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JUNEAU, ALASKA

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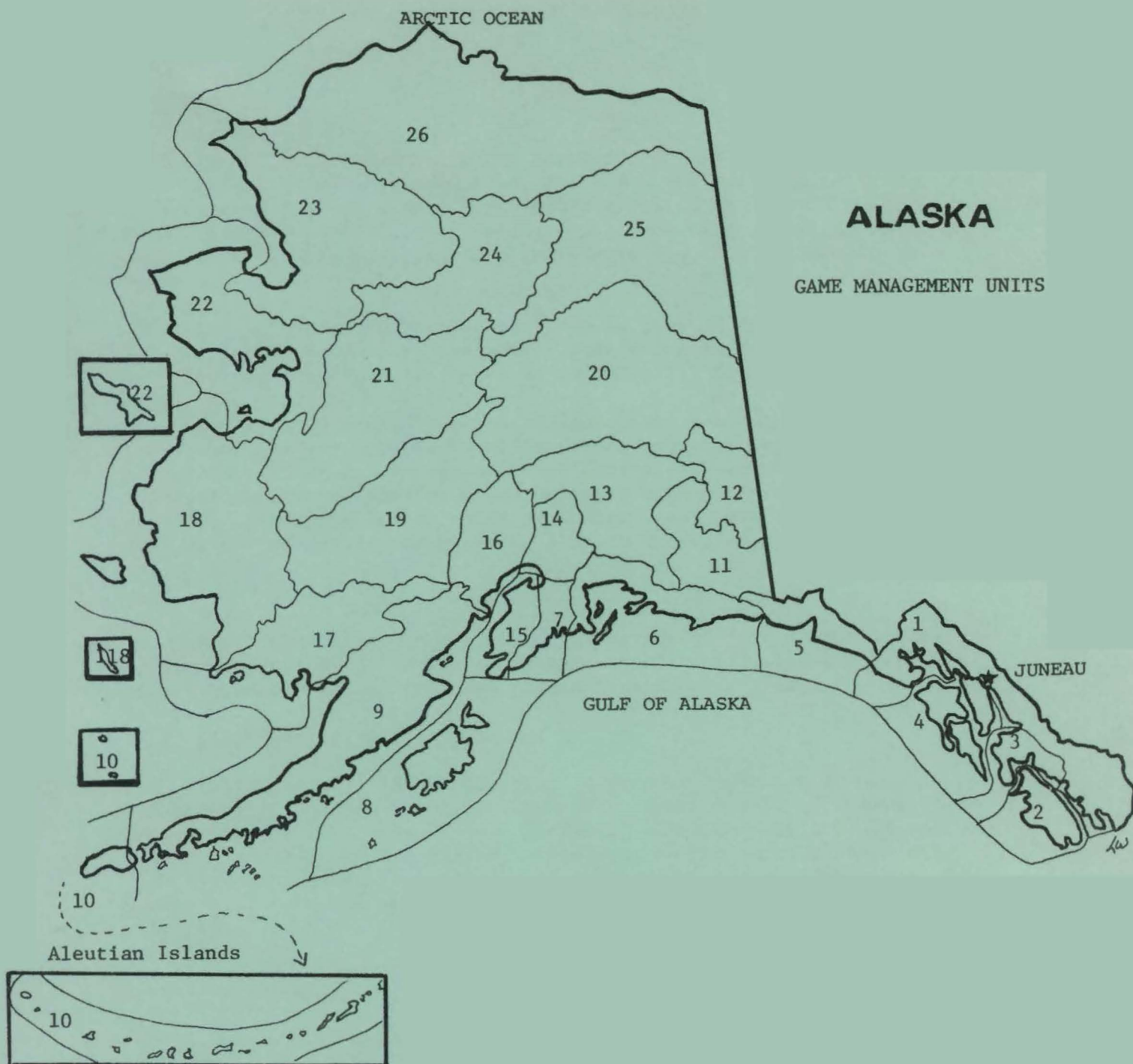
ANNUAL REPORT OF
SURVEY-INVENTORY ACTIVITIES
PART II. FURBEARERS, WOLF, WOLVERINE,
SMALL GAME

Edited and compiled by
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(Printed April 1979)



(From new map valid July 1, 1978)

STATEWIDE HARVESTS AND POPULATION STATUS

Furbearers

The statewide number of furbearers exported increased by over 12,000 pelts during the 1977-78 seasons. This represents an estimated value of \$2,798,492. The actual take was much higher; not all pelts which were sealed were sold and not all pelts taken were sealed. Thus, it is very difficult to obtain an accurate count. The recorded number, therefore, is not indicative of overall furbearer population status.

Beaver

The beaver harvest has fluctuated dramatically in recent years, depending perhaps on pelt prices. The total harvest reported for 1976 was 5,641 animals, while 11,033 beavers were taken in 1977. In 1978 the harvest declined once again to 8,023 beavers. These harvest figures do not necessarily reflect fluctuations in actual populations; rather beaver numbers are generally expanding throughout most suitable habitat in the State.

Wolf

Eight hundred, seventy-nine wolves were harvested in Alaska during the 1977-78 hunting season. This is the lowest number taken in 11 years.

Although wolves are abundant in the Interior, poor weather conditions--and thus, hunting success--have limited the wolf harvest. In fact, it is felt that the decrease in moose and caribou numbers in some Interior Units are the result of this increase in predation pressure.

Southeastern's harvests continue to decline, while the number of wolves taken on the Alaska Peninsula more than tripled.

Wolverines

The statewide harvest of wolverines in 1977-78 was 855, lower than the previous year's take of 939, and slightly lower than the 7-year average of 874 animals per year.

No accurate population estimates are available, but it is felt populations remain high and stable in most areas of the State. Variations in harvest, from unit to unit and year to year, are probably a reflection of effort and not fluctuations in the number of animals.

Small Game

Grouse populations have increased to moderate levels in most areas of the State, except in the Brooks Range where their numbers appear to be declining.

Ptarmigan populations have also increased to moderate levels throughout most of the State, again except in the Brooks Range.

The number of snowshoe hares is low in general. However, western Alaska is experiencing an increase in the hare population, while numbers are now declining on the Alaska Peninsula.

1977-78 Wolf Harvest in Alaska

Unit	Number Taken	Unit	Number Taken
1	36	14	23
2	23	16	11
3	9	17	17
4*	-	18	2
5	1	19	53
6	3	20	201
7&15	36	21	21
8*	-	22	3
9	26	23	64
10	9	24	58
11	51	25	37
12	31	26	36
13	128		
			TOTAL: 879

1977-78 Wolverine Harvest in Alaska

Unit	Number Taken	Unit	Number Taken
1,3&5	28	16	44
6	32	17	49
7	18	18	8
8*	-	19	75
9	86	20	115
10	2	21	30
11	29	22	24
12	28	23	75
13	58	24	36
14	26	25	79
15	13		
			TOTAL: 855

*This species not found in this Game Management Unit.

**Figures showing the Furbearer, Beaver and Small Game harvests can be found on pages 3, 6 and 180 respectively.

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FURBEARER

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Statewide

Period Covered: July 1, 1977 - June 30, 1978

Techniques

Since statehood, fur dealers and individuals have reported the out-of-state export of raw pelts to the Alaska Department of Fish and Game as required by 5 AAC 84.120. The shipper's name, address, license number and status as either a trapper or a fur dealer, along with the species and number of pelts, and destination of the shipment, comprise the required data. Eleven species, including seals, are listed on the reporting form which is attached to the export permit. Wolf, wolverine and coyote are not listed on the report form but can be written in the blank space provided.

Prior to 1977 statewide furbearer harvest estimates were computed by inflating the number of exported pelts of each species by a correction factor. This factor was obtained by comparing the number of exported beaver pelts to the number of beaver pelts presented for sealing. These estimates were necessarily crude for several reasons. An unknown number of fur shipments leave Alaska annually without export permits attached, either through ignorance of the permit requirement or through deliberate attempts to violate the law. Shippers who are ignorant of the requirement and who are not reminded of it by the freight carrier are probably few. Those wishing to deliberately avoid the permit requirement would probably have a low chance of getting caught.

Compliance with the export reporting requirement is basically voluntary and the risk of prosecution for noncompliance is low. An unknown number of fur shipments leave the state each year with properly issued export permits but the accompanying reports are discarded or otherwise fail to reach the Department of Fish and Game. Additionally, since the shipments are not inspected by the issuer of the export permit, the contents of the shipment may differ from the data recorded on the report. Tendencies to more accurately report the export of certain species or to deliberately falsify export data for others have not been measured. Some effort has been devoted to checking the number of beaver sealed versus those reported as being exported, but the applicability of this ratio to the other furbearer species is unknown.

Because most furs used for domestic or subsistence use do not leave the state, measurement of annual subsistence harvests has been beyond the capability of the export reporting system. Subsistence harvest of certain species (e.g. wolverine, beaver) may comprise a large proportion of the total annual harvest, but annual harvests of other species, for

example lynx and mink, may be almost entirely exported through commercial trade.

Finally, it has not been uncommon for dealers and trappers to hold pelts over from one season to the next, speculating that prices will improve. Because the export report does not identify the date of harvest, season-to-season holdovers act to inflate or deflate estimated statewide harvests for any given year.

Findings

Appendix I compares the number of exported pelts of each species for 1976-1977 and 1977-1978 with no correction factors applied to the data. Wolf and wolverine pelts have been sealed since 1971-1972, and lynx and otter pelts were first sealed in 1977-1978. Beaver pelts have been sealed since 1928. The pelt sealing data presented in Appendix I suggest no consistent relationship among species for comparing the number of pelts exported versus those presented for sealing. The equivalent of 43 percent of the wolves that were sealed in 1977-1978 was contained on the export reports that year; similar relationships for beaver, lynx and otter were 68 percent, 86 percent and 81 percent, respectively. The observed variation underscores the futility of trying to inflate the export report data with a uniform correction factor based only on data for beaver pelts. Estimated harvests for each species should be based on the pelt sealing data, rather than the export report data, for those species that are sealed. This still results in minimum approximations of true harvest levels because an unknown and variable number of animals are harvested each year but not presented for sealing.

Management Summary and Recommendations

If trends in the export report data accurately reflect trends in actual harvests, the data in Appendix I suggest that harvests of beaver, river otter, white fox and red fox declined sharply from 1976-1977 to 1977-1978. The only species that showed a substantial increase in harvest during this period was marten. This was apparently the result of high marten populations over much of interior Alaska. The reduced harvest of beaver was apparently the result of low pelt prices for this species and the tendency of trappers to concentrate on marten and the more valuable long-haired species. The reduced harvest of red fox may have resulted from lowered fox populations in many areas of the state where disease, heavy trapping pressure and low snowshoe hare populations have had negative impacts on fox densities.

