument in the south central portion of this unit, fewer wolves might be taken each year in that area because of Federal regulations restricting hunting and trapping within the Monument. Given added protection in the central Brooks Range and a relatively stable food supply in the eastern third of the Unit and an increasing food supply (caribou) in the western two-thirds of the unit, we should expect wolf population to increase over the next few years.

No changes in seasons and bag limits are recommended at this time, however, if the wolf population does not increase within the next few years or worse, shows signs of further decline, then some additional restrictions on harvest should be considered.

PREPARED BY:

SUBMITTED BY:

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Robert E. Pegau
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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS 1A and 2

GEOGRAPHICAL DESCRIPTION: Ketchikan - Prince of Wales

PERIOD COVERED: July 1, 1979 - June 30, 1980

Population Status and Trend

The wolf population, based on harvest, appears to be stable at a fairly low level. Snow conditions during the past several years have not permitted any surveys to be flown.

Marten populations appear to have remained fairly high with the exception of localized areas of heavy trapping.

Mink populations have remained high in most areas but fur prices for mink have been rising and trapping effort for them has been increasing.

Otter populations are apparently holding somewhat below the level of a few years ago. Pelt prices increased several years ago and have remained fairly high. Trapping pressure has been quite heavy.

Population Composition

No data were available.

Mortality

The wolf harvest for both Game Management Units 1A and 2 this year is almost identical to last year's harvest. In Unit 1A, 20 wolves were taken, 14 of which came from Revilla Island. There were 12 females and 8 males in the harvest and all were brown except 1 black was taken on the mainland and 2 black wolves were taken on Revilla Island. Seven of the 20 were shot and 13 were trapped. In Unit 2, 10 wolves were sealed, 7 of which were males. Six of the 10 were trapped and 4 were shot. One was black and 9 were brown. In Unit 1A, 80 percent of the wolves were taken from December through March while in Unit 2, 60 percent were taken during this same period.

Three wolverines were taken in Game Management Unit 1A this year, down from 11 taken in 1978-1979. The sex ratio was 2 males and 1 female and all were trapped.

Beaver trapping is not important in these two Units and harvests fluctuate considerably depending on effort. In 1979-80, the prices were up somewhat and trapping effort increased substantially. In Unit 1A, 67 beavers were taken, up from 6 taken the year before. In Unit 2, the harvest rose from 11 in 1978-79 to 53 in 1979-80.

The harvest of 126 otters from Unit 1A is down 14 percent from that of 1978-79 while in Unit 2, the harvest rose 23 percent from 183 in 1978-79 to 226 in 1979-80. The sex ratio of the harvest was 52 percent males in Unit 2. The number of trappers sealing otters in 1979-80 was 20 in Unit 1A and 31 in Unit 2, essentially no change from 1978-79.

Mink and marten harvest figures were obtained from a tabulation of trapper exports and fur dealer purchases from trappers. In Unit 1A, trappers reported either selling or exporting 670 mink and 662 marten in 1979-80. From Unit 2, the records indicate 523 mink and 484 marten were taken.

Management Summary and Conclusions

Fur prices remained reasonably high in 1979-80 and interest and trapping efforts remained high, particularly in Unit 1A. Price predictions and general interest remain high for the 1980-81 season, and trapping pressure can be expected to remain high. No changes in seasons or bag limits are recommended.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS 1B and 3

GEOGRAPHICAL DESCRIPTION: Southeast Mainland from Cape Fanshaw to Lemesurier Point (1B) and the islands of the Petersburg, Wrangell, Kake area (3).

PERIOD COVERED: July 1, 1979 - June 30, 1980

Population Status and Trend

No systematic data were collected. Field surveillance of furbearer habitat during fall and winter months indicated that beaver populations were increasing while other furbearer numbers were stable. Beaver populations may be responding to a decline in wolf numbers in both units. While a similar response may be occurring in other furbearer populations, evidence of the increase is not obvious.

Population Composition

No data were collected.

Mortality

Harvest information is based on the fur export permits. This requirement covers all furbearers, while otters, lynx and beaver also must be examined and sealed by an authorized representative of the Department of Fish and Game.

Beaver: Six trappers residing in Unit 3 reported taking beavers. Of the 114 beavers sealed, 85 percent were taken by two trappers. Interest in beaver trapping appears to be light, but may increase as populations continue to grow in these units. Forty-four beavers were reported trapped in Units 1B and 3, with 38.6 percent trapped by residents of the two units.

Lynx: No lynx were reported taken from either unit during the report period. Field observations indicate that lynx are rare in Unit 1B and do not exist in Unit 3.

Marten: Four hundred and twenty-nine martens were reported taken by 27 trappers in Units 1B and 3.

Twenty-seven trappers reported for an average of 15.9 marten each.

Mink: The reported mink harvest was 719 animals trapped by 22 trappers. While the average take per trapper was 32.7 furs, four trappers caught 367 or 51 percent of the total harvest.

Otter: There were a reported 61 otters trapped by 10 residents of Units 1B and 3.

Muskrat: Only one trapper reported trapping and he took 4 muskrats during the season. There is a potential for a much greater harvest in both units.

Squirrel: Red squirrels were trapped by one trapper, who reported six squirrels. The small size of the animal makes it less desirable as a commercial species, and the take is probably incidental.

Fox: A single fox was reported. Foxes do not occur in Unit 3 and are rare in Unit 1B.

Weasel: A total of 22 weasels was reported from both units.

Management Summary and Recommendations

Furbearers in Unit 1B and 3 are trapped by the residents of Kake, Wrangell, and Petersburg. Trapper export permits indicate 6 trappers from Kake, 17 from Wrangell, and 13 from Petersburg. Table 1 shows Wrangell residents exported 63.5 percent of the furs in GMU's 1B and 3 during the report period, while Petersburg and Kake residents exported 31.4 percent and 5.1 percent, respectively. Data indicate that many of the trappers are recreational trappers, with a high percentage of the furs exported taken by a few trappers. Information on trappers and trapping success is incomplete since some furs are kept for personal use, while others are bartered for goods or services. Only exported furs are reported to the Department of Fish and Game.

The influence of weather on trapping effort and success is probably the major factor in furbearer harvest fluctuations. Current seasons and bag limits adequately meet the demand for trapping. No regulatory changes are recommended at this time.

TABLE 1
FURBEARER HARVEST BY UNIT 3 RESIDENTS
1979-1980 SEASON

Species	Harvest Reported By Kake Residents	Per Cent of Total	Harvest Reported By Petersburg Residents	Per Cent of Total	Harvest Reported By Wrangell Residents	Per Cent of Total
Beaver	0	0	66	57.9	48	42.1
Mink	28	3.9	191	26.6	500	69.5
Muskrat	0	0	0	0	4	100.0
Marten	37	8.6	135	31.5	257	59.9
Otter	4	6.6	19	31.1	38	62.3
Fox	0	0	0	0	1	100.0
Weasel	0	0	9	40.9	13	59.1
Squirrel	0	0	6	100.0	0	0
All Species	69	5.1	426	31.4	861	63.5

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 5

GEOGRAPHICAL DESCRIPTION: Yakutat and Malaspina
Forelands, Gulf of Alaska

PERIOD COVERED: July 1, 1979 - June 30, 1980

Population Status and Trend

Coyote - Coyote populations are generally low throughout Subunit 5A but a few localized areas, like some of the larger islands in Yakutat Bay, appear to support higher densities. Coyotes may even be suppressing the deer population on Khantaak Island and preventing the herd from responding as it should to recent mild winters.

In Subunit 5B, coyotes are more abundant, with populations from moderate to high across most of the Malaspina Forelands. This is probably due to lower wolf density in 5B which reduces competition for available food and causes less predation by wolves on coyotes.

Red Fox - Although present in small numbers, red fox populations are low unit-wide. They occur primarily along the beach fringes and are found in small numbers in both subunits.

Lynx - Although never numerous on the Yakutat Forelands, lynx populations seem to be increasing from recent low levels. Sightings of sign and even an occasional animal have become more frequent in recent years. Snowshoe hare populations are increasing steadily and the lynx populations are expected to follow suit.

The status of lynx on the Malaspina Forelands is not known.

Beaver - Beaver populations remain high and continue to expand westward from the Dangerous River. Food is abundant and populations are expected to increase in future years.

Land Otters - Land otters are numerous in Unit 5, occurring in both freshwater and marine environments. They are often seen in the saltwater bays between the islands and their sign is common on many of the larger islands that have freshwater streams and pools.

Marten - Moderate to good marten populations occur in suitable habitat across the Yakutat Forelands (5A). The status of marten populations in Subunit 5B is not known.

Mink - Mink are present throughout Unit 5 in fair to moderate densities.

Weasels - Ermine are abundant in the Yakutat area and probably unit-wide.

Wolverine - Wolverines are present throughout Unit 5 in moderate to high densities.

Population Composition

No formal furbearer surveys were conducted during this report period but conversations with local trappers, coupled with observations of animals and sign during the field activities, indicate that production and survival are generally good for most species.

Mortality

Trapping pressure remained light over most of the Yakutat Forelands (5A) during the report period but increased somewhat in the area immediately adjacent to the community and its associated road system. This increase was due primarily to the increase in fur values and the influx of additional trappers into the area associated with job related transfers to Yakutat.

Only incomplete harvest information is available for those species not required to be sealed, but moderate takes of mink and marten were reported by several trappers.

Three otters were sealed; two were trapped and one was shot. All were taken near the community of Yakutat. Three wolverines were taken during this report period, two by trapping and one by shooting. No lynx or beavers are known to have been taken during this report period.

Management Summary and Recommendations

Furbearer populations appear to be healthy and stable across the unit and trapping pressure is generally light except near the road system where pressure is moderate. Interest in trapping is on the upswing, spurred primarily by high fur prices. Harvest should be closely monitored to prevent overharvest in localized areas. It would be advantageous and beneficial to have some type of accounting system for

all species of furbearers, so the populations could be better managed.

With timber harvest projected for the near future on both private and public lands across the Yakutat Forelands, efforts should be made to gather baseline information on furbearer populations so that impacts can be mitigated beforehand and assessed after a cutback.

At this time, no changes in seasons or bag limits are recommended.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 12

GEOGRAPHICAL DESCRIPTION: Upper Tanana and White River Drainages

Harvest and Population Status

Lynx - Sealing documents indicate that 89 lynx (41 males, 31 females, and 17 of unknown sex) were taken in Unit 12 during the 1979-80 season. This represents a 46 percent increase over the 1978-79 harvest of 61 lynx and a 24 percent increase over the 1977-78 harvest of 72 lynx. The harvest was distributed nearly evenly throughout the season. The White River-Chisana River drainages contributed 31 percent of the lynx harvest (28), the Tanana River drainage 30 percent (27), the Tetlin River drainage 20 percent (18), the Nabesna River drainage 15 percent (13), and the Tok River drainage 3 percent (3).

For the last two seasons kittens (lynx with pelts stretching 36 inches or less) comprised 28 percent of the harvests. This suggests that the population has been increasing since 1978. Snowshoe hares were very numerous during spring 1980; consequently, the 1980-81 lynx population and harvest are expected to increase.

Otters - Eight land otters (7 males, 1 female) were presented for sealing during the 1979-80 reporting period compared to 8 during 1978-79 and 5 during 1977-78. Eight trappers took one otter each. Two otters were taken from each of the following locations: Mentasta area, Tetlin drainage, and Tanana drainage. One otter was taken from Scotty Creek and one otter was taken from Clearwater Creek. Timing of the catch was as follows: December and February, three otters each; January and March, one otter each. Otters are widespread throughout Unit 12, but trappers expend little effort trying to catch them.

Wolverine - According to sealing documents, 21 wolverines (10 males, 11 females) were taken in Unit 12 during the 1979-80 season compared to 20 reported taken during 1978-79 and 28 during 1977-78. The wolverine harvest by drainage was as follows: Tok-Little Tok and Chisana, 6 each; Tetlin, 4; Nabesna and Tanana, 2 each; and White, 1. The population trend of wolverines in Unit 12 is unknown, but the harvest has probably stabilized after 2 consecutive years of decline.

Other Furbearers - According to many trappers, marten populations were high during the 1979-80 season. Based on past information this is expected to be short lived.

Red fox numbers increased during this reporting period, presumably in response to snowshoe hare and grouse populations.

Summary

Interest in fur trapping is high in Unit 12. The harvest is fairly evenly distributed and the effects of trapping on lynx, otters, and wolverines are felt to be insignificant except in a few local areas.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS 12, 19, 20, 21, 24, and 25

GEOGRAPHICAL DESCRIPTION: Interior Alaska

PERIOD COVERED: July 1, 1979 - June 30, 1980

Trapper Questionnaire

The trapper questionnaire was sent to 560 trappers in Units 12, 19, 20, 21, 24, and 25 during spring 1980. No reminder letters were sent due to budget restrictions, but 230 questionnaires (41%) were returned. Of these, 70 indicated they had not trapped and provided no other information. One hundred and sixty questionnaires provided data regarding harvest and population trends (Tables 1 and 2).

Questionnaire Results - Harvest and Population Levels

Lynx - The harvest of lynx increased in the Fort Yukon area and averaged 38 lynx per trapper. The 1978-79 take averaged 22 lynx per trapper. Lynx harvests remained about the same or were lower in most other portions of the Interior. The average take of lynx in the Interior was 9 per trapper compared to 7 per trapper in 1978-79. Fort Yukon was the only area from which a major increase was reported.

Lynx populations were still considered to be at low levels throughout much of the Interior during the 1979-80 season, but over 30 percent of the trappers thought that populations had increased in their areas. Areas where lynx populations were reported to have increased were Fort Yukon, Circle, Central, Eagle, Nenana and Healy, Galena, Ruby, and the Brooks Range.

Red Fox - Interior trappers reported an average harvest of 7 foxes per trapper in 1979-80, an increase from the average take of 6 foxes per trapper during the 1978-79 season. Delta trappers reported the most dramatic increase in fox harvest with an average of 32 foxes per trapper in 1979-80 compared to 11 foxes per trapper in 1978-79. Over much of the Interior fox numbers were reported to be moderately high and more abundant than in 1978-79.