During 1977-1978, pelt prices for lynx and red fox increased to very high levels. This incentive, combined with cyclically low populations of these two species in some areas of the state, resulted in heavy trapping pressure where access was good and trapper density was high. Future harvests, particularly of lynx, should be closely monitored as lynx numbers begin their cyclic increase in the early 1980's.

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Appendix I. Furbearer harvest data for 1976-77 and 1977-78 based on nonadjusted export report data and pelt sealing records. Average pelt prices represent estimated prices paid to trappers for all sizes and qualities of pelts.

<u>Species</u>	<u>1976-77 Total Exported</u>	<u>1977-78 Total Exported</u>	<u>1977-78 Total Sealed</u>	<u>1977-78 Average Price per Pelt Paid to Trappers</u>
Beaver	7,807	5,421	8,023	\$ 30.00
Mink	12,057	11,035	--	30.00
Muskrat	48,433	47,065	--	4.00
Marten	18,623	25,000	--	35.00
River otter	2,721	1,786	2,193	55.00
White fox	3,494	1,385	--	45.00
Red fox	9,026	6,335	--	85.00
Lynx	1,847	1,738	2,027	240.00
Wolf	--	369	864	140.00
Wolverine	--	449	883	140.00
Coyote	--	234	--	40.00
Weasel	918	908	--	1.50
Squirrel	500	319	--	0.50

BEAVER

SURVEY-INVENTORY PROGRESS REPORT

Statewide

Period Covered: 1974 - June 30, 1978

Techniques

Since 1967 the stretched pelts of beavers have been sealed and measured to enumerate the harvest and to determine the age composition of the catch. In Alaska beaver hides are traditionally stretched round. Pelts are measured by adding the diameter from nose to the base of the tail (bottom of the pelt) to the medial diameter. These measurements are taken in inches and age classes are established on the following basis: young-of-the-year or kits (less than 53 inches), yearlings (53 to 59 inches), two-year-olds (60 to 64 inches) and adults (65 inches and larger).

Studies previously conducted at the Alaska Cooperative Wildlife Research Unit have determined the general relationships between the degree of exploitation and the percentage of various age classes in the harvest. A beaver population can be considered underharvested when the take is comprised of less than 15 percent kits. However, since 1957, when pelt measurement was added to the beaver sealing procedure, it has been learned that certain qualifications must be applied to this rule. For example, Game Management Units are generally large geographic areas, but a manageable population may consist of beavers inhabiting a relatively small tributary within a unit. Overharvests of beavers occupying tributaries within a unit are sometimes obscured by a large but conservative harvest in the remainder of the unit. Human populations are not evenly distributed within the units; therefore, trapping pressures are often disproportionately distributed in relation to beaver abundance and distribution. The potential for overharvest varies between units and involves such factors as quality of beaver habitat within the unit, economic status of trappers residing in the unit and the trapping techniques employed. Whenever the catch exceeds 20 percent kits, a careful examination of the harvest by tributary or drainage should be made. When kits comprise 20 percent of the harvest in a unit it is highly likely that over-exploitation is occurring on some tributaries.

Findings

The beaver harvest has been separated into age classes since 1957 by the measurements recorded on beaver sealing documents. The harvest by game management unit and age class since 1974 is recorded in Appendix I. During 1974 the reported statewide harvest was 8,396. In 1975 and 1976 harvests declined to 7,516 and 5,641, respectively. Pelt prices then

started to increase and in 1977 1,283 trappers took 11,033 beavers. Pelt prices for beavers did not rise much in the next year and the number of trappers and the resulting harvest decreased in 1978, with 914 trappers harvesting 8,023 beavers. The average number of beavers per trapper was 8.8 which was slightly higher than the 1977 average of 8.6.

The trend in the number of trappers has closely paralleled annual catches during the period 1974-1978. The trend of declining harvest through 1976, the dramatic increase in 1977 and the decline in 1978 reflects economic and cultural situations within Alaska rather than fluctuations in beaver populations.

Management Summary and Conclusions

The beaver sealing program provides a sound basis for proper management of the beaver resource. It furnishes the information required to detect management problems. Aerial cache counts, analyses of the harvest by tributary, surveys of local economic situations and an understanding of trapping techniques can provide information sufficient for positive management of the resource.

The 1978 beaver harvest data suggest that additional information may be useful in Units 2, 3, 4, 6, 7, 8, 9, 13, 14 and 18. In these Units kits comprised at least 20 percent of the harvest, suggesting over-exploitation of the population. However, because of the very low harvests recorded in Units 2, 3, 6, 7, 11, 13 and 14, additional field efforts are not justified at this time; the sample size is too small.

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Appendix I. Reported beaver harvests, 1974-1978.

Unit	Year	Limit	Size Composition of Harvest (percent)			Related Take	No. of Trappers	Ave. Catch/ Trapper
			(Under 54")	(Under 59")	(Over 59")			

Appendix I. Reported

1	1974	No limit	11.7	22.1	77.9	168	13	12.9
	1975	No limit	19.4	28.3	71.7	154	19	8.1
	1976	No limit	14.1	29.6	70.4	81	14	7.8
	1977	No limit	20.3	38.0	62.0	163	21	7.8
	1978	No limit	19.4	40.3	59.7	79	14	5.6
2	1974	No limit	7.7	30.8	69.2	39	3	13.0
	1975	No limit	27.3	45.5	54.5	22	4	5.5
	1976	No limit	37.5	37.5	62.5	12	4	3.0
	1977	No limit	30.0	50.0	50.0	47	14	3.4
	1978	No limit	41.5	61.0	39.0	41	7	2.0
3	1974	No limit	No harvest reported					
	1975	No limit	No harvest reported					
	1976	No limit	No harvest reported					
	1977	No limit	25.0	31.3	68.7	16	3	5.3
	1978	No limit	41.5	61.0	39.0	29	1	29.0
4	1974	No limit*	No harvest reported					
	1975	No limit*	-	-	-	1	1	1.0
	1976	No limit*	No harvest reported					
	1977	No limit*	12.5	25.0	75.0	8	2	4.0
	1978	No limit*	37.5	50.0	50.0	8	2	4.0
5	1974	No limit	100.0	100.0	0.0	2	1	2.0
	1975	No limit	No harvest reported					
	1976	No limit	No harvest reported					
	1977	No limit	No harvest reported					
	1978	No limit	No harvest reported					
6	1974	10 & no limit*	21.1	33.3	66.7	109	13	8.4
	1975	10 & no limit*	22.4	48.9	51.1	99	9	11.0
	1976	10 & no limit*	11.1	36.1	63.9	57	12	4.8
	1977	10 & no limit*	23.8	44.5	55.5	201	12	16.8
	1978	10 & no limit*	37.5	62.5	37.5	33	6	5.5

Appendix I. Reported beaver harvests, 1974-1978 (cont.).

Unit	Year	Limit	Size Composition of Harvest (percent)			Related Take	No. of Trappers	Ave. Catch/ Trapper
			(Under 54")	(Under 59")	(Over 59")			
7	1974	20	28.1	45.6	54.4	57	6	9.5
	1975	20	25.8	38.7	61.3	37	9	4.1
	1976	20	29.0	57.9	42.1	76	13	5.8
	1977	20	36.1	57.4	42.6	87	12	7.3
	1978	20	23.7	52.7	47.3	39	9	4.3
8	1974	No limit	18.6	37.2	62.8	220	16	13.8
	1975	No limit	13.2	39.6	60.4	129	13	9.9
	1976	No limit	24.0	48.0	52.0	30	10	3.0
	1977	No limit	33.0	52.7	47.3	131	29	4.5
	1978	No limit	28.1	53.5	46.5	143	18	7.9
9	1974	40 and 20*	18.8	37.6	62.4	212	28	7.6
	1975	40 and 20*	23.8	43.0	77.0	439	35	12.5
	1976	40 and 20*	22.2	33.6	66.4	451	43	10.5
	1977	40 and 20*	23.9	54.3	45.7	686	65	10.6
	1978	40 and 20*	23.1	37.7	62.3	721	65	11.1
11	1974	No limit	0.0	33.4	66.6	3	1	3.0
	1975	No limit	8.3	8.3	91.7	12	5	2.4
	1976	No limit	8.3	8.3	91.7	12	4	3.0
	1977	No limit	26.3	31.6	68.4	20	4	5.0
	1978	No limit	10.0	20.0	80.0	10	3	3.3
12	1974	15	6.7	20.0	80.0	31	6	5.2
	1975	15	0.0	40.0	60.0	5	4	1.3
	1976	15	20.0	20.0	80.0	5	2	2.5
	1977	15	15.2	39.4	60.6	35	8	4.4
	1978	15	10.0	30.0	70.0	29	10	2.9
13	1974	20	18.6	49.1	50.9	59	17	3.5
	1975	20	26.3	42.6	57.4	80	14	5.7
	1976	20	8.7	32.6	67.4	56	15	3.7
	1977	20	19.0	40.3	59.7	175	26	6.8
	1978	20	28.1	43.7	56.3	33	9	3.7

Appendix I. Reported beaver harvests, 1974-1978 (cont.).

Unit	Year	Limit	Size Composition of Harvest (percent)			Related Take	No. of Trappers	Ave. Catch/ Trapper
			(Under 54")	(Under 59")	(Over 59")			
14	1974	40	29.2	50.9	49.1	106	21	5.0
	1975	40	17.0	41.5	58.5	153	30	5.1
	1976	40	24.6	52.1	47.9	70	25	2.8
	1977	40	20.4	48.2	51.8	236	25	9.6
	1978	20 & 40*, closed	25.0	38.6	41.4	45	18	2.5
15	1974	40	12.4	44.9	55.1	92	13	7.1
	1975	40	48.5	57.6	42.4	33	5	6.6
	1976	40	24.6	38.8	61.2	136	17	8.0
	1977	40	20.0	40.8	59.2	131	17	7.7
	1978	40	18.5	47.7	52.3	65	13	5.0
16	1974	40	14.6	38.2	61.8	377	39	9.7
	1975	40	18.4	41.5	58.5	783	74	10.6
	1976	40	17.7	39.2	60.8	267	35	7.6
	1977	40	25.2	52.9	47.1	531	59	9.0
	1978	40	18.1	38.9	61.1	440	58	7.6
17	1974	15	23.9	38.6	61.4	1681	169	9.9
	1975	15	15.8	27.1	72.9	929	85	10.9
	1976	15	22.2	33.0	67.0	637	66	9.6
	1977	15	17.7	32.3	67.7	766	73	10.5
	1978	15, closed*	23.5	35.6	64.4	802	75	10.7
18	1974	10	25.8	40.4	59.6	684	95	7.2
	1975	10	20.7	36.7	63.3	1389	181	7.7
	1976	10	18.3	35.4	64.6	1350	180	7.5
	1977	10	20.2	37.7	62.3	2209	258	8.6
	1978	15	24.5	44.7	55.3	1695	178	9.5

Appendix I. Reported beaver harvests, 1974-1978 (cont.).

Unit	Year	Limit	Size Composition of Harvest (percent)			Related Take	No. of Trappers	Ave. Catch/ Trapper
			(Under 54")	(Under 59")	(Over 59")			
19	1974	25 and 10*	10.5	25.3	74.7	808	129	6.3
	1975	25 and 10*	9.8	24.0	76.0	1188	150	7.9
	1976	25 and 10*	12.7	27.8	72.2	806	120	6.7
	1977	25 and 10*	14.6	28.3	71.9	1668	196	8.5
	1978	40 and 20*	12.0	27.1	72.9	1338	120	11.2
20	1974	25 closed*	8.0	24.6	75.4	1183	133	8.9
	1975	25 closed*	9.2	24.6	75.4	685	89	7.7
	1976	25 closed*	5.6	20.2	79.8	812	106	7.7
	1977	25 closed*	8.6	22.8	77.2	1281	156	8.2
	1978	15, 25 closed*	9.8	24.7	75.3	1080	133	8.1
21	1974	15	10.0	26.7	73.3	1608	166	9.7
	1975	15	5.8	20.5	79.5	753	96	9.8
	1976	15	12.9	28.4	71.6	618	76	8.1
	1977	15	8.6	24.9	75.1	1794	198	9.1
	1978	15	5.6	19.8	80.2	848	98	8.6
22	1974	50	32.8	42.6	57.4	61	11	5.5
	1975	50	8.1	32.4	67.6	37	7	5.3
	1976	50	No harvest reported					
	1977	50	16.7	50.0	50.0	12	1	12.0
	1978	50	30.0	40.0	60.0	13	4	3.2
23	1974	20	28.6	28.6	71.4	7	1	7.0
	1975	20	20.0	33.3	66.7	15	1	15.0
	1976	20	0.0	0.0	100.0	8	1	8.0
	1977	20	No harvest reported					
	1978	20	No harvest reported					
24	1974	20	5.3	22.5	77.5	572	66	8.6
	1975	20	7.9	24.7	75.3	295	37	8.0
	1976	20	24.2	54.5	45.5	52	8	6.5
	1977	20	6.8	19.2	80.8	579	60	9.7
	1978	20	3.9	18.6	81.4	129	25	5.2

Appendix I. Reported beaver harvests, 1974-1978 (cont.).

Unit	Year	Limit	Size Composition of Harvest (percent)			Related Take	No. of Trappers	Ave. Catch/ Trapper
			(Under 54")	(Under 59")	(Over 59")			
25	1974	20	12.4	33.0	67.0	317	55	5.7
	1975	20	18.5	35.2	64.8	281	31	9.1
	1976	20	12.4	23.8	76.2	105	19	5.5
	1977	20	17.0	31.6	68.8	247	43	5.7
	1978	20	22.0	42.8	57.2	258	43	6.0
Statewide								
Total	1974		15.1	31.6	68.4	8,396	1,003	8.4
	1975		15.0	31.5	68.5	7,516	899	8.4
	1976		15.7	31.2	68.8	5,641	770	7.3
	1977		16.3	33.2	62.8	11,033	1,283	8.6
	1978		17.6	34.3	65.7	8,023	914	8.8

* Unit was divided with different bag limits in the subdivisions and/or closed areas.

5 year average (1974-1978) harvest = 8.122
 5 year range (1974-1978) harvest = 5,641-11,033
 5 year average (1974-1978) no. of trappers = 974

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT - 1977

Game Management Units 1A and 2.

Seasons and Bag Limits

<u>Species</u>	<u>Seasons</u>	<u>Bag Limits</u>
Beaver	December 1 - May 15	No Limit
Coyote	December 1 - April 30	No Limit
Red Fox	December 1 - January 31	No Limit
Lynx	December 1 - February 15	No Limit
Marten	December 1 - February 15	No Limit
Mink	December 1 - February 15	No Limit
Weasel	December 1 - February 15	No Limit
Muskrat	December 1 - May 15	No Limit
Otter	December 1 - February 15	No Limit

Harvest and Hunting Pressure

The 1977-78 trapping season was characterized by relatively severe weather, although the over-all winter would be considered quite mild. The December-January period was unusually cold and windy and trapping along saltwater beach areas was difficult as many of the bays and inlets open during the 1976-77 season were frozen over this year. Logging roads were generally open, as snowfall was light.

Prices for those species common to this area were generally lower than in 1976-77 and, in conjunction with the poor trapping weather, contributed to an apparent drop in trapping pressure.

Beaver

Beavers occur in low numbers throughout most of Units 1A and 2 with the exception of the Unuk and Chickamin Rivers where there are good populations. Only slight interest has been shown in beavers in recent years, and, in Unit 1A, 18 were trapped this year compared to 22 in 1976-77. In Unit 2, 38 were caught, also down from the 49 taken there last year.

Marten

Marten populations have remained fairly high for several years with the exception of the local area around Ketchikan where populations appear to be low. Most of the marten from this area come from the logging roads in Unit 2 where local residents are taking advantage of the extensive road system and the light snow conditions of the past few years. Prices paid for marten in 1977-78 were considerably less than the preceding year. One auction house paid an average of about \$25.00 for Southeast marten, down from a reported average of \$44.00 for 1976-77.

Mink

Mink populations appear to be staying at a high level in most areas. Trappers have shown only moderate interest in minks the past few years because of poor prices.

Local buyers were reported to be paying an average of \$7.00 to \$10.00 for mink while one auction house reported prices averaging around \$15.00.

Otter

Otter populations appear to be somewhat below average, in this area, according to most trappers. There were a lot of people trapping for otters the past several years because of fairly good prices and mild winters, and fairly high harvests have occurred during the past two years.

Starting in 1977-78, all otters were required to be sealed by the Alaska Department of Fish and Game and, because of foreign buyers not wanting unsealed skins, good compliance was obtained.

There were 103 otters sealed from Unit 1A from the 1977-78 season and 305 from Unit 2. These two Units accounted for 19 percent of all the otters taken in the State during the 1977-78 season.

The Unit 1A harvest was 56 percent males while the Unit 2 harvest was 58 percent. Statewide, the harvest was 58 percent males.

About 98 percent of the otters were taken by trapping in Units 1A and 2.

Prices paid for otter pelts were somewhat lower than last year, particularly from some of the local buyers who paid high prices in 1976-77 and lost money on them. A fairly large number of otter pelts from the 1976-77 season were carried over the winter by local fur buyers and auction houses and were then sold to foreign buyers during the fall 1978 sales.

Management Summary and Conclusions

A sealing program should be initiated for mink and marten to provide data on total harvest, trapping pressure and locality of harvest. Harvest figures are presently only estimates as data from the fur export tags are unreliable and often unavailable.

PREPARED BY:

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SUBMITTED BY:

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FURBEARER

SURVEY-INVENTORY PROGRESS REPORT - 1977-1978

Game Management Units 1(B) and 3 - Petersburg-Wrangell area

Seasons and Bag Limits

	<u>Trapping</u>	<u>Hunting</u>
Beaver	Dec.1-May 15 No limit	No open hunting season
Coyote	Dec.1-Apr.30 No limit	Sep.1-Apr.30 3 coyotes
Red Fox	Dec.1-Jan.31 No limit	Sep.1-Feb.15 2 foxes
Lynx	Dec.1-Feb.15 No limit	Sep.1-Mar.31 2 lynx
Marmot	No closed season No limit	No open hunting season
Marten	Dec.1-Feb.15 No limit	No open hunting season
Mink & Weasel	Dec.1-Feb.15 No limit	No open hunting season
Muskrat	Dec.1-May 15 No limit	No open hunting season
Otter, Land	Dec.1-Feb.15 No limit	No open hunting season
Raccoon	No closed season No limit	No closed season/No limit
Squirrel (Red)	No closed season No limit	No closed season/No limit

Harvest and Hunting Pressure

The fur export permit and the sealing programs for land otters (started on December 10, 1977), lynx (started on December 10, 1977), and beavers are the only records of furbearer harvest. Harvest information available for the 1977-78 season was obtained from sealing documents and trapper interviews.

Beaver: Despite good conditions during the 1977-78 season, trapping pressure remained light (except near some human population centers) and about the same as previous years in Units 1(B) and 3.

Lynx: Lynx are found on the mainland in Unit 1(B) but are never abundant. Information available did not indicate any lynx taken during the 1977-78 season, nor any reported taken since 1972-73.

lynx are not known to exist in Unit 3. The nine lynx exported from Unit 3 in 1972-73 were confirmed as not being taken in this unit.

Marten: Available information indicates that the marten catch in Units 1(B) and 3 may have been down from previous years' harvests. Fewer active trappers and low fur prices were probably the major factors contributing to the decline.

Interviews with six Wrangell trappers indicated that 50 percent trapped marten; they harvested a total of 22. Of the 22 marten, one trapper accounted for 19. Petersburg reported very little trapping effort during the 1977-78 season.

Mink: Low fur prices predicted for minks during the 1977-78 season resulted in a lack of effort by most trappers in Units 1(B) and 3. Interviews with six Wrangell trappers indicated that all had trapped minks, with a catch of 278 minks. Two trappers trapping together accounted for 220 minks. Mink populations appear to be moderate in most areas of Units 1(B) and 3.

Land Otter: Fur sealing data indicate that 13 otters were taken in Unit 1(B), and 68 otters in Unit 3 during the 1977-78 season. Although fur prices for otters have been stable, and were predicted to be good for the season, the 1977-78 catch was well below the 1975-76 harvest of 227 otters.

Composition and Productivity

No data collected.

Management Summary and Conclusions

Current seasons and bag limits appear to adequately meet the needs of most trappers and appear well within the harvest limits of the various species.

Recommendations

No regulatory changes are recommended at this time.