Marten - The average marten harvest in the Interior was 45 per trapper, a decline from the 1978-79 average of

Table 1. Lynx, fox, and marten harvests as indicated by the Trapper Questionnaire, 1979-80.

Area	Number of Trappers* Responding	Number Lynx Taken	Number Lynx/Trapper*	Number Fox Taken	Number Fox/Trapper*	Number Marten Taken	Number Marten/Trapper
Brooks Range	7	13	4.3	18	3.6	297	113.4
Beaver, Beaver Creek	6	12	4.0	8	2.7	95	15.8
Circle, Central	3	17	8.5	1	1.0	133	66.5
Delta	7	4	2.0	160	32.0	30	7.5
Eagle, Chicken, Boundary	7	19	4.8	9	4.5	264	44.0
Fairbanks	26	21	3.1	100	5.6	317	17.6
Fort Yukon	16	343	38.1	53	6.6	1155	88.8
Galena, Nulato, Koyukuk	14	12	3.0	13	2.6	207	25.9
Healy, Mt. McKinley, Nenana, Clear	15	12	2.8	27	3.4	83	9.2
Hughes, Huslia	6	5	1.7	27	6.8	385	96.3
Livengood, Manley, Minto	9	1	1.0	4	2.0	269	33.6
McGrath	5	0	0.0	1	1.0	226	56.5
Ruby	5	28	9.3	0	0.0	839	167.8
Tanana	9	3	1.5	39	7.8	411	51.4
Tok, Northway	15	27	3.5	81	10.1	398	49.8
Miscellaneous	6	30	7.5	4	1.3	70	14.0
Interior Totals	113	535	9.2	517	7.1	4893	44.9

* Not all trappers trapped for lynx, fox, and marten and some did not indicate their catch. Therefore, these figures represent only the harvest indicated on the questionnaires divided by the number of trappers listing any catch.

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on Trapper Questionnaire.

SPECIES/ Area	Abundance in 1979-80 Season ^a				Compared with 1978-79 ^b			
	Low	Mod	High	Index	Fewer	Same	More	Index
BEAVER								
Brooks Range	4	2	0	2.7	1	4	0	4.2
Beaver, Beaver Creek	0	2	0	5.0	0	2	0	5.0
Circle, Central	1	1	0	3.0	0	2	0	5.0
Delta	1	3	0	4.0	1	2	1	5.0
Eagle, Chicken, Boundary	1	1	0	3.0	0	2	0	5.0
Fairbanks	2	11	4	5.5	1	6	9	7.0
Fort Yukon	2	6	5	5.9	0	8	4	6.3
Galena, Nulato, Koyukuk	1	6	2	5.4	1	6	3	5.8
Healy, Mt. McKinley, Nenana, Clear	3	6	1	4.2	1	5	2	5.5
Hughes, Huslia	1	2	2	5.0	0	2	2	7.0
Manley, Livengood	1	3	0	4.0	0	4	0	5.0
McGrath	1	0	1	5.0	0	1	0	5.0
Ruby	2	1	1	4.0	1	2	1	5.0
Tanana	2	2	2	5.0	0	4	3	6.7
Tok, Northway	<u>3</u>	<u>4</u>	<u>2</u>	<u>4.6</u>	<u>0</u>	<u>5</u>	<u>2</u>	<u>6.1</u>
Interior Totals	26	52	20	4.8	6	60	27	5.9

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on Trapper Questionnaire.

SPECIES/ Area	Abundance in 1979-80 Season ^a				Compared with 1978-79 ^a			
	Low	Mod	High	Index ^b	Fewer	Same	More	Index ^b
GROUSE								
Brooks Range	3	2	0	2.6	3	2	1	3.7
Beaver, Beaver Creek	3	0	0	1.0	2	1	0	2.3
Circle, Central	0	2	0	5.0	0	2	0	5.0
Delta	0	4	2	6.3	0	2	4	7.7
Eagle, Chicken, Boundary	1	3	2	5.7	3	1	2	4.3
Fairbanks	3	13	5	5.4	6	7	7	5.2
Fort Yukon	6	5	3	4.1	4	8	1	4.1
Galena, Nulato, Koyukuk	0	5	1	5.7	0	6	1	5.6
Healy, Mt. McKinley, Nenana, Clear	2	8	0	4.2	3	5	2	4.6
Hughes, Huslia	1	2	1	5.0	1	3	0	4.0
Manley, Livengood	2	5	7	3.9	4	1	2	3.9
McGrath	0	1	0	5.0	0	1	0	5.0
Ruby	1	2	1	5.0	2	1	0	2.3
Tanana	2	3	2	5.0	2	2	3	5.6
Tok, Northway	<u>1</u>	<u>4</u>	<u>6</u>	<u>6.8</u>	<u>1</u>	<u>3</u>	<u>4</u>	<u>6.5</u>
Interior Totals	25	62	23	4.9	32	49	29	4.9

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on Trapper Questionnaire.

SPECIES/ Area	Abundance in 1979-80 Season ^a				Compared with 1978-79 ^b			
	Low	Mod	High	Index	Fewer	Same	More	Index
HARE								
Brooks Range	0	5	2	6.1	0	1	6	8.4
Beaver, Beaver Creek	0	0	5	9.0	0	0	4	9.0
Circle, Central	0	1	2	7.7	0	0	3	9.0
Delta	0	4	3	6.7	0	1	5	8.3
Eagle, Chicken, Boundary	0	3	3	7.0	0	1	5	8.3
Fairbanks	0	19	3	5.5	0	5	18	8.1
Fort Yukon	2	7	5	5.9	1	4	8	7.2
Galena, Nulato, Koyukuk	2	2	3	5.6	0	4	3	6.7
Healy, Mt. McKinley, Nenana, Clear	0	10	1	5.4	0	1	10	8.3
Hughes, Huslia	0	2	2	7.0	0	0	4	9.0
Manley, Livengood	2	4	0	3.7	0	0	7	9.0
McGrath	0	1	0	5.0	0	1	0	5.0
Ruby	2	1	1	2.0	0	0	3	9.0
Tanana	4	4	0	3.0	0	3	3	7.0
Tok, Northway	<u>3</u>	<u>4</u>	<u>4</u>	<u>4.8</u>	<u>0</u>	<u>8</u>	<u>1</u>	<u>5.4</u>
Interior Totals	16	70	33	5.6	1	29	82	7.9

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on Trapper Questionnaire.

SPECIES/ Area	Abundance in 1979-80 Season ^a				Compared with 1978-79 ^a			
	Low	Mod	High	Index ^b	Fewer	Same	More	Index ^b
LYNX								
Brooks Range	4	2	0	2.7	0	2	3	7.4
Beaver, Beaver Creek	2	1	0	2.3	2	2	1	4.2
Circle, Central	1	2	0	3.7	0	0	2	9.0
Delta	6	0	0	1.0	0	4	1	5.8
Eagle, Chicken, Boundary	5	1	0	1.7	1	2	3	6.3
Fairbanks	18	4	0	1.7	6	11	5	4.8
Fort Yukon	8	4	3	3.7	1	7	6	6.4
Galena, Nulato, Koyukuk	3	2	0	2.6	1	1	2	6.0
Healy, Mt. McKinley, Nenana, Clear	10	3	0	2.0	0	6	5	6.8
Hughes, Huslia	1	2	0	3.7	1	2	0	3.7
Manley, Livengood	6	2	0	2.0	1	4	2	5.6
McGrath	1	0	0	1.0	0	1	0	5.0
Ruby	4	0	1	6.5	1	2	2	5.8
Tanana	8	0	0	1.0	2	2	3	5.6
Tok, Northway	<u>11</u>	<u>2</u>	<u>0</u>	<u>1.6</u>	<u>3</u>	<u>7</u>	<u>0</u>	<u>3.8</u>
Interior Totals	94	24	4	2.0	20	54	37	5.6

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on Trapper Questionnaire.

SPECIES/ Area	Abundance in 1979-80 Season ^a				Compared with 1978-79 ^b			
	Low	Mod	High	Index	Fewer	Same	More	Index
MARTEN								
Brooks Range	1	4	2	5.6	0	6	1	5.6
Beaver, Beaver Creek	1	0	4	7.4	0	2	2	7.0
Circle, Central	0	3	0	5.0	0	2	0	5.0
Delta	2	2	1	4.2	2	2	1	4.2
Eagle, Chicken, Boundary	0	2	4	7.7	0	5	1	5.7
Fairbanks	10	11	0	3.1	5	11	4	4.6
Fort Yukon	2	7	6	7.0	4	7	3	2.6
Galena, Nulato, Koyukuk	2	4	3	5.4	3	6	1	4.2
Healy, Mt. McKinley, Nenana, Clear	4	4	3	4.6	2	4	3	5.4
Hughes, Huslia	1	1	2	6.0	0	2	2	7.0
Manley, Livengood	2	5	1	4.5	2	3	1	4.3
McGrath	0	3	1	6.0	0	3	1	6.0
Ruby	0	2	3	7.4	0	4	1	5.8
Tanana	1	6	1	5.0	2	4	1	4.4
Tok, Northway	<u>2</u>	<u>6</u>	<u>4</u>	<u>5.7</u>	<u>2</u>	<u>5</u>	<u>2</u>	<u>5.0</u>
Interior Totals	29	62	37	4.1	24	67	24	5.0

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on Trapper Questionnaire.

SPECIES/ Area	Abundance in 1979-80 Season ^a				Compared with 1978-79 ^a			
	Low	Mod	High	Index ^b	Fewer	Same	More	Index ^b
MINK								
Brooks Range	3	2	1	3.7	1	4	1	5.0
Beaver, Beaver Creek	0	3	1	6.0	0	3	1	6.0
Circle, Central	0	1	0	5.0	0	0	1	9.0
Delta	2	3	0	3.6	2	3	0	3.4
Eagle, Chicken, Boundary	1	2	0	3.0	0	1	3	8.0
Fairbanks	5	10	3	4.6	2	8	8	6.3
Fort Yukon	7	6	1	3.3	6	4	2	3.7
Galena, Nulato, Koyukuk	4	4	0	3.0	2	4	1	4.4
Healy, Mt. McKinley, Nenana, Clear	4	5	0	3.2	1	5	1	5.0
Hughes, Huslia	4	0	0	1.0	0	3	1	6.0
Manley, Livengood	3	1	0	2.0	1	3	0	4.0
McGrath	1	2	0	3.7	0	3	0	5.0
Ruby	2	1	0	2.3	1	1	1	5.0
Tanana	4	2	0	2.3	1	5	1	5.0
Tok, Northway	<u>3</u>	<u>5</u>	<u>1</u>	<u>4.1</u>	<u>0</u>	<u>6</u>	<u>1</u>	<u>5.6</u>
Interior Totals	46	49	7	3.5	17	56	23	5.3

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on Trapper Questionnaire.

SPECIES/ Area	Abundance in 1979-80 Season ^a				Compared with 1978-79 ^a			
	Low	Mod	High	Index ^b	Fewer	Same	More	Index ^b
MUSKRAT								
Brooks Range	3	2	0	2.6	0	5	0	5.0
Beaver, Beaver Creek	3	0	0	1.0	1	1	0	3.0
Circle, Central	0	1	0	5.0	0	0	1	9.0
Delta	0	4	1	5.8	0	3	2	6.6
Eagle, Chicken, Boundary	1	0	0	1.0	0	1	0	5.0
Fairbanks	4	3	1	3.5	2	2	4	6.0
Fort Yukon	11	2	0	1.6	5	5	2	4.0
Galena, Nulato, Koyukuk	1	3	0	4.0	1	3	1	5.0
Healy, Mt. McKinley, Nenana, Clear	6	0	1	2.1	0	6	1	5.6
Hughes, Huslia	3	0	0	1.0	0	3	0	5.0
Manley, Livengood	2	0	1	3.7	0	1	1	7.0
McGrath	0	1	0	5.0	0	1	0	5.0
Ruby	2	1	0	2.3	1	1	1	5.0
Tanana	4	0	0	1.0	1	3	0	4.0
Tok, Northway	<u>4</u>	<u>3</u>	<u>2</u>	<u>4.1</u>	<u>3</u>	<u>3</u>	<u>0</u>	<u>3.0</u>
Interior Totals	47	21	5	2.7	13	42	13	5.0

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on Trapper Questionnaire.

SPECIES/ Area	Abundance in 1979-80 Season ^a				Compared with 1978-79 ^a			
	Low	Mod	High	Index ^b	Fewer	Same	More	Index ^b
OTTER								
Brooks Range	2	3	0	3.4	1	3	1	5.0
Beaver, Beaver Creek	1	0	0	1.0	0	1	0	5.0
Circle, Central	1	0	0	1.0	0	0	1	9.0
Delta	3	1	0	2.0	2	2	0	3.0
Eagle, Chicken, Boundary	2	0	0	1.0	0	2	0	5.0
Fairbanks	8	7	1	3.3	2	12	2	5.0
Fort Yukon	6	4	0	2.6	4	4	0	3.0
Galena, Nulato, Koyukuk	2	4	1	4.4	1	6	1	5.0
Healy, Mt. McKinley, Nenana, Clear	4	5	0	3.2	1	6	0	4.4
Hughes, Huslia	4	0	0	1.0	0	4	0	5.0
Manley, Livengood	3	1	0	2.0	1	3	0	4.0
McGrath	0	1	0	5.0	0	1	0	5.0
Ruby	1	1	1	5.0	1	3	0	4.0
Tanana	2	4	0	3.7	0	5	2	6.1
Tok, Northway	<u>6</u>	<u>3</u>	<u>0</u>	<u>2.6</u>	<u>2</u>	<u>4</u>	<u>0</u>	<u>3.7</u>
Interior Totals	48	34	3	2.9	15	58	7	4.6

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on Trapper Questionnaire.

SPECIES/ Area	Abundance in 1979-80 Season ^a				Compared with 1978-79 ^a			
	Low	Mod	High	Index ^b	Fewer	Same	More	Index ^b
PTARMIGAN								
Brooks Range	0	7	0	5.0	0	4	2	6.7
Beaver, Beaver Creek	1	1	0	3.0	1	1	0	3.0
Circle, Central	0	1	0	5.0	1	0	0	1.0
Delta	2	2	1	4.2	1	1	2	6.0
Eagle, Chicken, Boundary	0	5	1	5.7	1	4	1	5.0
Fairbanks	3	11	5	5.4	8	8	4	4.2
Fort Yukon	4	8	2	4.4	3	8	2	4.7
Galena, Nulato, Koyukuk	0	2	4	7.7	0	3	5	7.5
Healy, Mt. McKinley, Nenana, Clear	2	9	0	4.3	5	5	1	3.5
Hughes, Huslia	0	3	1	6.0	1	3	0	4.0
Manley, Livengood	2	4	2	5.0	3	2	2	4.4
McGrath	0	2	0	5.0	1	1	0	3.0
Ruby	0	3	1	6.0	1	2	0	3.7
Tanana	0	4	2	6.3	1	5	1	5.0
Tok, Northway	<u>2</u>	<u>3</u>	<u>3</u>	<u>5.5</u>	<u>2</u>	<u>4</u>	<u>1</u>	<u>4.4</u>
Interior Totals	16	64	29	5.5	29	53	21	4.7

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on Trapper Questionnaire.

SPECIES/ Area	Abundance in 1979-80 Season ^a				Compared with 1978-79 ^b			
	Low	Mod	High	Index	Fewer	Same	More	Index
RED FOX								
Brooks Range	2	2	1	4.2	0	4	1	5.8
Beaver, Beaver Creek	1	1	2	6.0	0	1	2	7.7
Circle, Central	0	1	0	5.0	0	1	0	5.0
Delta	1	4	2	5.6	0	3	3	7.0
Eagle, Chicken, Boundary	1	5	0	4.3	0	2	4	7.7
Fairbanks	10	10	1	3.3	3	7	11	6.5
Fort Yukon	9	4	0	2.2	4	6	2	4.3
Galena, Nulato, Koyukuk	0	5	1	5.7	0	5	2	6.1
Healy, Mt. McKinley, Nenana, Clear	2	10	0	4.3	1	7	3	5.8
Hughes, Huslia	0	3	0	5.0	2	1	0	2.3
Manley, Livengood	3	5	0	3.5	1	4	2	4.4
McGrath	2	0	0	1.0	1	1	0	3.0
Ruby	2	1	0	2.3	0	1	2	7.7
Tanana	2	4	1	4.4	0	5	3	6.5
Tok, Northway	<u>1</u>	<u>9</u>	<u>3</u>	<u>4.1</u>	<u>0</u>	<u>6</u>	<u>4</u>	<u>6.6</u>
Interior Totals	38	63	11	4.0	16	56	35	5.7

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on Trapper Questionnaire.

SPECIES/ Area	Abundance in 1979-80 Season ^a				Compared with 1978-79 ^a			
	Low	Mod	High	Index ^b	Fewer	Same	More	Index ^b
SQUIRREL								
Brooks Range	0	5	2	6.1	0	7	0	5.0
Beaver, Beaver Creek	0	2	0	5.0	0	2	0	5.0
Circle, Central	0	1	1	7.0	0	1	1	7.0
Delta	0	4	2	6.3	0	4	2	6.3
Eagle, Chicken, Boundary	0	2	4	7.7	0	5	1	5.7
Fairbanks	0	12	8	6.6	3	13	4	5.2
Fort Yukon	0	6	7	7.2	0	5	6	7.2
Galena, Nulato, Koyukuk	0	2	1	6.3	0	3	1	6.0
Healy, Mt. McKinley, Nenana, Clear	0	8	0	5.0	0	7	1	5.5
Hughes, Huslia	1	1	1	5.0	1	1	1	5.0
Manley, Livengood	0	5	1	5.7	0	6	0	5.0
McGrath	0	1	1	7.0	0	1	1	7.0
Ruby	3	0	0	1.0	3	0	0	1.0
Tanana	0	3	3	7.0	0	3	3	7.0
Tok, Northway	<u>1</u>	<u>2</u>	<u>8</u>	<u>7.5</u>	<u>1</u>	<u>6</u>	<u>2</u>	<u>5.4</u>
Interior Totals	5	54	39	3.2	8	66	23	5.6

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on Trapper Questionnaire.

SPECIES/ Area	Abundance in 1979-80 Season ^a				Compared with 1978-79 ^a			
	Low	Mod	High	Index	Fewer	Same	More	Index
WOLF								
Brooks Range	7	0	0	1.0	4	3	0	2.7
Beaver, Beaver Creek	1	0	0	1.0	1	0	0	1.0
Circle, Central	1	1	0	3.0	2	0	0	1.0
Delta	3	2	1	3.7	3	0	1	3.0
Eagle, Chicken, Boundary	5	1	0	1.7	2	4	0	3.7
Fairbanks	7	10	1	3.7	7	11	1	3.7
Fort Yukon	8	4	0	2.3	2	8	1	4.6
Galena, Nulato, Koyukuk	1	5	0	4.3	1	6	0	4.4
Healy, Mt. McKinley, Nenana, Clear	6	5	1	3.3	3	4	3	5.0
Hughes, Huslia	2	2	0	3.0	1	3	0	4.0
Manley, Livengood	6	0	0	1.0	2	4	0	3.7
McGrath	1	1	0	3.0	0	1	1	7.0
Ruby	3	1	4	2.0	2	2	0	3.0
Tanana	2	1	3	5.7	1	3	2	5.7
Tok, Northway	<u>4</u>	<u>4</u>	<u>3</u>	<u>4.6</u>	<u>1</u>	<u>5</u>	<u>2</u>	<u>5.5</u>
Interior Totals	59	38	12	3.3	32	57	11	4.2

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on Trapper Questionnaire.

SPECIES/ Area	Abundance in 1979-80 Season ^a				Compared with 1978-79 ^a			
	Low	Mod	High	Index ^b	Fewer	Same	More	Index ^b
WOLVERINE								
Brooks Range	7	0	0	1.0	4	3	0	2.7
Beaver, Beaver Creek	2	0	1	3.7	1	2	0	3.7
Circle, Central	0	2	0	5.0	0	2	0	5.0
Delta	2	1	1	4.0	0	4	0	5.0
Eagle, Chicken, Boundary	2	2	2	5.0	0	4	2	6.3
Fairbanks	12	5	0	2.2	6	9	1	3.8
Fort Yukon	6	6	2	3.9	3	8	2	4.7
Galena, Nulato, Koyukuk	3	3	0	3.0	2	4	1	4.4
Healy, Mt. McKinley, Nenana, Clear	8	5	1	3.3	3	4	3	5.0
Hughes, Huslia	2	2	0	3.0	1	3	0	4.0
Manley, Livengood	4	2	0	2.3	1	5	0	4.3
McGrath	1	0	0	1.0	0	1	0	5.0
Ruby	3	1	0	2.0	0	3	0	5.0
Tanana	0	6	0	5.0	0	5	1	5.7
Tok, Northway	<u>7</u>	<u>5</u>	<u>0</u>	<u>2.7</u>	<u>3</u>	<u>3</u>	<u>2</u>	<u>4.5</u>
Interior Totals	59	41	7	3.1	22	65	10	4.5

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

50 marten per trapper. The harvest of marten decreased in many areas. Overall, Interior trappers felt that marten populations were at moderate levels and had remained the same as the previous year.

Muskrat - Muskrat populations were reported moderately low in the Interior with little change from 1978-79 levels. Delta, Fairbanks, Circle, and Manley area trappers reported an increase in muskrat populations compared to 1978-79.

Mink - Mink populations were moderately low to moderate over most of the Interior with numbers reported to be about the same as during 1978-79. Trappers in the Fairbanks and Eagle areas reported an increase in mink populations, while elsewhere little change or a slight decline in mink abundance was reported.

Beaver - Beaver populations were reported to be at moderate levels with a slight increase in numbers compared to 1978-79. The beaver sealing program provides much better information on beaver populations and harvests than the trapper questionnaire (see Beaver Survey and Inventory Report).

Land Otter - Otter abundance was thought to be moderately low throughout the Interior during 1979-80 with little or no change from 1978-79. The otter sealing program provides additional information on the otter harvest in the Interior.

Wolverine - Trappers indicated that wolverine populations were moderately low throughout the Interior with little or no change in most areas. Wolverine sealing records provide some harvest information although some hides are never sealed.

Coyote - Few trappers reported catching coyotes during the 1979-80 season and less than half of those responding to the questionnaire had comments regarding coyote abundance. Populations were reported to be low and little changed from 1978-79.

Wolf - Wolf populations were reported to be moderately low in most areas of the Interior, with little change from 1978-79 levels. Only McGrath, Tok, and Tanana trappers reported much of an increase in wolf populations. Wolf sealing records provide additional information on wolf harvests in the Interior.

Squirrel - Squirrel numbers were at moderately low to moderate levels in the Interior and reports from most areas indicated little change or a slight decline in squirrel populations compared to 1978-79.

Snowshoe Hare - Hare populations were moderately low to moderately high in the Interior with most areas reporting definite increases in hare abundance since 1978-79. Hare populations were higher in the north and east portions of the Interior.

Grouse - Grouse populations were reported to be at moderate levels with little change in most of the Interior. Tok and Delta area trappers reported grouse to be abundant and more numerous than during 1978-79.

Ptarmigan - Ptarmigan populations were at moderate levels with little change generally throughout the Interior. Galena, Nulato, Koyukuk, and Ruby trappers reported moderately high ptarmigan populations.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 18

GEOGRAPHICAL DESCRIPTION: Yukon-Kuskokwim Delta

PERIOD COVERED: July 1, 1979-June 30, 1980

Seasons and Bag Limits

The trapping season for all furbearers in Game Management Unit 18 is from November 10 to March 31, with three exceptions; beaver, January 1 to March 31 (covered in a separate report); mink and weasel, November 10 to January 31; and muskrat, November 10 to June 10. The only furbearer in Unit 18 that has a bag limit is beaver, which is restricted to 20 per trapper per season.

Population Status and Trends

No population surveys, have been carried out for any of the furbearer species on the Yukon-Kuskokwim Delta. Harvest data and interviews with trappers and local residents are used to gain some insight into population trends and are presented in the individual species summaries. Relative abundance is not necessarily related to harvest levels due to changing trapping intensity over the years. Where available, take per trapper can be used as a general index, but even this has shortcomings due to apparently lower trapping intensity in recent years. Another variable that influences any estimate of relative abundance when using harvest levels is weather patterns during the trapping season. Relatively warm, wet weather experienced in late 1979-early 1980 likely reduced trapping pressure and, thus, harvest.

Mortality

Initial harvest estimates of furbearers that are not sealed, taken from Game Management Unit 18 during the 1979-1980 trapping season were made after contacting five fur buyers operating in the unit. The figures obtained were found to be lower than reported on the Fur Dealer Purchase and Trapper Export printouts. Figures used in this report reflect those from the printouts. It should be noted that dealer exports and dealer purchases from the unit were found to vary as much as 60 percent, and the figures used herein are from dealer purchases. Figures reported here include an upward adjustment to account for furs used domestically or not sold for one reason or another.

Arctic Fox

Dealer purchases and trapper exports of white fox during the year indicated that about 300 animals were taken on the Yukon-Kuskokwim Delta (Appendix 1).

Based on past S&I reports arctic foxes apparently most recently reached peak population levels in 1973-1974. In 1978-1979, it was reported that white foxes were present in depressed numbers, so it is expected that their numbers will be increasing.

Red Fox

The peak in numbers of red foxes in Unit 18, as with arctic foxes, last occurred in 1973-1974. During the 1976-1977 season it was reported that over 1,000 red foxes were trapped, shot or otherwise harvested. Populations were felt to be in healthy condition during the 1978-1979 reporting period. Apparently, red fox numbers have not decreased on the Delta as have white foxes; an estimated 2750 red foxes were taken during 1979-1980. How this number compares to 1972-1973 (when it was reported in the S&I Report that the highest take in years had occurred) is unknown, but is close to the 1978-79 dealer purchase record of 1,917 furs.

Discussions with trappers on the lower Yukon River indicated that red foxes are again abundant and 1980-1981 may provide a good number of these furs.

Marten

Approximately 300 marten were taken from Unit 18 during the 1979-1980 trapping season. This may be the highest take since 1974-1975 when it was reported that less than 1,000 were taken and the population was increasing. It is felt that few marten were taken in the intervening years.

Marten are rare in most of Game Management Unit 18, being found in the southeastern and northeastern portions of the unit only, where stands of spruce are found.

Mink

The harvest of mink from the Yukon-Kuskokwim Delta has shown a dramatic decrease over the years. From a high take of 40,000 reported by John Burns (M.S. thesis, 1964) in 1953-1954, the harvest in 1979-1980 was about 900 animals. This is not considered to be an indicator of a population decline, but rather a complex interaction of at least three other factors: a

changing social structure among Delta residents with less dependence on income from trapping; adverse weather conditions which may have inhibited travel or the effectiveness of trapping techniques; and a fluctuating market for the furs in Europe where most Yukon-Kuskokwim mink eventually are purchased. This last factor is probably not as important as the former two, since large Kuskokwim mink were bringing up to \$80.00 per pelt in February 1979.

If a resurgence of interest in mink trapping in Unit 18 is experienced, harvest levels may once again approach those of the 1950's

Muskrat

The apparent lack of interest in mink trapping did not seem to carry over to muskrats. In fact, it appears there were more muskrats taken in recent years than previously. Numbers reported by dealer purchase records have been, 1977-78, 529 muskrats; 1978-79, 7,076 and 1979-80, 12,458. The total harvest for the 1979-80 season is estimated at 15,000 muskrats. The warm weather experienced during this winter probably kept mortality of muskrats to a very low level.

Wolf

During conversations with fur buyers it was found that approximately 10 wolves were purchased from Unit 18 in 1979-80. If this figure is accurate, it represents the highest take of wolves from the unit on record. However, no wolves were recorded being sealed during the year.

Wolverine

Sealing certificates for the reporting period showed that 13 wolverines (Table 1) were taken from Game Management Unit 18. This number represents approximately twice the average take (for years that data are available) between 1961-62 and 1978-79. It is also higher than the 1971-72 to 1977-78 average take of nine animals. Only 1 year on record shows a higher harvest, 1975-76 when 29 wolverines were taken.