PREPARED BY:

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

FISCAL YEAR 1976-77

Game Management Unit 4 - Admiralty, Baranof, Chichagof, and
Adjacent Islands

Seasons and Bag Limits

Beaver-Admiralty Island only	Dec. 1-May 15	No limit
Beaver-Remainder Unit 4	No open season	
Coyote-Remainder Unit 4	Dec. 1-Apr. 30	No limit
Fox (Red)-Remainder Unit 4	Dec. 1-Jan. 31	No limit
Lynx-Remainder Unit 4	Dec. 1-Feb. 15	No limit
Marten ¹	Nov. 10-Feb. 15	No limit
Marten-Remainder Unit 4	Dec. 1-Feb. 15	No limit
Mink & Weasel ¹	Nov. 10-Feb. 15	No limit
Mink & Weasel-Remainder Unit 4	Dec. 1-Feb. 15	No limit
Muskrat-Remainder Unit 4	Dec. 1-May 15	No limit
Otter (Land) ¹	Nov. 10-Feb. 15	No limit
Otter (Land)-Remainder Unit 4	Dec. 1-Feb. 15	No limit
Otter (Sea)	No open season	
Raccoon	No closed season	No limit
Squirrel (Red Squirrel only)	No closed season	No limit
Wolverine-Remainder Unit 4	Dec. 1-Jan. 31	No limit

¹That portion of Admiralty Island including all drainages from Point Marsden north to Point Retreat, thence all drainages on the east, south to Point False Pybus.

Harvest and Trapping Pressure

Otters and beavers are the only species for which data are available. These data are provided by the sealing program.

Otter sealing, which became mandatory on December 10, 1977, revealed, that for Game Management Unit 4, 24 trappers/hunters took 155 otters. The sex ratio of the kill was 1:1 (78 males, 77 females). Chronologically, 21.9, 33.6, and 40.0 percent of the take was made in December, January, and February, respectively. An additional 1.3 percent were reported taken in November (illegally) and 3.2 percent date unknown. Seventy-five percent of the otters were trapped and 25 percent were shot. The 155 otters taken from Unit 4 represent 7 percent of the statewide total of 2193. Numbers of otters taken per trapper ranged from one (seven persons) to 30 with an average of about seven. Six persons took 10 or more otters and three of these took 43 percent of the total otter catch.

Two persons presented beavers for sealing. These two trappers caught eight beavers. These are the first beavers reported taken from Unit 4 for several years.

No information is available on the marten and mink take. Marten (and otter) carcasses were purchased from trappers for Federal Aid to Wildlife Restoration research Job VII B-7-10. Four hundred twenty martens taken from Unit 4 were purchased under that program. None of these martens were taken from Admiralty Island. Those martens probably represent in the neighborhood of 75 percent of the Unit 4 harvest, which is then estimated to be about 500-600 animals.

Trapping effort adjacent to most communities is quite intensive. Wild furs now command prices that make trapping an economically profitable venture. It is expected the current high fur values will keep interest in trapping high.

Composition and Productivity

No data available.

Management Summary and Recommendations

There are no reports from trappers to suggest any declines are in progress in any of the furbearer populations in the Unit. Rather, all species appear to be at high levels. Consequently, seasons appear commensurate with population levels. It should be noted, however, that preliminary analysis of marten carcasses indicates that a greater preponderance of younger animals of both sexes are taken close to communities. This suggests that trapping pressure may be exerting a controlling effect on accessible marten populations.

A method of determining harvests of marten and minks should be developed and implemented. As was noted in last year's report, the November 10 opening date for eastern Admiralty serves no purpose and is considerably earlier than pelts are prime. All of Unit 4 should open no earlier than December 1. No other changes in seasons or bag limits are recommended.

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SUBMITTED BY:

Nathan P. Johnson
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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 5 - Yakutat

Seasons and Bag Limits

Beaver	Nov. 10-May 15	No limit
Coyote	Nov. 10-Apr. 30	No limit
Red fox	Nov. 10-Feb. 15	No limit
Lynx	Nov. 10-Feb. 15	No limit
Marten	Nov. 10-Feb. 15	No limit
Mink & Weasel	Nov. 10-Feb. 15	No limit
Muskrat	Nov. 10-May 15	No limit
Otter	Nov. 10-Feb. 15	No limit
Squirrel	No Closed Season	No limit
Wolf	Nov. 10-Apr. 30	No limit
Wolverine	Nov. 10-Feb. 15	No limit

Harvest and Trapping Pressure

Trapping in Unit 5 is primarily a recreational activity. Overall pressure is light. During the 1977-78 season, most of the six to eight individuals who participated, operated only part-time traplines, usually within 15 miles of Yakutat. Catches were small and most of the pelts were kept for personal use.

Distribution and Abundance

Beaver - Beavers are continuing to increase and spread westward from the Dangerous River. Forage is abundant along the many small streams and the population is expected to grow. Currently there is no trapping pressure on this species.

Coyote - Unit-wide populations are generally moderate but along the beach fringe and on some of the larger islands like Kontak high densities occur.

Red Fox - Red fox populations are currently low. There are a few in the vicinity of Yakutat and along the beach fringe on the Yakutat and Malispina Forelands. Because of high coyote populations and the red foxes' inability to compete with them, the populations are not expected to increase.

Lynx - The lynx population is still low on the Yakutat Forelands but seems to be increasing. This is probably due to the continuing increase in hare populations.

Snowshoe Hare - Snowshoe hare populations are low to moderate but seem to be increasing. However, it will be some time before they can be considered abundant.

Marten - Moderate populations of marten occur in the timbered portions of the Yakutat Forelands. The status of the marten on the Malispina Forelands is unknown at this time.

Mink - Minks are present throughout Unit 5 in low to moderate numbers.

Muskrats - No muskrats have been reported in Unit 5 in recent years although historical reports indicate they were formerly abundant.

Land Otter - Land otters are numerous in Unit 5. They occur in both the freshwater and marine environments and are often seen in the saltwater bays between the islands. Most of the islands have well-worn trails between their inland freshwater drainage systems.

Squirrels - Red squirrels occur throughout Unit 5 but do not appear to be particularly abundant. No flying squirrels or ground squirrels are known to inhabit Unit 5.

Weasel - Weasels are abundant in the Yakutat area and are usually caught incidental to trapping for other species such as mink and marten.

Wolf - Refer to Wolf Survey and Inventory Report - 1977 for information on distribution and abundance in Unit 5.

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

Management Summary and Recommendations

No changes in management, harvest, or seasons are recommended at this time.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT FOR REGULATORY YEAR 1977-78

Game Management Unit 6

Seasons and Bag Limits

Beaver U-6(A)(B)	Feb. 1 - May 15	No Limit
U-6(C)(D)	Feb. 1 - May 15	10 per person
Coyote	Nov. 10 - March 31	No Limit
Red Fox	Nov. 10 - Jan. 31	No Limit
Lynx	Nov. 10 - March 31	No Limit
Marten	Nov. 10 - Feb. 28	No Limit
Mink and Weasel	Nov. 10 - Jan. 31	No Limit
Muskrat	Nov. 10 - June 10	No Limit
Land Otter	Dec. 1 - March 31	No Limit
Wolf	Nov. 10 - March 31	No Limit
Wolverine	Nov. 10 - March 31	No Limit

Harvest and Trapping Pressure

Harvest data for Unit 6 furbearers were obtained from interviews conducted with eight local trappers (Appendix I). Additional data were obtained from mandatory sealing documents for beaver, otter, lynx, wolves and wolverine (Appendices I, II, III).

Beaver

Beaver sealing documents indicate very light trapping pressure during the 1977-78 season. Six trappers took 33 beavers. Both trapping effort and catch are a reflection of poor fur prices for beaver (Appendix IV). Four beavers were taken in Unit 6(B), 26 in 6(C), and three from unspecified locations in Unit 6.

Coyote

Coyotes traditionally receive little trapping effort in Unit 6. Most coyotes are shot, rather than trapped. During the 1977-78 season, one trapper using an airplane took 38 coyotes, primarily in Unit 6(A) and 6(B) (Appendix I). No other coyotes are known to have been taken in Unit 6. The coyote population appears healthy.

Red Fox

Red foxes are scarce on the Copper River Delta; none were reported taken during the 1977-78 trapping season. The red fox hunting and trapping seasons should probably be closed for a few years to determine if foxes will increase under complete protection.

Lynx

Seven lynx were taken during the 1977-78 season. This appears to be one of the higher lynx harvests in Unit 6, although equivalent sealing data is not available for previous years. According to the sealing records (Appendix II), all lynx were trapped and the majority were taken in Unit 6(C) during December.

Marten

Eighty marten were reported taken during the 1977-78 season (Appendix I). This is double the average annual catch in Unit 6. One trapper took approximately 60 marten east of the Copper River. Marten populations appear to be excellent in Unit 6(A) and 6(B). They appear to be increasing in Unit 6(C). Their status in Unit 6(D) is unknown.

Mink

Only 89 minks were reported taken in Unit 6 (Appendix I). The average harvest is approximately 200. The reason for the small harvest in 1977-78 is not fully known. Lack of trapping effort, mediocre prices, and possibly a moderate population combined to produce a low harvest.

Muskrat

Muskkrats continue to exist in small numbers on the Copper River Delta. Muskrat populations have been low for many years (since the 1950's) and little trapping effort has been evident in recent years.

Land Otter

Mandatory sealing of land otters was initiated during the 1977-78 season. This data revealed a harvest of 121 otters (80 males and 41 females). The bulk of the harvest occurred in December and 88 percent of the harvest came from Prince William Sound, Unit 6(D) (Appendix III). The 1977-78 harvest appears to be one of the larger otter harvests in Unit 6, although equivalent sealing data is not available for previous years. Analysis of the sealing certificates indicates pressure was dispersed throughout Prince William Sound. Otters appear to be fairly abundant.

Management Summary and Conclusions

Furbearer populations in Unit 6 appear to be fairly good with the exception of red foxes. Trapping pressure in Unit 6 is moderate. The only area heavily trapped is in Unit 6(C) along the Copper River Highway.

Current trapping seasons appear to be in line with prime fur conditions and trappers are happy with the season dates.

Recommendations

Retain the current seasons and bag limits for all furbearers except red foxes. The red fox hunting and trapping season in Unit 6 should be closed.

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Regional Management Coordinator

APPENDIX I

Furbearers Harvested by Selected Unit 6 Trappers, 1977-78 Season.*

<u>Species</u>	<u>Total Catch</u>	<u>Unit 6(A & B)</u>	<u>Unit 6(C)</u>	<u>Unit 6(D)</u>
Beaver	25**	4	21	0
Mink	89	34	38	17
Muskrat	18	12	6	0
Marten	80	65	5	10
Land Otter	49*	6	7	36
Fox	0	0	0	0
Weasel	58	6	32	20
Lynx	7*	1	6	0
Wolf	2*	2	0	0
Wolverine	27*	18	5	4
Coyote	38	30	6	2

* Catch data provided by interviews with eight trappers.

** Sealing records reveal: 33 beaver, 121 otter, 7 lynx, 3 wolves and 32 wolverine.

Prepared by: Julius Reynolds, Game Biologist III

APPENDIX II

Lynx 1977-78*

Unit 6

Harvest

<u>Sex</u>	<u>Number</u>	<u>Percent</u>
Male	4	57.1
Female	1	14.3
Unknown	2	28.6
Total	7	100.0

Location

<u>Unit</u>	<u>Number</u>	<u>Percent</u>
6(A)	1	14.3
6(B)	0	0
6(C)	6	85.7
6(D)	0	0
Total	7	100.0

Chronology

<u>Month</u>	<u>Number</u>	<u>Percent</u>
November	1	14.3
December	4	57.1
January	0	0
February	2	28.6
Total	7	100.0

Method

<u>Method</u>	<u>Number</u>	<u>Percent</u>
Ground shooting	0	0
Trapping	7	100.0

* Mandatory sealing of lynx hides was initiated December 10, 1977. Hand compiled data.

Prepared by: Julius Reynolds, Game Biologist III

APPENDIX III

Land Otter 1977-78*

Unit 6

Harvest

<u>Sex</u>	<u>Number</u>	<u>Percent</u>
Males	80	66.1
Females	41	33.9
Total	121	100.0

Location

<u>Unit</u>	<u>Number</u>	<u>Percent</u>
6(A)	0	0
6(B)	6	5.0
6(C)	7	5.8
6(D)	107	88.4 (69 male, 38 female)
UNK	1	.8
Total	121	100.0

Chronology

<u>Month</u>	<u>Number</u>	<u>Percent</u>
December	63	52.1
January	11	9.1
February	24	19.8
Dec.-Jan.**	14	11.6
Dec.-Feb.**	9	7.4
Total	121	100.0

* Mandatory sealing of land otter hides was initiated December 10, 1977 by ADF&G. Hand compiled data.

** Trapper reported catch for a multi-month period.

Prepared by: Julius Reynolds, Game Biologist III

APPENDIX IV

Fur Values 1977-78*

Unit 6

<u>Species</u>	<u>Value per pelt</u>
Beaver	\$20
Mink	\$25 male, \$10 female
Muskrat	\$4
Marten	\$35 - \$40
Land Otter	\$30 - \$80
Fox	\$80 - \$100
Weasel	\$2 male, 75¢ female
Lynx	\$350
Wolf	\$175 - \$200
Wolverine	\$150 - \$200
Coyote	\$50

* Prices paid to trappers as reported by Larry Kritchen, Cordova fur buyer.

PREPARED BY: Julius Reynolds, Game Biologist III

BEAVER

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 9 - Alaska Peninsula

Seasons and Bag Limits

Unit 9(A)	Feb. 1-April 30	40 per season
That portion of Unit 9(E) south of and including the drainages of the Meshik and Aniachiak Rivers	Jan. 1-March 31	40 per season
Units 9(B), 9(C), 9(D) and remainder of 9(E)	Feb. 1-March 15	20 per season

Harvest and Trapping Pressure

A total of 65 trappers sealed 724 beavers (an average of 11.1 beavers per trapper) from Unit 9 during the 1977-78 trapping season. Twenty-three percent of those hides were kits, as indicated by a hide size of less than 54 inches.

Composition and Productivity

No work accomplished during this reporting period.

Management Summary and Conclusions

The beaver population in Unit 9 has demonstrated a steady southward expansion. Presently beavers are found in large numbers throughout all of Unit 9(A), (B), (C) and the northern two-thirds of (E). Scattered animals are found as far south as Port Moller Bay. At present no beavers are known to inhabit Unit 9(D).

Residents of the Chignik area of the Peninsula have viewed the expanding beaver population with concern, believing beaver dams were impeding salmon migrations and would have an adverse effect on future salmon runs. In response to their concern, beginning this year the beaver season in the Meshik River drainages and southward was increased from 43 days to 90 days and the bag limit doubled to 40 beavers per season. Despite these sizable increases only 57 of the beavers sealed (8% of the total harvest) were from this area.

The relatively high percentage of kits in the harvest is not believed to be representative of the true status of the population. Beaver trapping pressure is considered light throughout the Alaska Peninsula

except in the immediate vicinity of human population centers. These small isolated pockets of trapping pressure have had no observed impact on the overall Unit 9 beaver population.

Recommendations

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

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

Game Management Units 12, 20 and 25

Period Covered: July 1, 1977 - June 30, 1978

Trapper Questionnaire

The trapper questionnaire was sent to 601 trappers in Units 12, 20 and 25 during spring 1978. About 25 percent of the questionnaires were returned initially and a reminder letter increased returns to a total of 55 percent (332 questionnaires). Of these, 117 replied that they did not trap and provided no other information. Two hundred fifteen questionnaires provided the following data (Tables 1 and 2).

Questionnaire Results - Harvest and Population Levels

Lynx - The average number of lynx harvested in the Fairbanks area was 2.8 per trapper, a decline from the 4.8 lynx per trapper taken during the 1976-1977 season. Trappers in the Circle, Central, Venetie, Tok and Livengood areas also reported decreases in the number of lynx taken per trapper. Fort Yukon trappers had the highest lynx take, averaging 11.1 lynx per trapper. Trappers in the Eagle, Fort Yukon, Beaver, Delta, Healy, Lake Minchumina, Nenana and Brooks Range areas reported increases in the lynx take per trapper.

Lynx were considered to be at low population levels throughout the Interior during the 1977-1978 season, although trappers in the Eagle, Fort Yukon and Tok areas reported moderate increases in abundance over the 1976-1977 densities. Populations decreased in the Stevens Village, Venetie, Nenana, Manley and Livengood areas, while numbers remained about the same elsewhere.

Red Fox - Interior trappers reported an average harvest of 4.8 foxes per trapper in 1977-1978, a slight decrease from the average take of 5.3 foxes per trapper during the 1976-1977 season. The average harvest per trapper declined in eight areas and increased in six.

Fox populations were reported to be low throughout the Interior, and trappers in most areas reported declines in population levels since the 1976-1977 season.

Marten - The average marten harvest in the Interior was 43.6 marten per trapper, an increase over the 34.0 per trapper reported for 1976-1977. Trappers in most areas, with the exception of Fairbanks, Tok and Livengood, reported increases in the number of marten taken per trapper.

Trappers reported that marten populations were at moderate to high levels in most areas, and that populations during 1977-1978 were at the same or higher levels than during the previous season.

Muskrat - Muskrat populations were reported to be at moderate levels throughout much of the Interior. Abundance was unchanged from that of the previous season.

Mink - Mink populations were moderately low over most of the Interior, with numbers reported to be about the same as during the 1976-1977 season. Trappers in the Beaver, Stevens Village, Lake Minchumina and Brooks Range areas reported that populations were increasing, while trappers at Fort Yukon, Venetie, Delta, Tok, Manley and Livengood reported decreases in mink numbers.

Beaver - Beaver populations were reported to be moderate to low in 1977-1978, with population levels unchanged from the previous season. Several trappers reported that they did not trap for beaver in 1977-1978 since population densities were too low to make trapping worthwhile.

The beaver sealing program provides much better information on beaver populations and on the effects of harvesting than the trapper questionnaire (see Beaver Survey and Inventory Report).

Land Otter - Otter abundance was thought to be low throughout the Interior during 1977-1978, and unchanged since 1976-1977.

Wolverine - Wolverine sealing provides some harvest information, although many wolverine hides are never sealed (see Wolverine Survey and Inventory Report).

Responses to trapper questionnaires indicated that wolverine populations were at moderate to low levels in the Interior, with populations remaining stable or decreasing slightly in most areas. Increases in abundance were reported for the Eagle, McKinley Park and Lake Minchumina areas.

Coyote - Few trappers reported catching coyotes during the 1977-1978 season, and less than half of those who responded to the questionnaire had comments on coyote abundance. Populations were reported to be low and little changed from 1976-1977.

Wolf - Wolf populations were reported to be moderate to low in all areas of the Interior. Trappers at Lake Minchumina and Beaver reported slight increases in wolf numbers, while in several other areas wolf abundance was reported to have decreased since 1976-1977. Overall, the index for the Interior indicated a slight decrease in wolf numbers during the past year.

Wolf sealing provides additional information on wolf harvests in the Interior (see Wolf Survey and Inventory Report).

Squirrel - Squirrel numbers were moderate to high in all areas except Stevens Village and Venetie. Reports from most areas indicated that squirrel numbers had increased since 1976-1977, and the Interior average indicated a moderate increase in squirrel population levels.

Snowshoe Hare - Hare populations were moderate to low throughout the Interior, with most areas reporting slight to pronounced population increases since 1976-1977. However, hare numbers varied considerably throughout the Interior. Trappers from Beaver and Venetie reported high populations, while populations were reported to be very low at Manley, Livengood and Fairbanks.

Grouse - Grouse populations were reported to vary within the Interior, but, on the average, trappers considered grouse to be moderately abundant throughout the region. Grouse numbers were reported to have increased since 1976-1977 in most portions of the Interior.

Ptarmigan - Interior ptarmigan populations were reported to be at moderate levels and increasing during 1977-1978. Only trappers in the Stevens Village and Delta areas reported low numbers of ptarmigan, and all areas indicated that populations had increased over 1976-1977 levels.

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Oliver E. Burris
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Table 1. Summary of replies to the trapper questionnaire, 1977-1978.