Wolverines are seldom abundant where they are found, but reports from hunters in fall 1980 indicate numbers were not scarce and may indicate a fair harvest during the coming season.

Table 1. Composition, Method of Take, Chronology of Take and Take Per Trapper of Furbearers Sealed from Unit 18 During 1979-1980 Season.

	<u>Wolverine</u>		<u>Lynx</u>		<u>Otter</u>	
	<u>No.</u>	<u>(%)</u>	<u>No.</u>	<u>(%)</u>	<u>No.</u>	<u>(%)</u>
<u>Harvest</u>						
Female	5	(38)	28	(45)	131	(41)
Male	7	(54)	32	(52)	158	(50)
Unknown	1	(8)	2	(3)	28	(9)
Total	13	(100)	62	(100)	317	(100)
<u>Method of Take</u>						
Shooting	2	(11)	1	(2)	37	(12)
Trapping	11	(85)	47	(76)	169	(53)
Snaring	-	-	12	(19)	86	(27)
Unknown	-	-	2	(3)	25	(8)
<u>Chronology</u>						
November	2	(15)	2	(3)	28	(9)
December	3	(23)	5	(8)	120	(38)
January	2	(15)	8	(13)	61	(19)
February	4	(31)	28	(45)	53	(17)
March	2	(15)	16	(26)	30	(9)
April	-	-	1	(2)	2	(1)
Unknown	-	-	2	(3)	23	(7)
<u>No. Trappers</u>	11		22		135	
<u>Take/Trapper</u>	1.2		2.8		2.0	

Lynx

Data on the historic take of lynx in Unit 18 indicate they have never been abundant. Up to 1976-77 lynx have been referred to as rare, with the only harvest reported up to that time being 25 animals. The 1979-80 harvest of 62 lynx is similiar to the average for the previous 2 years (50 reported in 1977-78, 75 in 1978-79). It is doubtful that the take of lynx will rise above this level to a significant degree. Forty five percent of the lynx reported harvested were taken in the Andreafsky River watershed.

Otter

The harvest of land otters from Game Management Unit 18 was approximately 350 animals in 1979-80. This number falls within the range of harvest between 1973-74 and 1978-79 (300 to 638). The number taken during the recent season is the lowest since the 1976-77 season. Land otters were most commonly reported taken from coastal drainages, including, but not limited to, the Black (30), the Arolik (20), Johnson (15) and Kashunak (10) Rivers.

Management Summary and Recommendations

Within the scope of the data available, there appears to be no furbearer species in Game Management Unit 18 at a depressed level. There is a possiblility that mink were at a low level as the numbers harvested indicate, but this not likely (see previous discussion). The number of red foxes, marten, muskrats and lynx taken during the 1979-80 season seems to indicate that their populations were at relatively high levels. There appears to be no cause for a change in seasons or bag limits for furbearers in Unit 18.

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Appendix 1. Furs Taken in Unit 18 During 1979/1980 Trapping Season,
by Village 17

<u>Village</u>	<u># Trappers</u>	<u>Mink</u>	<u>Muskrat</u>	<u>Marten</u>	<u>White Fox</u>	<u>Red Fox</u>
Akiakchak	22	6	35	0	0	58
Akiak	28	0	248	0	0	37
Alakanuk	25	34	1167	0	3	77
Bethel	70	17	737	18	6	198
Chefornak	11	0	0	0	3	3
Chevak	22	69	6	0	15	21
Eek	33	44	172	0	1	104
Emmonak	69	5	1246	0	69	166
Fortuna Ledge (Marshall)	15	0	0	2	1	16
Goodnews Bay	20	17	16	4	0	96
Hooper Bay	27	52	282	0	29	60
Kalskag	40	26	504	52	1	35
Kasigluk	10	2	34	0	0	18
Kipnuk	8	26	0	0	12	12
Kotlik	44	86	3280	1	8	448
Kwethluk	48	8	1194	0	0	69
Kwigillingok	9	32	0	0	24	15
Lower Kalskag	38	2	591	144	0	21
Mekoryuk	26	1	0	0	15	271
Mtn. Village	45	33	1344	3	0	205
Napakiak	9	21	31	0	0	22
Newtok	5	34	117	0	5	17
Nightmute	4	25	0	0	2	5
Nunapitchuk	29	51	863	0	13	111
Nyac	5	0	0	2	0	22
Oscarville	2	0	0	0	0	0
Pilot Station	17	12	39	11	1	26
Pitka's Point	11	4	162	0	0	13
Platinum	5	0	0	0	0	57
Quinhagak	27	48	1	0	0	151
Russian Mission	14	10	27	20	0	3
Saint Marys	25	20	43	3	0	20
Scammon Bay	8	59	29	0	6	16

Appendix 1. Furs Taken in Unit 18 During 1979/1980 Trapping Season,
by Village ^{1/} continuation.

<u>Village</u>	<u># Trappers</u>	<u>Mink</u>	<u>Muskrat</u>	<u>Marten</u>	<u>White Fox</u>	<u>Red Fox</u>
Sheldon's Point	8	6	33	0	2	53
Toksook Bay	4	5	0	0	13	11
Tuluksak	14	4	253	0	0	13
Tuntutuliak	10	22	4	0	17	33
Tununak	5	20	0	0	5	13
<u>Total</u>						
38	812	801	12,458	260	251	2516
Estimated Harvest		900	15,000	300	300	2750

1/ Data from Dealer Purchases from Trappers by Unit and Trapper Export by Unit Printouts.

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 19

GEOGRAPHICAL DESCRIPTION: Upper and Middle Kuskokwim
River Drainages

PERIOD COVERED: July 1, 1979 June 30, 1980

Harvest and Population Status

Wolverine - The reported wolverine catch for Unit 19 during the 1979-80 season was 59. This was the largest reported catch since the sealing program started. The harvest consisted of 22 females, 35 males, and 2 wolverines of undetermined sex. The high catch is assumed to reflect a high wolverine population and an increased number of trappers in areas of prime wolverine habitat.

Land Otter - Middle Kuskokwim trappers caught 37 of the 58 otters taken in Unit 19. Trapping pressure for beavers was high during late winter and early spring 1980 and many otters were taken incidental to beaver trapping. Otters are thought to be abundant over most of Unit 19, but trapping pressure continued to be light.

Lynx - Lynx populations in subalpine and upland river valleys continued to increase. This season trappers in Subunits 19A and 19C harvested most of the 216 lynx reported for the Unit. Unfortunately, the price for lynx pelts, after several years of unprecedented high levels, toppled following the mid-year sales. This weak market may slow trapper response to the expected higher lynx populations in 1980-81.

Marten - Marten appeared to be decreasing in the upper Kuskokwim drainage but this species remained abundant in the middle river drainages. Pelt values stabilized in mid-year, then commenced to decline slowly to levels of a year ago. The fluctuating fur market and poor weather conditions led to a much reduced marten catch in Unit 19 during 1979-80. An estimated harvest of 2,000 marten is about half of the 1978-79 catch.

Mink - Mink were abundant over much of Unit 19 but still produced little increase in trapper interest. Mink pelt values have increased substantially and now

equal or exceed marten prices on many markets. The estimated mink catch for Unit 19 was 300-400.

Red Fox - Red foxes again increased in abundance throughout Unit 19. However, as with many other long-hair furs, pelt values declined to nearly half of 1978-79 prices. The estimated catch of red and cross foxes was 350-450.

Muskrat - Muskrat numbers were moderate over most of Unit 19. High pelt values encouraged an increased effort to take muskrats. This effort possibly resulted in a catch of 1,500 or more muskrats.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 20

GEOGRAPHICAL DESCRIPTION: Central Tanana Valley

PERIOD COVERED: July 1, 1979 - June 30, 1980

Harvest

Lynx - A total of 404 lynx from Unit 20 was caught during the 1979-80 season, according to sealing records. The reported harvest by Subunit was as follows:

	<u>Males</u>	<u>Females</u>	<u>Unknown</u>	<u>Total</u>
Subunit 20A	37	34	7	78
Subunit 20B	16	12	5	33
Subunit 20C	81	123	55	259
Subunit 20D	4	6	2	12
Subunit 20E	9	6	7	22
Unit 20 Total	147	181	76	404

In Subunit 20A, 41 percent of the harvest (32 lynx) was taken in the Wood River drainage, 24 percent (19 lynx) in the Dry Creek area, 17 percent (13 lynx) in the Gold King area, and 18 percent (14 lynx) from other parts of Subunit 20A.

In Subunit 20B, 48 percent (16 lynx) were taken in the Goldstream-Murphy Dome area. The remainder of the take was scattered throughout Subunit 20B.

The area breakdown of the Subunit 20C harvest was as follows: 19 percent (50 lynx) in the Birch Creek area and along the Yukon River near Circle; 10 percent (25 lynx) in the Beaver Creek area; 43 percent (111 lynx) in the Nenana, Healy, McKinley, and Kantishna areas; and 8 percent (22 lynx) in the Salcha, Shaw Creek, and Delta areas. The remainder of the harvest was scattered throughout the Unit.

Otter - According to sealing records, a total of 59 land otters was harvested in Unit 20 during the 1979-80 season. The reported harvest by Subunit was as follows:

	<u>Males</u>	<u>Females</u>	<u>Unknown</u>	<u>Total</u>
Subunit 20A	6	3	0	9
Subunit 20B	9	3	1	13
Subunit 20C	24	10	2	36
Subunit 20D	1	0	0	1
Subunit 20E	0	0	0	0
Unit 20 Total	40	16	3	59

The otter harvest was spread throughout the season but 56 percent was taken during February and March. Twenty otters (34%) were taken in February alone.

Wolverine - Sealing documents indicated that a total of 57 wolverines was harvested from Unit 20 during the 1979-80 season. The reported wolverine harvest by Subunit was as follows:

	<u>Males</u>	<u>Females</u>	<u>Unknown</u>	<u>Total</u>
Subunit 20A	4	0	0	4
Subunit 20B	3	1	0	4
Subunit 20C	19	14	1	34
Subunit 20D	3	1	0	4
Subunit 20E	7	3	1	11
Unit 20 Total	36	19	2	57

The wolverine harvest occurred throughout the season with 9 wolverines (16%) taken in November, 9 (16%) in December, 11 (19%) in January, 21 (37%) in February, and 7 (12%) in March.

Summary

The harvest of lynx increased during the 1979-80 season. Lynx populations started to increase in many areas and the harvest in Subunit 20C increased by 77 percent compared to 1978-79. Increases in lynx kits and in the numbers of snowshoe hares were noted in many areas.

The number of otters harvested in 1979-80 was twice the number taken in 1978-79. Otter populations have remained fairly stable in Unit 20 for several years, but the mild winter may have contributed to the increased otter catch.

The wolverine harvest declined during 1978-79. Reasons for the decline in harvest are unknown at this time.

Furbearer populations fluctuate in response to a number of natural factors, including availability of food and habitat. Except for local situations, trapping is believed to have little influence on overall furbearer numbers.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 21

GEOGRAPHICAL DESCRIPTION: Middle Yukon River Drainage

PERIOD COVERED: July 1, 1979 - June 30, 1980

Trapping Conditions

Weather and snow conditions had a significant influence on trapping effort and fur harvest during 1979 in Unit 21. October and most of November were unseasonably mild and most trappers were unable to reach their traplines until November 20-25. Trappers having access to their trapping areas capitalized on the mild weather and made good catches of mink and marten. From 20 December until 20 January temperatures were unseasonably cold, averaging close to -30°F in Galena. This effectively reduced the marten season by a month since trappers were unable to travel and marten were inactive. Conditions were good for the remainder of the season. The cold weather that had characterized the previous two Februarys did not occur in 1980, and beaver trappers were able to operate effectively during the entire open season. The net effect of weather on fur harvest was an increased take of mink and beaver and a reduced take of marten and lynx.

Harvest and Population Status

Lynx - The reported lynx harvest based on sealing certificates was 55 (11 males, 24 females, 20 of undetermined sex). During the 1978-79 season 71 lynx from Unit 21 were sealed. The drop in the harvest was due to poor trapping conditions rather than a decrease in the lynx population. Observations during aerial surveys and on-ground activities indicated a general increase in the Unit 21 lynx population, especially in the hilly terrain.

Land Otter - The land otter harvest in Unit 21 as determined by sealing certificates was 57 (32 male, 22 female, 3 of undetermined sex) compared to 21 in 1978-79. Many otters are taken in snare sets incidental to beaver trapping and the substantial increase in otter catch resulted largely from increased beaver trapping effort.

Wolverine - Based on sealing certificates, 40 wolverines (21 male, 19 females) were harvested compared to 35 the previous year. The total catch was probably higher since some wolverines which are used locally for garment trim are not sealed.

Based on tracks observed during wolf survey and control activities, wolverines were moderately abundant throughout the Unit.

Marten - Marten is the furbearer of most importance to trappers in western portions of Interior Alaska. Marten populations remained moderate to high in most of Unit 21, although a few trappers thought that numbers had decreased since last year. Pelt prices declined 10-15 percent between the 1978-79 and 1979-80 seasons. This was due in part to a significant number of poor quality pelts caught prior to and early in the season. Another factor contributing to reduced prices was attempts by furbuyers to purchase female marten at much reduced prices.

Beaver - Beaver populations were high in many untrapped, inaccessible areas. Beavers were overharvested in areas accessible to local communities. Beaver trapping increased dramatically in 1979-80 primarily because of rumors of high prices from furbuyers. Trapline disputes occurred frequently and certain local beaver stocks were overtrapped. If beaver prices do eventually become high, additional regulations, enforcement, and management will be necessary to protect certain beaver populations.

Other Species - Fox populations increased throughout Unit 21 in response to increases in snowshoe hare numbers. Trappers reported an increase in the mink population, but this may have resulted from the mild weather which kept mink above the ice and active well into November. Muskrat populations are still low throughout the Unit. Local residents attribute this to predation by northern pike.

Summary

Furbearer regulations are adequate to meet the needs of local trappers. Illegal trapping of marten and beaver occurs frequently and some enforcement effort should be directed toward this problem.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 22

GEOGRAPHICAL DESCRIPTION: Seward Peninsula

PERIOD COVERED: July 1, 1979 - June 30, 1980

BEAVER

Population Status and Trend

Reports from long-time residents indicated beavers were uncommon on the Seward Peninsula 30 years ago, except possibly in the extreme southeastern portion of Unit 22. Beavers have expanded westward in recent years and established populations in all of the major drainages east of the Fish River (central Seward Peninsula). The general trend has been one of increasing beaver numbers in most drainages, particularly those colonized within the last 10 years.