Area	No. of Trappers*	Average** Trapline Length	Lynx Taken	Lynx/ Trapper*	Fox Taken	Fox/ Trapper*	Marten Taken	Marten/ Trapper*
Eagle, Chicken, Boundary	10	71.8	20	6.3	10	3.3	327	46.7
Fairbanks	34	36.1	50	2.8	105	5.2	413	19.7
Fort Yukon	24	66.5	177	11.1	82	6.8	1582	75.3
Circle, Central	6	24.8	7	2.3	1	1.0	106	21.2
Beaver, Beaver Creek	4	56.5	34	8.5	9	4.5	242	80.7
Stevens Village	2	14.0	15***	1.5	--	--	225***	22.5
Venetie	6	33.3	23	3.8	6	1.2	91	18.2
Delta	16	53.7	56	5.6	87	6.7	121	17.3
Tok, Northway	28	39.8	19	2.4	64	3.4	350	20.6
Healy, Mt. McKinley	7	44.0	12	6.0	26	6.5	19	6.3
Lake Minchumina	4	54.3	5	5.0	6	6.0	271	67.8
Nenana, Clear	17	47.9	50	5.0	54	6.0	175	21.9
Manley, Minto, Tanana	16	46.1	1	1.0	16	2.7	509	36.4
Livengood	5	84.6	5	1.7	2	1.0	344	68.8
Brooks Range	9	50.3	11	3.7	19	3.2	811	90.1
Interior Totals	188	49.0	485	5.3	487	4.8	5586	43.6

* 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.

** Traplines covered from 1 to over 200 miles in length, so the "average" may not mean much.

***Estimate of total take by 10 trappers from Stevens Village.

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire.

SPECIES/ Area	Abundance in 1977-78 Season				Compared with 1976-77			
	Low	Med.	High	Index	Fewer	Same	More	Index
LYNX								
Eagle, Chicken, Boundary	9	2	0	1.7	1	4	3	6.0
Fairbanks	27	3	0	1.4	12	12	6	4.2
Fort Yukon	7	0	0	1.0	0	4	2	6.3
Circle, Central	2	0	0	1.0	0	1	0	5.0
Beaver, Beaver Creek	1	0	0	1.0	0	1	0	5.0
Stevens Village	3	0	0	1.0	1	1	0	3.0
Venetie	2	1	0	2.3	2	1	0	2.3
Delta	7	6	3	4.0	2	8	3	5.8
Tok, Northway	11	5	2	3.0	1	10	6	6.2
Healy, Mt. McKinley	2	4	0	3.7	1	6	0	4.8
Lake Minchumina	1	0	0	1.0	0	1	0	5.0
Nenana, Clear	7	1	0	1.5	5	3	0	2.5
Manley, Minto, Tanana	8	0	0	1.0	2	5	0	3.8
Livengood	5	0	0	1.0	2	2	0	3.0
Brooks Range	6	1	1	2.5	3	3	2	4.5
Interior Totals	98	23	6	2.1	32	62	22	4.7

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire (cont.).

SPECIES/ Area	<u>Abundance in 1977-78 Season</u>				<u>Compared with 1976-77</u>			
	Low	Med.	High	Index	Fewer	Same	More	Index
RED FOX								
Eagle, Chicken, Boundary	4	6	0	3.4	1	7	0	4.5
Fairbanks	20	8	0	2.2	12	12	6	4.2
Fort Yukon	12	9	0	2.7	7	8	2	3.8
Circle, Central	4	1	0	1.8	1	2	0	3.7
Beaver, Beaver Creek	3	2	0	2.6	3	1	0	2.0
Stevens Village	4	0	0	1.0	2	0	1	3.3
Venetie	2	1	0	2.3	2	2	0	3.0
Delta	8	8	1	3.6	7	6	2	3.7
Tok, Northway	10	14	1	3.6	5	12	4	4.8
Healy, Mt. McKinley	1	6	0	4.4	2	4	1	4.4
Lake Minchumina	1	2	0	3.7	1	1	1	5.0
Nenana, Clear	7	5	0	2.2	2	8	4	5.9
Manley, Minto, Tanana	7	5	0	2.7	1	6	1	5.0
Livengood	3	1	0	2.0	1	2	0	3.7
Brooks Range	6	3	0	2.3	4	3	2	4.1
Interior Totals	92	71	2	2.9	51	74	24	4.3

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire (cont.).

SPECIES/ Area	<u>Abundance in 1977-78 Season</u>				<u>Compared with 1976-77</u>			
	Low	Med.	High	Index	Fewer	Same	More	Index
MARTEN								
Eagle, Chicken, Boundary	1	4	5	6.6	0	4	5	7.2
Fairbanks	9	13	1	3.4	10	9	7	4.5
Fort Yukon	2	13	8	6.0	3	10	7	5.8
Circle, Central	1	4	1	5.0	0	4	0	5.0
Beaver, Beaver Creek	0	3	1	6.0	0	3	2	6.6
Stevens Village	1	3	0	4.0	0	2	1	6.3
Venetie	1	2	0	3.5	1	3	0	4.0
Delta	4	7	2	4.4	2	3	6	6.5
Tok, Northway	4	9	10	6.0	1	7	12	7.2
Healy, Mt. McKinley	3	3	0	3.0	0	5	1	5.7
Lake Minchumina	0	0	4	9.0	0	0	4	9.0
Nenana, Clear	2	4	4	5.8	0	7	3	6.2
Manley, Minto, Tanana	6	4	6	4.7	2	6	2	5.0
Livengood	1	3	1	5.0	0	3	1	6.0
Brooks Range	0	3	6	7.7	2	4	3	5.2
Interior Totals	35	75	49	5.4	21	70	54	5.5

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire (cont.).

SPECIES/ Area	Abundance in 1977-78 Season				Compared with 1976-77			
	Low	Med.	High	Index	Fewer	Same	More	Index
MUSKRAT								
Eagle, Chicken, Boundary	4	0	0	1.0	0	3	0	5.0
Fairbanks	4	5	4	5.1	3	9	3	5.0
Fort Yukon	3	13	5	5.4	3	10	7	5.8
Circle, Central	1	1	1	5.0	0	0	2	9.0
Beaver, Beaver Creek	0	3	1	6.0	0	1	4	8.2
Stevens Village	4	0	0	5.0	2	0	1	3.3
Venetie	0	3	0	5.0	1	1	1	5.0
Delta	4	3	1	3.5	1	3	2	5.7
Tok, Northway	3	10	9	6.1	3	9	5	5.3
Healy, Mt. McKinley	1	4	0	4.2	0	5	0	5.0
Lake Minchumina	2	1	0	2.3	3	0	0	1.0
Nenana, Clear	2	6	1	4.6	0	7	0	5.0
Manley, Minto, Tanana	3	5	1	4.1	1	3	2	5.7
Brooks Range	4	1	2	3.8	1	4	2	5.6
Interior Totals	35	55	25	4.7	18	55	29	5.4

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire (cont.).

SPECIES/ Area	Abundance in 1977-78 Season				Compared with 1976-77			
	Low	Med.	High	Index	Fewer	Same	More	Index
BEAVER								
Eagle, Chicken, Boundary	0	5	0	5.0	0	5	0	5.0
Fairbanks	1	12	7	6.2	2	11	10	6.4
Fort Yukon	7	8	4	4.4	0	12	4	6.0
Circle, Central	2	3	0	3.4	0	2	1	6.3
Beaver, Beaver Creek	1	4	0	4.2	1	3	0	4.0
Stevens Village	2	2	0	3.0	1	2	0	3.3
Venetie	3	0	0	1.0	2	1	0	2.3
Delta	3	5	0	3.5	2	3	1	4.3
Tok, Northway	7	8	3	4.4	1	13	2	5.2
Healy, Mt. McKinley	2	2	1	4.2	1	3	0	4.0
Lake Minchumina	1	3	0	4.0	1	2	1	5.0
Nenana, Clear	3	4	3	5.0	1	6	1	5.0
Manley, Minto, Tanana	6	6	1	3.7	3	6	1	4.2
Livengood	0	1	1	7.0	0	1	0	5.0
Brooks Range	3	3	1	3.8	3	2	2	4.4
Interior Totals	41	66	21	4.5	18	72	23	5.2

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire (cont.).

SPECIES/ Area	Abundance in 1977-78 Season				Compared with 1976-77			
	Low	Med.	High	Index	Fewer	Same	More	Index
MINK								
Eagle, Chicken, Boundary	1	2	0	3.7	0	3	0	5.0
Fairbanks	9	8	3	3.8	4	12	5	5.2
Fort Yukon	6	14	1	4.0	5	10	4	4.8
Circle, Central	2	2	0	3.0	0	3	0	5.0
Beaver, Beaver Creek	1	1	3	6.6	1	0	3	7.0
Stevens Village	3	0	1	3.0	1	0	2	6.3
Venetie	1	1	0	3.0	1	2	0	3.7
Delta	8	2	0	1.8	4	3	1	3.5
Tok, Northway	8	7	1	3.2	2	12	0	4.4
Healy, Mt. McKinley	2	3	0	3.4	0	5	0	5.0
Lake Minchumina	1	3	0	4.0	0	3	1	6.0
Nenana, Clear	4	9	1	4.1	1	6	3	5.8
Manley, Minto, Tanana	6	3	1	4.7	2	4	1	4.4
Livengood	2	0	0	1.0	1	0	0	1.0
Brooks Range	2	4	1	4.4	0	3	4	7.3
Interior Totals	56	59	12	3.7	22	66	24	5.1

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire (cont.).

SPECIES/ Area	<u>Abundance in 1977-78 Season</u>				<u>Compared with 1976-77</u>			
	Low	Med.	High	Index	Fewer	Same	More	Index
OTTER								
Eagle, Chicken, Boundary	2	0	1	3.7	0	2	1	6.3
Fairbanks	8	7	1	3.3	3	13	5	5.4
Fort Yukon	12	3	0	1.8	3	6	2	4.6
Circle, Central	3	0	0	1.0	0	2	0	5.0
Beaver, Beaver Creek	2	1	0	2.3	1	2	0	3.7
Stevens Village	3	0	0	1.0	1	1	0	3.0
Venetie	1	0	0	1.0	0	1	0	5.0
Delta	3	5	0	3.5	0	6	0	5.0
Tok, Northway	5	7	1	3.8	1	9	2	5.3
Healy, Mt. McKinley	2	3	0	3.4	1	3	0	4.0
Lake Minchumina	3	1	0	2.0	2	2	0	3.0
Nenana, Clear	1	7	1	5.0	3	1	3	5.0
Manley, Minto, Tanana	7	3	0	2.2	1	7	1	5.0
Brooks Range	6	3	0	2.3	2	7	0	4.1
Interior Totals	58	41	4	2.9	18	62	14	4.8

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire (cont.).