Mortality

Because beavers were a relatively new inhabitant of the area, few trappers had the interest or knowledge to take them. Even though many people consider beavers nuisances (they dam important fish spawning streams) only a few trappers felt the difficult winter work was worth the price of the pelt. However, within the last 2 years a few individuals have experimented with taking beavers. Higher pelt prices and opening the trapping season on November 1 probably contributed to the increased interest. The total reported harvest from sealing certificates was 201 beavers. This was more than five times the number of beavers taken in any previous year. The distribution of the harvest by drainage was as follows:

Shaktoolik River	68	Tubutulik River	16
Unalakleet River	49	Egavik River	12
Koyuk River	25	Golsovia River	4
Nunakogok River	24	Pikmiktalik River	3
		Total	<u>201</u>

Except for the Koyuk and Tubutulik Rivers all of these drainages are located in the southeastern portion of Unit 22. Eighty percent of the annual harvest (160 beavers) was taken from this area. Even though compliance with sealing requirements has improved dramatically in the last 2 years, undoubtedly there were a number of people who failed to submit all their

beaver hides for tagging. However, the actual harvest was probably less than 300 beavers.

ARCTIC FOX

Population Status and Trend

The normal distribution of arctic foxes on the Seward Peninsula is along the coastal fringe from Cape Rodney north. They also inhabit the major offshore islands including St. Lawrence, Sledge, King and Little Diomed Islands. In years of high populations white foxes are found anywhere along the Unit 22 coastline, and occasionally up to 30 miles inland. The white fox population was high during the 2-year period from 1975 through winter 1977. Since then it appears there has been a gradual decrease in numbers throughout most of their range. Fox populations on the islands were moderate to high in most areas. In general, they were much lower on the mainland. Very few white foxes were reported from peripheral areas.

Mortality

Compared to past efforts, trapping pressure was moderate to high due, in part, to a strong demand for white fox by the fur market. St. Lawrence Island recorded the best catches (often 20 or more foxes per trapper) followed by Shishmaref and Wales. The minimum harvest extrapolated from the fur export records was 246 white foxes. Of this total, 70 percent came from St. Lawrence Island. This is a minimum figure because fur dealer records did not include the foxes held for personal use or those sold to nondealers, and compliance with the export regulations was often lax. Considering the number of people who trapped and their reports of average catches, the actual harvest was estimated to be 500 to 1000 white foxes.

RED FOX

Population Status and Trend

Red foxes are distributed throughout the entire Seward Peninsula in all habitat types from the coastal plain to the interior. In general, the greatest density occurs along the major river drainages where ptarmigan and snowshoe hares are abundant, but high densities may also be encountered along the coast. In these situations marine mammal carcasses and/or high densities of small rodents are probably major sources of food.

Red fox populations were high during the 1976-77 season, but experienced a dramatic decline the following year, which may have been triggered by an outbreak of distemper and rabies. During the past 2 years (78 through 80), it appears that fox numbers have gradually increased and approach former densities. In most locations throughout Unit 22 fox populations were moderate to high.

Mortality

Hunting and trapping were the major sources of fox mortality in Unit 22. It was estimated that one-third to one-half the harvest was taken by hunters using rifles and snow machines and trappers accounted for the remainder. Fur dealer records indicated the minimum harvest was 1,095 red foxes. The harvest was distributed among hunters and trappers from every mainland village, but Nome and Shishmaref residents accounted for nearly one-third of the reported take.

The total harvest was estimated at 1,100 to 1,500 red foxes. The average catch was 5 to 10 red foxes per participant, but there were exceptions. One hunter/trapper claimed to have taken more than 50 for the season.

MARTEN

Population Status and Trend

Marten habitat is primarily limited to the southeastern portion of Unit 22. Trappers reported marten sign east of the Kwiniuk River in most of the major drainages flowing into Norton Sound. Little was known about the actual population status. The sparse information suggested marten were low or absent from the Kwiniuk River eastward to the Koyuk River. The Shaktoolik and Unalakleet Rivers probably had the highest densities.

Mortality

In the past few years Unit 22 trappers have expressed little interest in taking marten. However, the increasing prices for short haired fur stimulated some trappers to make an effort. Fur dealers residing in Unit 22 reported exporting 1,204 marten. However, most of these were shipped by a fur dealer from Unalakleet who regularly did business with residents from Units 18 and 21. Probably less than one-half the reported harvest came from Unit 22. Shaktoolik and Elim fur dealers purchased 53 and 11 marten, respectively. The harvest of marten in Unit 22 was estimated to range from 100 to 500.

MINK

Population Status and Trend

Little information was available about the mink population on the Seward Peninsula. Mink sign has been reported in most of the major drainages, and mink probably ranged throughout the entire Seward Peninsula. Population density was unknown, but it is thought to be relatively low in most areas.

Mortality

There were very few mink trappers in Unit 22. Most mink were taken incidentally in sets designed for other furbearers. Only occasionally did trappers make sets specifically for mink. The reported harvest from fur dealer purchases and trapper exports was 31 mink. The actual harvest was probably less than 100.

OTTER

Population Status and Trend

Because otter tracks are distinctive and easily recognizable from the air, aerial moose surveys provided a means to assess otter distribution and abundance.

During the last 3 years otter tracks were seen in every major drainage throughout Unit 22, and it was common to find otter sign in small creeks and tributaries, especially if there was a source of thermal ground water that prevented the formation of a solid ice cover. Density was unknown, but it appeared that otters were common and widely distributed throughout Unit 22.

Mortality

There are very few experienced otter trappers in Unit 22, and most otters were taken incidental to other furbearers. The total reported harvest was only 14 otters, of which no more than three came from any one drainage. The distribution of the harvest was as follows:

Tubutulik River	3	Inglutalik River	1
Koyuk River	2	Nunavulnuk River	1
Kwik River	2	Pikmiktalik River	1
Unalakleet River	2	Shaktoolik River	1
Golsovia River	1	Total	14

Seven trappers participated one of whom caught five otters. The remaining six trappers caught only one or two. Considering the widespread distribution and abundance of otters, the low harvest probably had inconsequential effects on the population.

Management Summary and Recommendations

In general it can be stated that most furbearers were distributed throughout Unit 22, if areas contained suitable habitat. Over the years all furbearer populations have experienced cyclic highs and lows. However, major changes in population density appeared to have been influenced primarily by environmental factors rather than man-induced.

Trappers and hunters have harvested furbearers for a number of years and the long-term effects have been minimal. The increasing fur prices have caused a renewed interest in trapping, and in some cases there was a corresponding increase in the take of some furbearer species. Except in the immediate vicinity of local communities, excessive competition did not exist among trappers, nor were any of the furbearer populations significantly impacted. Large areas in Unit 22 were seldom or lightly trapped. It appears that the harvest of most furbearer species could have doubled or tripled with no detrimental effect. Considering the relatively low harvest for the unit as a whole, liberal seasons and bag limits should be retained.

It was estimated the harvest of beavers, red foxes, white foxes, lynx, mink, marten, and otters was worth at least \$190,000.00 to residents of Unit 22.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 23

GEOGRAPHICAL DESCRIPTION: Kotzebue Sound

PERIOD COVERED: July 1, 1979 - June 30, 1980

Population Status and Trend

No information was available.

Population Composition

No information was available.

Mortality

Seventeen incidences of rabies were recorded during this report period compared to none during the 1978-79 report period. Paul Hanson, Service Unit Sanitarian, Office of Environmental Health in Kotzebue, found the following animals positive for rabies:

<u>Date</u>	<u>Species</u>	<u>Location</u>
October 20, 1979	Red fox	Kiana
December 29, 1979	Red fox	Kotzebue
January 18, 1980	Red fox	Kotzebue
January 18, 1980	Red fox	Selawik
January 20, 1980	Red fox	Selawik
January 31, 1980	Red fox	Ambler
February 4, 1980	Red fox	Kotzebue
February 4, 1980	Dog	Kotzebue
February 7, 1980	Dog	Kotzebue
February 14, 1980	Red fox	Kiana
February 19, 1980	Red fox	Noorvik
February 21, 1980	Dog	Point Hope
February 25, 1980	Red fox	Kiana
March 3, 1980	Arctic fox	Kivalina
March 6, 1980	Arctic fox	Kotzebue
March 13, 1980	Red fox	Kiana
April 14, 1980	Arctic fox	Selawik

Beaver

The beaver sealing program showed great improvement. During the 1978-79 season only three pelts were sealed, all from the Selawik drainage. During this reporting period 63 pelts were sealed. All 63 beavers were taken from the Selawik drainage.

Kits made up 31 percent of the season's catch, 10 percent were super blankets (65 inches and up), and the remaining 59 percent were pelts between 54 and 64 inches.

Arctic and Red Fox

No harvest information was available.

Lynx

Four hundred and seven lynx were taken in Unit 23. The sex of the harvest was 219 males (54%), 171 females (42%) and 17 (4%) unknown. The chronology of harvest was as follows: August, 1 (0.2%); November, 19 (5%); December, 53 (13%); January, 96 (24%); February, 111 (27%); March, 110 (27%); April, 13 (3%); unknown, 4 (1%).

The preferred method of take was by trapping (378 animals-93%), followed by shooting (14-3%), snaring (3-1%) and 12 undetermined (3%).

The distribution of the harvest by drainage was as follows: Noatak-128 (31%), Kobuk-139 (34%), Selawik-136 (33%), Seward Peninsula-3 (0.07%) and the area west of the Noatak drainage-1 (0.02%).

Marten, Mink and Weasel

No information was available.

Muskrat

No information was available.

Land Otter

Nineteen land otters were taken in Unit 23. The sex of the harvest was 7 males (37%), 9 females (47%), and 3 unknown (16%). The chronology of harvest was as follows: November-5 (26%), December-9 (47%), January-2 (11%), February-1 (5%) and March-2 (11%). Ten animals were taken by ground shooting and nine were taken by trapping.

The distribution of the harvest by drainage was as follows: Noatak-4, Kobuk-2, Selawik-13.

Wolverine

Based on sealing data, the 1979-80 reported harvest was 23 wolverines: 13 males, 8 females and 2 of undetermined sex. It is believed that the wolverine

sealing program is still not entirely accurate due to the immediate local use of this fur.

The chronology of this season's harvest was as follows: November, 1; December, 4; January, 4; February, 5; March, 9. Trapping accounted for 57 percent of the harvest while 43 percent was taken by ground shooting. The Noatak, Kobuk, and Selawik drainages each had a harvest of seven wolverines. Two wolverines were taken in that area west of the Noatak drainage.

Management Summary and Recommendations

It is suspected that a significant portion of wolverines harvested in the Unit are not sealed and thus not available for official tally. By using current harvest information it would be difficult to determine any trend in the wolverine population.

The take of lynx, beavers and land otters increased over last year. The take of other furbearers was unknown at the time of this report.

Trapping pressure was probably sufficient to affect local populations of lynx. Several additional years of harvest information on lynx would be required in order to identify trends in population size.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 24

GEOGRAPHICAL DESCRIPTION: Koyukuk River Drainage

PERIOD COVERED: July 1, 1979 - June 30, 1980

Trapping Conditions

Unseasonably mild weather conditions for the first month of the season prevented many trappers in Unit 24 from reaching their traplines. Those who were already afield or who could travel made good catches of marten and mink in the southern half of the Unit. A severe cold period from mid-December through mid-January also hindered trappers and reduced the take of marten. Trapping conditions for the remainder of the winter were optimum.

Harvest and Population Status

Lynx - Lynx were moderately abundant in most portions of Unit 24. The population in the northern half of the Unit remained about the same as the previous year, but lynx numbers increased in the southern half of Unit 24. Based on sealing certificates, 263 lynx (126 male, 85 females, 52 of undetermined sex) were harvested. The 1978-79 catch was 261 lynx. Poor trapping conditions prevented an even higher catch during the 1979-80 season.

Land Otter - The otter harvest, based on sealing certificates, was 51 (24 male, 19 female, 8 of undetermined sex) compared to a reported catch of 31 the previous year. The increased otter harvest was due to an increase in beaver trapping. Similar to previous years, most otters were taken from the southern half of Unit 24.

Wolverine - Wolverines were reported to be moderately abundant and 29 (19 male, 9 female, 1 of undetermined sex) were sealed compared to a catch of 42 reported the previous year. The reduction in the harvest is probably due to poor trapping conditions rather than any change in wolverine numbers. The total catch is probably higher since many wolverines utilized locally for garment trim are not sealed.

Marten - Economically, marten is the most important fur species in Unit 24. The 1979-80 catch was lower in many areas than during the previous year. The main reason for the reduced harvest was poor trapping conditions early in

the season. Lower abundance of marten may also have contributed to the smaller catch.

Management Summary and Conclusions

The present fur regulations are adequate to meet the needs of local trappers. Efforts still continue to establish a Koyukuk River Trappers Association. Local trappers are concerned that Federal land withdrawals may impact trapping in the future, and there is also concern over the influx of nonlocal trappers.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 25

GEOGRAPHICAL DESCRIPTION: Upper Yukon River Drainage

PERIOD COVERED: July 1, 1979 - June 30, 1980

Harvest

Lynx - Sealing documents indicated that 699 lynx were sealed during the 1979-80 season. Four hundred and twenty-one lynx were taken in the Black River drainage. This was about 60 percent of the total Unit 25 catch. Only about 25 percent of the lynx catch occurred west of Fort Yukon in Unit 25. In the majority of cases, sex was listed as unknown because it is difficult to determine the sex of lynx from pelts. The harvest of lynx seemed to be evenly spread throughout the season although specific dates were not listed on many of the sealing forms.

Land Otter - Sealing forms showed that only nine otters from Unit 25 were presented for sealing during the 1979-80 season. Five otters were taken on the Black River, 2 from the Porcupine River, 1 from the Sheenjek, and 1 near the village of Tanana. It is possible that additional otters were taken but not sealed.