SPECIES/ Area	Abundance in 1977-78 Season				Compared with 1976-77			
	Low	Med.	High	Index	Fewer	Same	More	Index
WOLVERINE								
Eagle, Chicken, Boundary	2	5	3	5.4	0	6	2	6.0
Fairbanks	10	9	1	3.6	12	7	6	4.2
Fort Yukon	7	12	4	4.5	4	13	4	5.0
Circle, Central	3	1	1	3.4	1	2	0	3.2
Beaver, Beaver Creek	5	0	0	1.0	4	0	0	1.0
Stevens Village	3	1	0	2.0	1	1	1	5.0
Venetie	3	0	0	1.0	1	1	0	3.0
Delta	7	5	1	3.2	3	9	0	4.0
Tok, Northway	7	10	2	3.9	5	12	2	4.4
Healy, Mt. McKinley	0	6	1	5.6	0	4	1	5.8
Lake Minchumina	1	2	0	3.7	0	2	1	6.3
Nenana, Clear	4	6	1	3.9	1	8	1	5.0
Manley, Minto, Tanana	9	1	0	1.4	2	6	0	4.0
Livengood	1	2	0	3.7	0	2	0	5.0
Brooks Range	4	5	0	3.2	4	5	0	3.2
Interior Totals	66	65	14	3.6	38	76	18	4.4

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire (cont.).

SPECIES/ Area	Abundance in 1977-78 Season				Compared with 1976-77			
	Low	Med.	High	Index	Fewer	Same	More	Index
COYOTE								
Eagle, Chicken, Boundary	4	0	0	1.0	0	2	1	6.3
Fairbanks	13	2	0	1.5	3	13	0	4.3
Fort Yukon	7	0	0	1.0	0	4	2	6.3
Circle, Central	2	0	0	1.0	0	1	0	5.0
Beaver, Beaver Creek	1	0	0	1.0	1	1	0	3.0
Stevens Village	3	0	0	1.0	1	1	0	5.0
Venetie	1	0	0	1.0	0	1	0	5.0
Delta	7	6	3	4.0	2	8	3	5.8
Tok, Northway	11	5	2	3.0	1	10	6	6.2
Healy, Mt. McKinley	2	4	0	3.7	1	6	0	4.8
Lake Minchumina	1	0	0	1.0	0	1	0	5.0
Nenana, Clear	7	1	0	1.5	5	3	0	3.8
Manley, Minto, Tanana	8	0	0	1.0	2	5	0	3.8
Brooks Range	3	0	0	1.0	1	2	0	3.7
Interior Totals	70	18	5	2.2	16	58	12	4.8

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire (cont.).

SPECIES/ Area	Abundance in 1977-78 Season				Compared with 1976-77			
	Low	Med.	High	Index	Fewer	Same	More	Index
WOLF								
Eagle, Chicken, Boundary	6	2	2	3.4	1	7	1	5.0
Fairbanks	11	11	3	3.7	12	7	6	4.0
Fort Yukon	12	7	2	3.1	8	9	1	3.4
Circle, Central	5	0	1	2.3	1	2	0	3.2
Beaver, Beaver Creek	1	2	1	5.0	1	1	2	6.0
Stevens Village	4	0	0	1.0	1	1	0	3.0
Venetie	1	1	0	3.0	1	1	0	3.0
Delta	8	3	6	4.5	7	7	2	3.9
Tok, Northway	7	10	4	4.4	3	12	4	5.2
Healy, Mt. McKinley	2	2	2	5.0	4	2	0	2.3
Lake Minchumina	2	0	1	3.7	0	2	1	6.3
Nenana, Clear	10	3	0	1.9	7	4	1	3.0
Manley, Minto, Tanana	9	1	1	2.1	4	5	2	4.3
Livengood	2	1	0	2.3	1	1	0	3.0
Brooks Range	5	4	0	2.8	6	2	1	2.8
Interior Totals	85	47	23	3.4	57	63	21	4.0

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire (cont.).

SPECIES/ Area	<u>Abundance in 1977-78 Season</u>				<u>Compared with 1976-77</u>			
	Low	Med.	High	Index	Fewer	Same	More	Index
SQUIRREL								
Eagle, Chicken, Boundary	1	3	2	5.7	0	3	3	7.0
Fairbanks	3	14	10	6.0	3	16	6	5.5
Fort Yukon	4	9	9	6.0	1	10	6	6.2
Circle, Central	0	2	1	6.3	0	1	0	5.0
Beaver, Beaver Creek	0	1	1	7.0	0	1	1	7.0
Stevens Village	2	1	1	4.0	1	1	0	3.0
Venetie	1	0	0	1.0	0	1	0	5.0
Delta	1	2	12	7.9	0	9	3	6.0
Tok, Northway	0	4	14	8.1	0	13	5	6.1
Healy, Mt. McKinley	0	1	3	8.0	0	3	2	6.6
Lake Minchumina	1	0	1	5.0	0	3	0	5.0
Nenana, Clear	0	5	7	7.3	0	7	4	6.4
Manley, Minto, Tanana	1	4	1	5.0	0	5	0	5.0
Brooks Range	0	5	2	6.1	1	5	2	5.5
Interior Totals	14	51	65	6.6	6	78	32	5.9

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire.

SPECIES/ Area	Abundance in 1977-78 Season				Compared with 1976-77			
	Low	Med.	High	Index	Fewer	Same	More	Index
SNOWSHOE HARE								
Eagle, Chicken, Boundary	1	5	1	5.0	0	2	6	8.0
Fairbanks	22	8	1	2.3	4	8	19	6.9
Fort Yukon	7	14	4	4.8	0	5	16	8.0
Circle, Central	3	2	1	3.7	1	0	2	6.3
Beaver, Beaver Creek	0	1	3	8.0	0	0	4	9.0
Stevens Village	2	1	1	4.0	1	1	0	3.0
Venetie	0	0	1	9.0	0	0	1	9.0
Delta	8	8	0	3.0	1	0	15	8.5
Tok, Northway	14	4	6	3.3	1	2	17	8.2
Healy, Mt. McKinley	4	2	1	3.3	1	2	4	6.7
Lake Minchumina	0	2	1	6.3	0	1	2	7.7
Nenana, Clear	8	6	0	2.7	2	2	8	7.0
Manley, Minto, Tanana	11	3	0	1.8	3	1	7	6.4
Livengood	3	1	0	2.0	0	1	2	7.7
Brooks Range	1	5	2	5.5	1	2	5	7.0
Interior Totals	84	62	22	3.5	15	27	108	7.5

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire (cont.).

SPECIES/ Area	<u>Abundance in 1977-78 Season</u>				<u>Compared with 1976-77</u>			
	Low	Med.	High	Index	Fewer	Same	More	Index
GROUSE								
Eagle, Chicken, Boundary	0	5	3	6.5	0	5	2	6.1
Fairbanks	5	19	7	4.9	1	9	17	7.4
Fort Yukon	5	15	3	4.6	2	13	5	5.6
Circle, Central	1	3	2	5.7	0	1	3	8.0
Beaver, Beaver Creek	0	3	0	5.0	0	4	0	5.0
Stevens Village	3	1	0	2.0	1	1	0	3.0
Venetie	0	1	0	5.0	0	1	0	5.0
Delta	5	9	3	4.5	0	2	13	8.5
Tok, Northway	5	12	4	4.8	0	6	14	7.8
Healy, Mt. McKinley	3	4	1	4.0	0	3	5	7.5
Lake Minchumina	1	3	0	4.0	1	1	2	7.7
Nenana, Clear	5	7	4	4.8	1	5	6	6.7
Manley, Minto, Tanana	2	6	4	5.7	0	5	5	7.0
Livengood	0	1	4	8.2	0	0	3	9.0
Brooks Range	1	5	3	5.9	1	6	2	5.4
Interior Totals	36	94	38	5.0	7	62	77	6.9

Table 2. Interior Alaska furbearer population abundance and trend indices by species based on trapper questionnaire (cont.).

SPECIES/ Area	Abundance in 1977-78 Season				Compared with 1976-77			
	Low	Med.	High	Index	Fewer	Same	More	Index
PTARMIGAN								
Eagle, Chicken, Boundary	0	6	2	6.0	0	6	1	5.6
Fairbanks	3	16	12	6.2	0	6	21	8.1
Fort Yukon	4	11	7	5.6	2	11	7	6.0
Circle, Central	1	3	2	5.7	0	1	3	8.0
Beaver, Beaver Creek	0	2	1	6.3	0	3	1	6.0
Stevens Village	2	2	0	3.0	0	1	1	7.0
Venetie	0	1	0	5.0	0	1	0	5.0
Delta	5	7	1	3.8	0	6	6	7.0
Tok, Northway	6	11	3	4.4	2	8	8	6.3
Healy, Mt. McKinley	0	4	4	7.0	0	2	6	8.0
Lake Minchumina	0	2	2	7.0	0	2	2	7.0
Nenana, Clear	0	10	4	6.1	0	3	8	7.9
Manley, Minto, Tanana	1	5	7	6.9	0	3	6	7.6
Livengood	0	1	3	8.0	0	1	1	7.0
Brooks Range	1	5	3	5.9	1	6	2	5.4
Interior Totals	23	86	51	5.7	5	60	73	7.3

BEAVER

SURVEY-INVENTORY PROGRESS REPORT - 1969-78

Game Management Subunits 14A, 14B, 14C

Seasons and Bag Limits

1969 to 1976

Unit 14	Feb. 1 - April 30	40 per season
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1976-77

Subunits 14A, 14B	Feb. 1 - April 30	40 per season
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Subunit 14C	Closed	
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1977-78

Subunits 14A, 14B	Feb. 1 - April 30	40 per season
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Subunit 14C: That portion within the drainages of Glacier Creek, Kern Creek Peterson Creek and Twentymile River	Feb. 1 - March 31	20 per season
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Remainder of 14C	Closed	
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Trapping and Harvest Pressure

The harvest data presented were hand compiled to minimize errors resulting from inaccurate coding in the computer analysis. Some errors may still exist.

In Game Management Unit 14A, the highest reported beaver harvest was 201 in 1972-73, and the lowest was 29 in 1971-72 (Appendix I). The greatest level of trapping pressure occurred in 1972-73, with 32 successful trappers in the field; only five trappers reported taking beavers in 1971-72. The average number of beavers harvested per trapper varied between 6.4 (1976-77) and 2.3 (1975-76). The greatest percentage (35%) of beavers harvested during the last 9 years was between 60-64 inches in size. Kits comprised the lowest percentage (20%).