Wolverine - Trappers in Unit 25 sealed a total of 78 wolverines, an increase from the recorded harvest of 42 during the 1978-79 season. The harvest consisted of 54 males, 20 females, and 4 of undetermined sex. The wolverine harvest occurred throughout the season with 9 percent (7) taken in November, 19 percent (15) in December, 28 percent (22) in January, 30 percent (23) in February, and 14 percent (11) in March.

Summary

The number of lynx sealed in Unit 25 during the 1979-80 season was twice the number sealed in 1978-79. Lynx populations continued to be high and increasing in eastern portions of the Unit. Sixty percent of the catch came from the Black River drainage.

The traditionally low otter harvest in Unit 25 seems to be indicative of the low interest in trapping this species rather than a scarcity of otters. The southern half of Unit 25 offers good aquatic habitat and should

support fair otter populations. It is possible that many otter pelts taken during 1979-80 were used locally for garments and were not sealed.

The Unit 25 wolverine harvest during 1979-80 was almost double the number harvested the previous season, but approximately the same as the catch in 1977-78. The take of wolverines from Unit 25 had been fairly consistent for several years prior to 1978-79. No explanation for the decreased catch in 1978-79 and return to the previous levels of harvest during 1979-80 is available. Factors such as weather or availability of prey may affect the wolverine catch.

Except for local situations, trapping has little influence on overall abundance of these and other furbearer species.

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BEAVER

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 17

GEOGRAPHICAL DESCRIPTION: Northern Bristol Bay

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Feb. 1-Feb. 15

10 beavers

Background

Beavers are the primary fur resource in the northern Bristol Bay region. Beavers were first commercially exploited by the Russians when they established a trading post in 1816 at the mouth of the Nushagak River (Van Stone 1964). Trade with native villages from as far away as the Kuskokwim River drainage stimulated the beaver harvest throughout the area and altered trapping practices from customary methods of clubbing or netting under the ice to total destruction of lodges. The destructive harvest methods which the Russian traders introduced led to the "near extinction" of beavers in the lower Nushagak area in the early 1800's (Zagostin 1967).

Few data are available on the status of the beaver population from the 1820's to the early 1900's. Trapping activity declined after the beginning of the salmon canning industry in the mid 1880's. It increased again in the early 1900's and overharvests, particularly in the Wood and Nushagak River drainages, resulted in periodic closures of the trapping season. After a 7-year closure by the U.S. Fish and Wildlife Service, the Wood and Nushagak drainages were opened in 1958 with a limit of 15 beavers per trapper (Appendix I).

Population Status and Trends

Beaver populations in Unit 17 have fluctuated several times during the past 20 years, primarily in response to trapping pressure. Beaver cache counts were initiated in Unit 17 in 1968 (Appendix II). These counts provide an index of beaver population fluctuations. Count data between 1968 and 1974 are sporadic. During this period, densities of beavers were lower in Subunits 17A and 17C than in Subunit 17B. In 1975, the season was closed in Subunit 17A and in most of 17C,

after which beaver numbers appeared to steadily increase through 1978. Cache counts declined slightly in 1979, most noticeably in that portion of the Unit which had been closed in recent years. Populations, however, were still substantially higher in 1979 than they were prior to the closure.

Mortality

Recorded harvest levels in Unit 17 have ranged from 637 in 1976 to 3,721 in 1960 (Appendix I). Between 1958 and 1970, Unit 17 yielded an average annual harvest of 2,300 beavers. During this period kits (under 54") averaged 24 percent of the harvest. Harvest levels declined until 1973 when poor economic returns from commercial fishing stimulated trapping pressure. Both harvest and trapping pressure declined following the season closure in Subunits 17A and 17C in 1975, but increased dramatically after the season was reopened in 1979.

Sealing records indicate 190 trappers took 1,476 beavers in Unit 17 during the 1979-80 trapping season. The number of trappers was the highest recorded since 1968, and the percent of kits in the harvest (27.7%) was the highest since 1964. Most of the harvest (56%) came from Subunit 17C. Subunit 17A produced 25 percent of the harvest and 9 percent came from 17B. Percent kits in the harvest ranged from 13 percent in 17B to 37 percent in 17A. Trappers from Togiak and Manakotak were responsible for the high percentage of kits, respectively. Trappers from the Nushagak River villages accounted for substantially lower percentages of kits in the harvest (Koliganek - 21%, New Stuyahok - 10%, Ekwok - 2%, Portage Creek - 8%, Clarks Point - 5%).

Management Summary and Recommendations

Information collected during sealing of beaver pelts provides most of the data used for management purposes in Alaska. The most frequently used statistic for management decision has been the percentage of kits (pelts under 54") in the harvest and is based upon Libby's (1955) conclusion that: "...an area with an average of less than 7.5 beaver per trapper or less than 20 percent of the trappers with their limit and more than 25 percent kits in the recorded harvest would be considered overtrapped, provided the economic conditions were stable." These conclusions were based on an average colony of four beavers with an annual production of one beaver per year.

Several difficulties arise when the above generalization is used as a basis for beaver management in Unit 17. Economic conditions are seldom stable in Unit 17 because they depend predominately on the economic return of the commercial fishery which varies greatly. Colony size and production figures come from northern interior Alaska where climatic factors are more severe. Bergerud and Miller (1977) found an average recruitment of 32 percent in Newfoundland populations and an average colony size of 5.1 beavers (N=17). Climatic conditions in Newfoundland are probably more similar to those in Unit 17 than those in interior Alaska and these figures are probably more representative of colony size and recruitment in Unit 17.

Many trappers in Unit 17 take more than the legal bag limit simply by filling out the limits allowed their spouses and children. Beaver catch per trapper or percent of trappers with limits are indices which may, therefore, be seriously biased. When analyzing trapping data, percent kits in the harvest is generally used in conjunction with one of the above measures of trapping success. The results of this data analysis procedure should be interpreted cautiously when evaluating trapping impact on beavers in Unit 17.

For example, Unit 17 supported an average annual harvest of 2,300 beavers, including 24 percent kits during the 12-year period from 1958 to 1970. Clearly, Unit 17 can support annual harvest of this magnitude if trapping pressure is spread throughout the Unit.

The following activities are recommended for the 1980-81 season:

1. Survey trapping pressure along cache survey streams to help evaluate impacts of trapping vs. weather and other mortality factors.
2. Request more specific locations on sealing documents using a translator during Beaver Roundup.
3. Encourage trapping away from villages.
4. Continue cache surveys on selected streams.

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Zagostin, L.A. 1967. Lieutenant Zagostin's travels in Russian American 1842-1844. H.N. Michael, ed. Arctic Inst. N. Am., Anthropology of the North Transl. from Russian Sources No. 7, Toronto.

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LYNX

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 22

GEOGRAPHICAL DESCRIPTION: Seward Peninsula

PERIOD COVERED: July 1, 1979-June 30, 1980

Season and Bag Limit

Nov. 1-April 15

No limit

Population Status and Trend

Lynx habitat is primarily limited to the central and southeastern portions of Unit 22. Based on past trapping success, the drainages bounded by the Fish River on the west and the Koyuk River on the east have consistently produced the most lynx. The vegetation of the area is predominantly spruce, with willows along the main drainages, somewhat typical of "interior" lynx habitat. Even in years when the lynx population was at its low cycle, good trappers were always able to catch a few animals from this area.

Drainages west of the Fish River do not contain spruce and are not normally considered favorable lynx habitat. However, lynx regularly occur in these areas, especially during cyclic highs. When the lynx population is high the Fish and Koyuk Rivers may act as reservoirs to provide "colonizing stock" for less favorable habitats.

During this report period the lynx population was moderate to high from the Fish River eastward, an area that also had a high population of hares. Hares crashed west of the Fish River (Kuzitrin drainage) during the spring and summer of 1979. Lynx sign was seen in this area during the previous winter (1978-79), but none was observed during this report period.

Population Composition

No population composition data were available.

Mortality

No information was obtained on natural mortality. Undoubtedly, trappers were the major source of mortality. The reported harvest was 260 lynx compared to 238 animals the previous year, and 168 during winter 1977-78 when the sealing of lynx hides was first

initiated. Some lynx probably were not sealed because the hides were saved for personal use or future sale. The total harvest was estimated to be 265-275 lynx. The distribution of the known harvest by drainage was as follows:

Tubutulik River	79	Kwiniuk River	7
Koyuk River	58	Niukluk River	7
Fish River	43	Shaktoolik River	2
Kwik River	26	Ingluakik River	1
Unalakleet River	26	Unknown	11
		Total	260

The reported composition of the harvest was 110 males, 114 females, and 36 animals of unknown sex. Similarly, the catch in 1978-79 was divided equally between sexes. Thus, for the past 2 years it appeared there was little differential trapping selection among males or females.

The catch was distributed among 42 trappers (a decrease of 8 from last year) for an average of six lynx per person (1 more than last season). The average harvest is misleading because there were 24 trappers taking 3 lynx or fewer, 5 who took 20 or more, and 1 who took 37 lynx. From the catch statistics, it appeared there was a small percentage of trappers who earnestly worked at their profession and did quite well. The majority probably pursued trapping as recreation or as a supplement to other activities.

Lynx were taken in every month, but the latter portion of the trapping season from late January through March was the most productive. The distribution of the harvest by month for the three most recent trapping seasons is as follows:

	<u>1977-78</u>		<u>1978-79</u>		<u>1979-80</u>	
	No.	Percent	No.	Percent	No.	Percent
Percent						
Harvest		Harvest		Harvest		
NOVEMBER	8	5	24	10	10	4
DECEMBER	20	12	36	15	42	16
JANUARY	40	24	41	17	57	22
FEBRUARY	34	20	61	26	57	22
MARCH	66	39	76	32	67	26
APRIL	0	0*	0	0*	8	3
UNKNOWN	0	0	0	0	19	7
TOTAL	168	100	238	100	260	100

*closed to trapping during this period.

These data indicate that trapping success and/or participation was the lowest at the beginning of the season, and generally increased with each succeeding month. Roughly one-third of the annual harvest was taken during the month of March. The increasing daylight, more favorable weather conditions, and the onset of the lynx breeding season probably accounted for this trend.

Management Summary and Recommendations

During the last 5 years the lynx population has exhibited a general trend of range expansion and increased numbers concurrent with a cyclic increase in the snowshoe and arctic hare populations. Following the crash of snowshoe hares in the western portion of the central Seward Peninsula, there was also a corresponding decrease in lynx density. In spite of a decrease in the peripheral areas of their range, the lynx population appeared to be moderate to high in most areas of suitable habitat. The southern Seward Peninsula continued to exhibit high numbers of lynx, particularly in the drainages from the Fish River east to the Koyuk River.

Throughout the unit only 42 trappers participated in the harvest, and most of this effort was confined to an area within 30 miles of the village. High prices for lynx pelts have contributed to the heaviest trapping effort in a number of years, yet the harvest has remained relatively consistent for the last 2 years.

Considering the large area involved and the relatively low number of animals taken per square mile, it did not appear as though trapping had any adverse effects on the lynx population.

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WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 9

GEOGRAPHICAL DESCRIPTION: Alaska Peninsula

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting	Sept. 1-March 31	One wolverine
Trapping	Nov. 10-March 31	No limit

Population Status and Trend

No data were available.

Population Composition

No data were available.

Mortality

Sixty-four wolverines, 38 males, 25 females and 1 sex unknown were reported taken from Unit 9 during the 1979-80 season. As in past seasons, trapping accounted for the majority of the harvest with 47 wolverines taken by this method. Ground shooting accounted for 13 of the remaining 17 kills. This harvest is slightly lower than the previous 8-years average of 75 wolverines.

Management Summary and Recommendations

Normal winter weather conditions with moderate ice and limited snow cover on the Alaska Peninsula provided adequate access for ski-equipped aircraft. As a result, the harvest was well distributed and commensurate with former mean levels.

The predominance of males in the harvest most likely reflects their greater vulnerability due to more extensive movements and larger home range sizes. The stability of the sex ratio and harvest level indicate that overall trapping pressure is relatively low.

No changes in seasons and bag limits are recommended.

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WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 11

GEOGRAPHICAL DESCRIPTION: Wrangell Mountains

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting	Sept. 1-March 31	One wolverine
Trapping	Nov. 1-March 31	No limit

Population Status and Trend

No data were available.

Population Composition

No data were available.

Mortality

The wolverine harvest for 1979-80 was 11 males, 11 females and 1 sex unknown. Twenty-one wolverines were trapped, one was snared and one was ground shot. Most wolverines taken were harvested during February and March.

Management Summary and Recommendations

The 1979-80 harvest of 23 wolverines is consistent with the 5-year average of 26 wolverines (Tobey 1980).

Trapping pressure was light throughout the Unit and the harvest was not excessive. A change in season dates or bag limits is not recommended.

Literature Cited

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WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 13

GEOGRAPHICAL DESCRIPTION: Nelchina Basin

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting	Sept. 1-March 31	One wolverine
Trapping	Nov. 10-March 31	No limit

Population Status and Trend

No data were available.

Population Composition

Research investigations are currently underway to obtain composition data on the wolverine population.

Mortality

The 1979-80 wolverine harvest was 43 males, 34 females and 4 sex unknown. Trapping continues to be the most effective method of harvest. Appendix I lists the harvest data by chronology and method of take.

Management Summary and Recommendations

The wolverine harvest increased by 22 from last year's harvest of 59 (Tobey 1980). This year's kill is below the level reported from 1971-76. Males continue to be predominate in the harvest.

No changes in seasons or bag limits are recommended.

Literature Cited

Tobey, R. W. 1980. Wolverine Survey-Inventory Progress Report. In R. A. Hinman, ed. Annual Report of Survey-Inventory Activities, Part IV. Fed. Aid Wildl. Rest. Rep. AK. Dept. Fish and Game, Juneau.

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Appendix I. Wolverine harvest data for 1979-80 - Unit 13^a.

Total Wolverine Harvest:	81
Harvest Chronology, Number (Percent)	
September	1 (1%)
November:	6 (7%)
December:	12 (15%)
January:	12 (15%)
February:	28 (35%)
March:	22 (27%)
Method of Take, Number (Percent)	
Ground Shooting:	7 (9%)
Trapping:	71 (88%)
Snaring:	1 (1%)
Unknown:	2 (2%)

a. Harvest date are based on sealing data only.

WOLVERINE
SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 16

GEOGRAPHICAL DESCRIPTION: West Side of Cook Inlet

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag Limits

Hunting	Sept. 1-March 31	One wolverine
Trapping	Nov. 10-March 31	No limit

Population Status and Trend

No data were available.

Population Composition

No data were available.

Mortality

Fifty-five wolverines, 31 males and 23 females, were reported killed in Unit 16 during this period. This kill was slightly below the 1971-79 average of 60.5 wolverines. Three wolverines were taken in Subunit 16A and 51 in Subunit 16B. Trapping was the most common method of take, accounting for 32 (58%) wolverines. Twenty (36%) were ground shot and the method of harvest for the remaining three is unknown. Presented in Appendix I are wolverine harvest data listed by sex, chronology, and method of take.

Management Summary and Recommendations

The 1979-80 harvest of 55 wolverines is a 9 percent decline from the 1971-79 average. Wolverine harvest fluctuations of this magnitude are typical for this Unit.

No changes in season length or bag limits are recommended.

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WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 22

GEOGRAPHICAL DESCRIPTION: Seward Peninsula

PERIOD COVERED: July 1, 1979 - June 30, 1980

Season and Bag Limit

Nov. 1-April 15

No limit

Population Status and Trend

During the past decade only limited information has been gathered about the population status of wolverines in Unit 22. This is not surprising considering the animals' comparatively low density, its small size, and solitary habits. Still, knowledge of wolverine abundance and geographical distribution has been obtained by noting the incidence of tracks during ideal snow conditions, tabulating reports from knowledgeable people who spend considerable time outdoors, and reviewing annual harvest information. From these sources it appeared the wolverine population in Unit 22 remained relatively stable during the last 10 years or more, with some minor exceptions. In general, wolverine numbers were somewhat lower near population centers than in remote areas. But, occasionally abundant wolverine sign was noted near major villages. Aerial observations indicated wolverines were distributed throughout the entire Seward Peninsula in every major drainage, with sign noted at all elevations and in all habitat types. Tracks and other sign were most abundant on the Kuzitrin, Koyuk, Fish, Tubutulik, and Serpentine Rivers.

Population Composition

No surveys were conducted to determine the composition of the wolverine population.

Mortality

Hunting and trapping accounted for all known mortality. The reported harvest from sealing certificates was 18 wolverines; 9 males, 8 females, and 1 animal of unknown sex. During the last nine trapping seasons the harvest has averaged 19 wolverines annually, and has ranged from a low of eight (1974-75) to a high of 26 (1975-76). The distribution of the winter harvest was as follows:

Golsovia River	4	Fish River	1
Tubutulik River	3	Kwiniuk River	1
Unalakleet River	3	Koyuk River	1
Pikmiktalik River	2	Shaktoolik River	1
Eldorado River	1	Unknown	1
		Total	18

The majority of the harvest occurred in the central and eastern portions of Unit 22, but no significant concentration of animals was taken in any one area. There were no major trends in chronology of the harvest as wolverines were taken in every month from December through March, with the highest harvest in January (7 wolverines). Trapping accounted for 78 percent of the animals; the remaining were shot or snared. Although sealing agents were available in most villages, all wolverine hides taken during the report period may not have been surrendered for tagging. The actual harvest was estimated between 20 and 30 animals.

Management Summary and Recommendations

Although precise data are lacking, the wolverine population probably experienced no significant changes in absolute numbers during the past decade, although there may have been minor shifts in population density in response to hunting pressure and ecological changes. Wolverines are distributed throughout the entire Seward Peninsula, but the highest densities occur in the central and eastern portions, principally associated with the major river drainages.

Until recently, the primary management effort has been to obtain accurate harvest data. Improvements have been made, particularly in villages, where agents have been employed to assist hunters and trappers in getting their furs sealed, but there is still a need to improve the accuracy of the harvest data. Satisfactory compliance with the regulations will probably be attained only by increasing public contact in rural areas and emphasizing the enforcement and management benefits of the sealing programs.

The sealing records and other sources of information indicated the harvest of wolverines has remained relatively constant at around 30 animals or fewer during the last 10 years. Considering their widespread range in Unit 22, a harvest of this magnitude probably had no detrimental effects on the overall population. Wolverine densities in the immediate area of villages were probably reduced below carrying capacity from time to time, but wolverines appeared to have recovered naturally and/or immigration occurred from adjacent areas of higher density.

Among hunters and trappers the demand for wolverines was quite high due to the quality of the fur, and the relative scarcity of the animal. Currently, most wolverine are trapped, but under ideal tracking conditions they are extremely vulnerable to hunters using snowmachines. The harvest should be closely monitored to ascertain changes in magnitude and methods. Since the current harvest was relatively low, liberal trapping seasons and bag limits should be retained.

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UPLAND GAME ABUNDANCE
SURVEY-INVENTORY PROGRESS REPORT

STATEWIDE

PERIOD COVERED: July 1, 1979 - June 30, 1980

Techniques

The standard small game abundance questionnaire was mailed in mid-October 1979 to 440 people throughout the State, and by the end of January 1980 approximately 220 replies had been received. As in the past, the bulk of replies came from the Interior and Gulf regions. Replies were tabulated and analyzed as in previous years (see Game Bird Report, Vol. 5, 1965, pp. 2 and 3). A summary of responses was mailed to cooperators in June 1980. Replies to the questionnaire are summarized in Appendix A.

Findings

Grouse - Replies to the 1979 questionnaire indicated that grouse populations continued to increase statewide and were at moderately high levels in most areas except for Western Alaska. Cooperators in Western Alaska areas thought that grouse populations had declined to moderate levels.

Ptarmigan - Numbers of ptarmigan (all species) were reported to be at moderate levels statewide with two exceptions: Western Alaska cooperators reported high ptarmigan abundance and replies from the Alaska Peninsula suggested moderately low numbers. Cooperators indicated that ptarmigan abundance remained unchanged between 1978 and 1979 in Southeast, Interior, and Southcentral Alaska. During this period numbers increased in Western Alaska and on Kodiak Island and a moderate decline in abundance was reported in the Brooks Range and on the Alaska Peninsula.

Snowshoe Hare - Snowshoe hare populations were thought to have increased throughout the State except for the Alaska Peninsula where reports indicated a slight decline. Hare populations were reported moderately low to moderate throughout the State except for Western Alaska and the Brooks Range where cooperators indicated numbers to be moderately high to high.

Management Summary and Conclusions

The standard small game abundance questionnaire has, over the years, indicated that grouse, ptarmigan, and hare populations fluctuate considerably throughout the State. Hunting pressure has little effect on fluctuations over broad geographical regions of Alaska.

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Appendix A. Summary of replies to questionnaire on grouse, ptarmigan, and hare populations, 1979.

Area and Species	Present Abundance ^a				Comparison with 1978 ^a			
	High	Mod.	Low	Index ^b	More	Same	Fewer	Index ^b
Brooks Range - 12 replies								
Grouse (general)	0	2	2	3.0	1	2	0	6.3
Spruce Grouse	0	2	1	3.6	2	0	0	9.0
Ptarmigan (general)	1	4	2	4.4	0	3	2	3.4
Rock Ptarmigan	1	4	0	5.8	0	3	1	4.0
Willow Ptarmigan	2	8	0	5.8	0	7	1	4.5
Snowshoe Hare	4	2	2	6.0	6	1	0	8.4
Western - 17 replies								
Grouse (general)	0	4	3	3.3	2	2	2	5.0
Spruce Grouse	4	1	3	5.5	3	3	1	6.1
Ptarmigan (general)	9	5	1	7.1	8	2	3	6.5
Willow Ptarmigan	5	5	0	7.0	5	3	2	6.2
Snowshoe Hare	6	3	4	5.6	4	4	3	5.4
Alaska Peninsula - 17 replies								
Ptarmigan (general)	1	3	6	3.0	1	2	7	2.6
Willow Ptarmigan	1	5	4	3.8	1	5	3	4.1
Snowshoe Hare	0	5	7	2.6	1	7	3	4.3
Kodiak - 3 replies								
Ptarmigan (general)	0	2	0	5.0	1	1	0	7.0
Snowshoe Hare	0	1	2	2.3	2	0	1	6.3
Southeastern - 23 replies								
Grouse (general)	2	8	1	5.4	5	4	2	6.1
Spruce Grouse	0	4	3	3.3	5	1	1	7.3
Blue Grouse	3	11	3	5.5	5	7	5	5.5
Ptarmigan (general)	0	8	3	3.9	0	10	1	4.6
Willow Ptarmigan	0	3	3	3.0	3	3	0	7.0
Snowshoe Hare	1	1	7	2.3	6	2	2	7.2
Gulf - 53 replies								
Grouse (general)	5	21	6	4.9	15	16	1	6.8
Ruffed Grouse	1	1	8	2.2	0	8	2	4.2
Spruce Grouse	9	23	10	5.2	24	16	2	7.1
Sharp-tailed Grouse	0	5	6	2.8	3	6	3	5.0
Ptarmigan (general)	3	24	11	4.2	9	22	3	5.7
Rock Ptarmigan	0	4	4	3.0	2	5	1	5.5
Willow Ptarmigan	2	17	7	4.2	2	17	7	4.2
White-tailed Ptarmigan	0	3	5	2.5	0	3	5	2.5
Snowshoe Hare	3	19	24	2.9	33	8	5	7.4

Appendix A. Continued.

Area and Species	Present Abundance ^a				Comparison with 1978 ^a			
	High	Mod.	Low	Index ^b	More	Same	Fewer	Index ^b
Interior - 94 replies								
Grouse (general)	22	39	12	5.8	34	32	10	6.3
Ruffed Grouse	15	40	16	4.9	31	22	10	4.9
Spruce Grouse	19	42	5	5.9	37	31	7	6.6
Sharp-tailed Grouse	11	19	21	4.2	18	22	12	5.5
Ptarmigan (general)	10	30	16	4.6	7	38	10	4.8
Rock Ptarmigan	4	13	6	4.7	3	17	2	5.2
Willow Ptarmigan	7	17	12	4.4	6	19	8	4.8
White-tailed Ptarmigan	1	5	6	3.3	1	8	2	4.6
Snowshoe Hare	16	40	30	4.3	53	20	7	7.3
Statewide								
Grouse (general)	30	77	24	5.2	60	57	15	6.4
Ruffed Grouse	17	43	26	4.6	32	36	14	5.9
Spruce Grouse	43	80	27	6.4	72	54	11	6.8
Sharp-tailed Grouse	11	25	27	4.0	21	29	15	5.4
Ptarmigan (general)	24	76	39	4.6	26	78	26	5.0
Rock Ptarmigan	6	28	14	4.3	0	3	1	5.3
Willow Ptarmigan	17	56	26	4.6	27	52	17	5.4
White-tailed Ptarmigan	2	9	12	3.3	3	14	3	5.0
Snowshoe Hare	30	72	76	4.0	105	42	20	7.0

^a Based on the number of answers to each question; not all cooperators answered all questions.

^b Index values range from 1.0 through 9.0 and were derived by giving an arbitrary value of 9.0, 5.0, and 1.0 to each "High" (More), "Moderate" (Same), and "Low" (Fewer) answer, respectively. The total value of the answers to each question for each species was divided by the number of answers to that question. An index of 9.0 indicates High (More), 5.0 indicates Moderate (Same), and 1.0 indicates Low (Fewer).

SMALL GAME

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS 12, 19, 20, 21, 24, and 25

GEOGRAPHICAL DESCRIPTION: Interior Alaska

PERIOD COVERED: July 1, 1979 - June 30, 1980

Population Status and Trend

Observations by Department personnel, reports from sportsmen, and responses to annual abundance and trapper questionnaires provided information to assess small game fall and winter populations on a region-wide basis. Data from these sources suggested that during the 1979-80 season, ruffed, spruce, and sharp-tailed grouse were moderately abundant in Interior Alaska. Throughout the region grouse were more abundant than during the 1978-79 season, particularly in the Delta and Tok areas. Ptarmigan densities were moderate and little changed from the previous season. Snowshoe hare populations were moderately high in the north and eastern portions of the Interior. Elsewhere numbers were low. Throughout Interior Alaska snowshoe hare abundance increased between fall 1979 and fall 1980.

The breeding population of rock ptarmigan remained low but increased substantially between 1979 and 1980 at Eagle Summit, approximately 80 miles northeast of Fairbanks. On 13 and 14 May 1980 a census of rock ptarmigan was conducted on the 15-square mile study area at Eagle Summit. Counting conditions were good and, since two crews were used, the census was completed in 2 days. This survey revealed 38 male rock ptarmigan which was a 29 percent increase from the 27 males observed during the 1979 census. Despite this increase, the population must be considered low. In 1962, 170 ptarmigan comprised the male breeding population at Eagle Summit, but since 1974 the number of breeding males has ranged between 27 (1979) and 36 (1977).

It is unknown whether population trends at Eagle Summit are representative of changes in ptarmigan numbers throughout the Tanana Hills. Rock ptarmigan were abundant during late fall and early winter 1979 at Murphy and Ester Domes near Fairbanks, but it is unknown where birds comprising these wintering groups breed. Apparently relative abundance of ptarmigan wintering in the Fairbanks vicinity does not correlate positively with subsequent spring densities at Eagle Summit.

Sharp-tailed grouse breeding populations appeared to be moderate to high throughout Unit 20. The following areas, known to be leks, were checked for activity in early May 1980: near Seaton Roadhouse along the ALCAN Highway, the West Fork of the Dennison Fork near the Taylor Highway, the Meadows Road and Buffalo Drop Zone near Delta, and the Tofty Road near Manley. At each location except the Meadows Road, displaying sharptails were observed. The value of information from the Tofty and Seaton Roadhouse areas is limited because counts did not coincide with the seasonal peak in courtship behavior. At the Drop Zone the number of sharptails (12) was unchanged from 1979. Twenty-four sharptails occupied the West Fork lek, a marked increase from 1978 and 1979 when 5 and 3 males, respectively, were present. Small groups of sharptails were also seen displaying in the following areas along the Taylor Highway: Y-34 burn (Mile 47-48), the gravel pit between the West Fork and Taylor Creek, and near the town of Chicken.

Counts at dancing grounds are commonly used to annually assess sharptail population trends in other states and provinces. In Alaska it is currently beneficial in determining populations on small areas, but more leks must be located and checked annually if this technique is to be useful in monitoring trends on a unit or region-wide basis.

Population Composition

Age data from ptarmigan shot at Murphy Dome during fall and early winter 1979 indicated low production during the 1979 nesting season. Between 4 October and 9 December 1979 Department check station personnel examined 850 ptarmigan killed by hunters at Murphy Dome. With very few exceptions these were rock ptarmigan. Sixty percent of the ptarmigan examined were juveniles and 55 percent were females. A complete age-sex breakdown of this harvest is as follows: juvenile females, 31 percent; juvenile males, 28 percent; adult females, 24 percent; and adult males, 14 percent. The juvenile to adult ratio was 1.5:1.0. In 1978 this ratio was 2.6:1.0 for 50 ptarmigan shot at the Dome. Seasonal movements and segregation of age and sex groups complicate age ratio comparison between wintering and breeding populations. Nevertheless, the scarcity of juveniles during the 1979-80 hunting season is emphasized by the fact that, even in summer prior to nesting, juvenile to adult ratios have been as high as 3.9:1.0.

No programs were in operation to obtain composition data for other small game species.

Mortality

Hunter harvest, the only small game mortality factor monitored, was obtained through a questionnaire (region-wide) and a check station (Murphy Dome).

The Small Game Hunter Questionnaire, designed to assess hunter interest and harvest, was initiated on a statewide basis in 1978. The 1979-80 Questionnaire was mailed only to Unit 12, 19, 20, 21, 24, and 25 residents. Names were randomly selected from a list of license holders at the rate of every fifth name (rural areas) and every tenth name (urban and road system areas). Unfortunately, an oversight in computer programming precluded comparisons between responses from rural and urban-road system hunters.

In December 1979, 1,100 questionnaires were mailed, and 382 hunters responded by returning the questionnaire. Among respondents, 243 (64%) hunted small game during fall 1979. On the average, hunters went on 17 trips for small game, and 39 percent indicated that members of their family under 16 years of age also hunted small game. For the most part, hunters did not travel far in search of small game. For example, the most popular areas among Fairbanks hunters were Murphy Dome, the Chena River Valley including Eielson Air Force Base and the Chena Hot Springs Road area, and the Richardson Highway area west of the Salcha River.

Questionnaire responses pertaining to harvest are summarized in Appendix I. During the entire 1979 season each successful hunter took an average of 19 grouse, 15 ptarmigan, and 15 snowshoe hares. Tok area hunters averaged the most grouse during the 1979 season (45 per hunter) and, although the sample size was small, Huslia area hunters averaged the most ptarmigan (54 per hunter). Hunters from the Fort Yukon-Beaver area reported the highest rate of success for hares during this season (31 per hunter).

The species breakdown within our sample of the regional grouse harvest was as follows: spruce grouse, 67 percent; ruffed grouse, 26 percent; and sharp-tailed grouse, 7 percent. The only area deviating significantly from this distribution was Tok where the harvest breakdown was: 66 percent spruce grouse, 27 percent sharp-tails, and only 6 percent ruffed grouse.

Murphy Dome provided excellent ptarmigan hunting during the 1979-80 season. A check station was operated at the Dome on weekends from 4 October through 9 December. During the nine weekends in this period, 313 hunters (130 parties) took 1,019 ptarmigan. Hence, parties

took an average of 7.8 ptarmigan per trip and the average take per hunter per trip was 3.2 birds. With very few exceptions these were rock ptarmigan. The take per weekend averaged 113 ptarmigan (range 56-210) and on the last weekend of check station operations 141 birds were shot.

It seems reasonable to assume that 1) harvests during the weekday period (5 days) were at least equal to that for weekends, and 2) harvests comparable to those recorded for October and December continued into February. Accepting these assumptions, we estimate that hunters took 3,000-4,000 rock ptarmigan from an area approximately 10 square miles in size. The biological significance of this harvest cannot be assessed until the breeding grounds of ptarmigan wintering at Murphy Dome are located.

Management Summary

Grouse, ptarmigan, and hare populations fluctuate markedly in abundance. While hunting is thought to have little effect on small game population trends over broad geographical areas, hunting can influence local abundance. Currently, grouse populations are moderately high, ptarmigan populations are low to moderate, but winter concentrations have provided good hunting in some areas. Numbers of snowshoe hares are increasing and, although populations are moderate in much of the Interior, high numbers exist in the north-eastern portions of the region.

The 31 March closure of ptarmigan hunting along the Steese Highway has been in effect for two seasons, but the rock ptarmigan breeding population at Eagle Summit has remained relatively low. Efforts should be directed toward determining the winter range of ptarmigan breeding at Eagle Summit. This information would aid in evaluating the biological significance of ptarmigan harvests in heavily hunted wintering areas such as Murphy Dome.

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SMALL GAME

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 22

GEOGRAPHICAL DESCRIPTION: Seward Peninsula

PERIOD COVERED: July 1, 1979 - June 30, 1980

Population Status and Trend

In Unit 22 there are four species of small game that are widely distributed and are important components of the ecosystem in terms of numbers or biomass. These four species are willow ptarmigan, rock ptarmigan, snowshoe hare, and arctic hare.

Willow or rock ptarmigan were abundant in every major drainage, but appeared to have declined somewhat from a population high of the previous year. Ptarmigan were observed on numerous occasions while conducting aerial big game surveys. Flocks ranged in size from 20 to 200, but the average was probably less than 50. The previous year flocks numbering 500 to 1,000 were not uncommon. The unusually wet summer of 1979 was probably a major factor contributing to the decline. Nesting conditions were less than ideal, and the survival of chicks was probably below average.

Snowshoe hare populations continued at near record highs in the eastern Seward Peninsula, principally in the drainages of the Fish and Koyuk Rivers. In March, an examination of the willow in these areas revealed extremely heavy use. Nearly every willow less than one-half inch in diameter was girdled a foot or more above the existing snow cover, and the bark from a high percentage of willows over an inch had been partially browsed.

Snowshoe hares may have crashed in a portion of their range during late spring. Robert Nelson, Game Biologist at Nome, walked a 5-mile, circular, line transect northeast of Council (Niukluk River), and estimated he saw 500 "fresh" carcasses. Many of the dead hares were suspended in spruce boughs, and apparently died there when the snow cover was at that height. On this trip Nelson observed only two live hares.

In early winter there was a marked reduction in snowshoe hare numbers west of the Fish River during the

summer of 1979. The population in the Kuzitrin drainages was very dense during the previous winter (1978-79), but subsequently appeared to have crashed and/or suffered a major reproductive failure. Hare numbers in the Kuzitrin drainages were observed numerous times both before and after the crash. From these observations, it was estimated that the hare population declined as much as 70 to 90 per cent of its former numbers. The most drastic decline occurred on the Pilgrim River, a major tributary of the Kuzitrin. Only a few hare tracks were seen on the entire drainage from November through March; whereas, the year before there were literally thousands of hares

The distribution of arctic hares was principally in the western portion of Unit 22. Throughout most of their range, the population appeared to be high. On the Serpentine and Nuluk drainages groups of arctic hares numbering from five to 20 were observed in nearly every major stand of willows. They were also commonly seen on the adjacent ridges, often in relatively open areas containing few willows. Throughout much of the area a maze of trails criss-crossed the countryside looking like a miniature network of roads connecting every prominent patch of willows.

Arctic hare signs were also abundant in portions of the central Seward Peninsula. A "herd" estimated to contain 300 to 500 individuals was observed on the upper Kuzitrin during March. Not only was it unusual to find arctic hares concentrated in such large numbers, but the sight was especially striking because they were located in marginal habitat. The animals were congregated at the edge of a major lava field, near a small isolated willow patch, and in a desolate area that seemingly offered insufficient food to feed such a large group. This was not a temporary phenomena because 10 days later they were observed in the same place. It appeared arctic hare populations were near their cyclic high throughout most of their range.

Population Composition

No surveys were conducted, per se, to determine the composition of any small game population.

Mortality

Little was known about the types of natural mortality and its relative effect on small game populations, other than changes in relative abundance which were discussed previously.

Hunting mortality was light for all the major species of small game, in relation to their numbers and distribution. In late March, five arctic hares were collected from the "lava fields" in the upper Kuzitrin drainage. The sample was composed entirely of males ranging in weight from 4.8 to 6 kilograms. All of these hares appeared to be in good physical condition despite the fact that the vegetation of the area was well browsed.

A pack of 6 to 8 wolves ranged throughout the upper Kuzitrin. From the tracks and other signs, it was thought they regularly preyed on the dense arctic hare population.

Management Summary and Recommendations

Comparing annual changes in flock size, it was estimated that ptarmigan numbers were moderately high, but much lower than previous years. Snowshoe hares were extremely high throughout Unit 22, except in the central Seward Peninsula, where it appeared they had crashed during the summer of 1979. A major snowshoe hare decline is anticipated in the eastern half of Unit 22. Arctic hare populations were high throughout the western portion of Unit 22, and it appeared a crash was imminent in some areas. Hunting mortality was low, and had little, if any, adverse impact on small game populations. In a few instances, hunters may have had a noticeable impact on the ptarmigan populations in the immediate vicinity of inhabited communities. However, it appeared that major changes in the numbers and distribution of small game were related to weather, predators, and other natural phenomena.

For a number of years there has been no closed season on snowshoe and arctic hares, and the ptarmigan season has run from August 10 through April 30. Since hunting has had negligible impact on small game in Unit 22, seasons and bag limits should remain liberal.

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SMALL GAME

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 23

GEOGRAPHICAL DESCRIPTION: Kotzebue Sound

PERIOD COVERED: July 1, 1979 - June 30, 1980

Seasons and Bag limits

Grouse	Aug. 10 - April 30	15 per day, 30 in possession
Ptarmigan	Aug. 10 - April 30	20 per day, 40 in possession
Hares-Rabbits	No closed season	No limit

Population Status and Trend

Grouse are present, but are not in large enough numbers to determine trends.

Willow Ptarmigan sightings were less frequent during this report period. The upland areas immediately south of Kotzebue were devoid of large flocks in fall 1979.

Snowshoe hare densities were high on all major drainages. Hares girdled the majority of the willow on the lower portions of all drainages. For the last 4 years hare populations have been high on the mouth of the Noatak River.

Mortality

It is not felt that hunting has had an impact on small game populations in this Unit. Intensive trapping effort for lynx and red foxes may be affecting snowshoe hare populations in local areas.

Intensive willow girdling by hares during previous winters has reduced available winter browse for hares and moose.

Management Summary and Recommendations

Hunting pressure has little effect on small game in this Unit. Intensive furbearer trapping effort in local areas may be extending the high hare population level for a longer than normal period. High hare populations are reducing the amount of available winter browse for both hares and moose. Liberal bag limits should be continued.

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WALRUS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 17

GEOGRAPHICAL DESCRIPTION: Northern Bristol Bay

PERIOD COVERED: July 1, 1979 - June 30, 1980

Season and Bag Limit

Under Federal regulations per the Marine Mammal Act of 1972. 'Taking allowed by Alaska Native only. However, trespass on Walrus Islands State Game Sanctuary is controlled by 5 AAC 81.300(a) and 81.040(8).

Population Status and Trend

Maximum numbers of walruses hauled out on Round Island were 10,000 to 15,000. General indications are that the number of walruses remaining in the Bristol Bay area during the summer months had increased.

Mortality

The hunting seasons for walruses effective during this reporting period were repealed June 27, 1979, by the Board of Game. Management authority for walruses was subsequently returned to the Federal government which allows unlimited harvest by Natives and no harvest by non-natives. No harvest data were available.

Walrus mortality on Round Island was investigated between August 16 and September 1, 1979. Twelve of the 16 carcasses found were examined for cause of death. All had ivory intact and appeared to have died of natural causes. Eight additional carcasses were found on May 8, 1980, five of which had their ivory removed. Autopsies were not performed, but their positions on the beach and their proximity to each other indicated that at least the five without ivory had been shot.

Pilots in the Dillingham area, known to regularly beach comb between the Nushagak Peninsula and Cape Newenham were interviewed in fall 1979. All indicated there were fewer carcasses along the beaches as the summer progressed and that the mortality level appeared to be comparable to previous years.

Research Activities

Investigations of thermoregulatory behavior, census methods of hauled out walruses and radio telemetry

techniques continued during this reporting period on Round Island. These research activities were primarily funded by the U.S. Fish and Wildlife Service as part of a cooperative program with the Department of Fish and Game.

Thirty-six radio transmitters were attached to walruses during summer 1979. Transmitters were automatically monitored by four remote stations on the island and manually with a hand-held antenna. Several problems were encountered with transmitter attachment and remote monitoring. Many transmitter assemblies slipped off because the transmitters were too heavy and the hose clamp attachments were too loose. Attachment and remote monitoring difficulties will be more fully discussed in Taggart and Zabel's final report to the U.S. Fish and Wildlife Service.

Nine additional transmitters of a modified design were placed on walruses during June 1980, four using surgical rubber tubing for banding material and five with a hydraulic steel bander designed by Taggart and Zabel. Fifteen additional visual markers were also placed on walruses. Results will be discussed in next year's Survey-Inventory Report.

Aerial surveys of the walrus population in Bristol Bay were conducted in April, May and June 1980 by the University of Alaska and the Department of Fish and Game, to determine their distribution with respect to the proposed clam fishery in the southern portion of the Bay. These surveys will be continued through the remainder of 1980 and results will be discussed in next year's report.

Management Summary and Recommendations

Authority to manage walrus was returned by the State of Alaska to the federal government, and visitor use during this regulatory year was discontinued. New regulations governing visitor use of the Sanctuary were promulgated in April 1980 and access to Round Island was allowed by permit beginning July 1, 1980.

Visitor use of Round Island is expected to increase steadily as it becomes more widely publicized. Facilities on the island need to be upgraded to accommodate increased visitor use. Adequate housing for two seasonal employees for 5 months each summer needs to be provided.

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