In Game Management Unit 14B, the highest reported harvest was 189 in 1969-70, and the lowest was 32 in 1975-76 (Appendix II). The maximum number of trappers sealing beavers was 19 (1969-70), and the minimum was four (1971-72). The average number of beavers harvested per trapper varied between 9.9 (1969-70) and 4.0 (1975-76). The greatest percentage

(32%) of beavers harvested during the last 9 years were between 60-64 inches in size. Kits comprised the lowest percentage (19%).

In Game Management Unit 14C, the highest reported harvest was 16 (1972-73) (Appendix III). The number of successful trappers never exceeded four during this period, and the average yearly catch per trapper for the past 9 years was 2.9. The greatest percentage (33%) of beavers harvested during the last 9 years were kits.

Of the three Subunits, 14A receives the most trapping pressure and produces the greatest harvest, but trappers in 14B average more beavers. The harvest in 14C is very low, and is mainly comprised of kits.

The majority of Game Management Unit 14C has been closed to beaver trapping since the 1976-1977 season. The Twentymile River and Glacier Creek drainages, formerly within Game Management Unit 7, remain open. The extensive closure in 14C was precipitated by decreased abundance or absence of beavers within several major drainages of Chugach State Park. It appears beavers have not repopulated these areas since the closure was effected.

Harvest levels in the Twentymile River and Glacier Creek drainages have varied considerably over the past 7 years, ranging from a high of 21 in 1975-1976, to a low of one in 1972-1973. The large 1975-1976 harvest was attributable to the Twentymile River remaining open throughout the entire winter. Present harvest levels are not considered detrimental to the population.

Composition and Productivity

The only colony survey on record was flown in 1971. Ninety-five live colonies were reported on the Susitna Flats (Game Management Subunits 14A and 16B).

Management Summary and Conclusions

Human-beaver interactions in 14A are approaching the pest stage. Some residents have complained of flooding and tree destruction. While a census has never been conducted, it is thought that beavers are abundant in the valley. To actively manage beavers and beaver-related problems, a specific beaver management program should be written and implemented. A cache survey is of foremost importance in order to determine total abundance and the locations of dams posing potential problems.

Access in Game Management Unit 14B is limited relative to access in 14A. Since the greatest percentage of harvest in 14B is comprised of larger, older beavers, it is believed that populations can support continued harvest.

The reduced population of beavers in the majority of 14C is a reflection of habitat loss and heavy exploitation by Anchorage area residents. Over exploitation is evident in the high percentage of kits in the

harvest. However, much of 14C is not optimum habitat and may never support many beavers. In view of the historically light harvest and predominance of kits and yearlings in the harvest, the majority of 14C should remain closed. Those areas remaining open should be monitored.

Recommendations

Current seasons and bag limits are compatible with beaver populations in 14A, 14B, and 14C. No change is recommended.

PREPARED BY:

Peggy Merritt
Game Biologist I

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

Appendix I. Historical Beaver Harvest for Unit 14(A)*, 1969-1978.

Year	53"		54 - 59"		60 - 64"		65+"		Total	Number of Trappers	Average Number Beaver/Trapper
	No.	%	No.	%	No.	%	No.	%			
1969-70	39	23.8	46	28.0	54	32.9	25	15.2	164	29	5.7
1970-71	7	14.9	12	25.5	20	42.6	8	17.0	47	13	3.6
1971-72	7	24.1	6	20.7	7	24.1	9	31.0	29	5	5.8
1972-73	26	12.9	37	18.4	105	52.2	33	16.4	201	32	6.3
1973-74	31	27.9	23	20.7	29	26.1	28	25.2	111	22	5.0
1974-75	31	17.5	45	25.4	61	34.5	40	22.6	177	30	5.9
1975-76	10	20.4	12	24.5	22	44.9	5	10.2	49	21	2.3
1976-77	31	21.1	39	26.5	29	19.7	48	32.7	147	23	6.4
1977-78	14	23.3	7	11.7	20	33.3	19	31.7	60	17	3.5

* There are two drainages, Knik Arm and Knik River, which border both Units 14A and 14C. Since the present coding scheme does not differentiate between Subunits, data for the two drainages were arbitrarily placed in Unit 14A. In addition, two drainages, Matanuska River and Chickaloon area, border with Unit 13. Since the present coding scheme does not differentiate between Units along these drainages, data were arbitrarily placed into Unit 14A. The code for drainage "Rabbit Slough", in Unit 14A, unfortunately, is the same code for an area in Unit 13. Data for this drainage were arbitrarily placed into Unit 14A. Thus, data presented in Appendix I may be an over estimation of reported harvest in Unit 14A.

PREPARED BY: Peggy Merritt, Game Biologist I

Appendix II. Historical Beaver Harvest for Unit 14(B)*, 1969-1978.

Year	≤ 53"		54 - 59"		60 - 64"		65+"		Total	Number of Trappers	Average Number Beaver/Trapper
	No.	%	No.	%	No.	%	No.	%			
1969-70	30	15.9	51	27.0	72	38.1	36	19.0	189	19	9.9
1970-71	6	13.3	14	31.1	15	33.3	3	6.7	45	7	6.4
1971-72	9	25.7	7	20.0	7	20.0	12	34.3	35	4	8.8
1972-73	23	23.7	23	23.7	34	35.1	17	17.5	97	17	5.7
1973-74	15	12.7	33	28.0	35	29.7	35	29.7	118	13	9.1
1974-75	18	17.0	24	22.6	32	30.2	32	30.2	106	17	6.2
1975-76	11	34.4	7	21.9	9	28.1	5	15.6	32	8	4.0
1976-77	15	22.7	19	28.8	21	31.8	11	16.7	66	12	5.5
1977-78	23	25.3	17	18.7	26	28.6	25	27.5	91	13	7.0

PREPARED BY: Peggy Merritt, Game Biologist I

Appendix III. Historical Beaver Harvest for Unit 14 (C)*.

Year	<53"		54-59"		60-64"		65+"		Total	Number of Trappers	Average Number Beaver/Trapper
	No.	%	No.	%	No.	%	No.	%			
1969-70	6	42.9	2	14.3	5	35.7	1	7.1	14	2	7.0
1970-71	3	42.9	2	28.6	2	28.6	0	0	7	3	2.3
1971-72	1	25.0	0	0	2	50.0	1	25.0	4	2	2.0
1972-73	3	18.8	6	27.5	1	6.3	6	37.5	16	4	4.0
1973-74	0	0	3	75.0	0	0	1	25.0	4	1	4.0
1974-75	0	0	1	100.0	0	0	0	0	1	1	1.0
1975-76	2	100.0	0	0	0	0	0	0	2	2	1.0
1976-77	0	0	1	33.3	1	33.3	1	33.3	3	1	3.0
1977-78	2	66.6	1	33.3	0	0	0	0	3	2	.67

* There are two drainages, Knik Arm and Knik River, which form the boundaries between Units 14A and 14C. Since the present harvest coding scheme does not differentiate between the two Subunits, data for these two drainages were arbitrarily included in the analysis of Unit 14A. Note that data presented in Appendix III may be a minimum of reported harvests.

PREPARED BY; Peggy Merritt, Game Biologist I

BEAVER

SURVEY-INVENTORY PROGRESS REPORT - 1969-78

Game Management Unit 16

Seasons and Bag Limits

Unit 16	Nov. 10 - April 15	40 per season
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Trapping and Harvest Pressure

Seasons and bag limits for beavers in Unit 16 have remained unchanged during this 9-year report period. The harvest data presented were hand compiled to minimize errors resulting from inaccurate coding in the computer analysis. Although some errors may still exist in this harvest data, it is as accurate as possible.

In Subunit 16A, the highest reported harvest was 244 beavers in 1969-70, and the lowest was 43 in 1975-76 (Appendix I). The greatest reported trapping pressure was in 1969-70 (16 successful trappers); the lowest was in 1975-76 (five successful trappers). The average number of beavers harvested per successful trapper varied between 15.3 (1969-70) and 6.0 (1976-77). The greatest percentage (35%) of the beavers harvested during the last 9 years was between 60-64 inches in size; kits comprised the least percentage (16%).

In Subunit 16B, the highest reported harvest was 360 in 1972-73, and the lowest was 107 in 1973-74 (Appendix II). The greatest reported trapping pressure was in 1976-77 (32 successful trappers), the lowest was in 1973-74 (12). The average number of beavers harvested per successful trapper varied between 18.0 (1972-73) and 6.7 (1977-78). The greatest percentage (35%) of beavers harvested during the last 9 years was between 60-64 inches in size. Kits comprised the least percentage (19%).

Of the two Subunits, 16B receives the greatest trapping pressure, produced the greatest harvest and averages the most beavers per trapper.

Composition and Productivity

The only colony survey on record was flown in 1971. Ninety-five live colonies were reported on the Susitna Flats (Subunits 14A and 16B).

Management Summary and Conclusions

In the last few years, the percentage of kits taken in the Subunit 16A harvest has increased and the average number of beavers per trapper

has decreased. This is probably caused primarily by increased numbers of inexperienced or young trappers. The harvest of larger, older beavers in Subunit 16B indicates that populations can support continued harvest. Beavers appear to be abundant in Subunits 16A and 16B.

Recommendations

In order to facilitate compilation of accurate harvest data for beavers, by Game Management Unit, the current coding procedures should be modified so the code prefixes are synonymous with the Game Management Unit number. Tributary coding indices for Units 14 and 16 have been developed, but cannot be implemented until new tributary codes are developed for Unit 13. A list of the codes which need changing in Units 13 and 16 has been prepared.

PREPARED BY:

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SUBMITTED BY:

James B. Faro
Regional Management Coordinator

Appendix I. Historical Beaver Harvest for Unit 16(A)*, 1969-1978.

Year	53"		54 - 59"		60 - 64"		65+"		Total	Number of Trappers	Average Number Beaver/Trapper
	No.	%	No.	%	No.	%	No.	%			
1969-70	38	15.6	34	13.9	102	41.8	70	28.7	244	16	15.3
1970-71	16	17.2	21	22.6	32	34.4	24	25.8	93	7	13.3
1971-72	6	9.2	8	12.3	16	24.6	35	53.8	65	6	10.8
1972-73	9	9.1	27	27.3	36	36.4	27	27.3	99	9	11.0
1973-74	14	14.9	14	14.9	35	37.2	31	33.0	94	11	8.5
1974-75	39	18.1	33	15.3	77	35.8	66	30.7	215	15	14.3
1975-76	2	4.7	4	9.3	14	32.6	23	53.5	43	5	8.6
1976-77	18	30.0	14	23.3	18	30.0	10	16.7	60	10	6.0
1977-78	26	22.8	24	21.1	34	29.8	30	26.3	114	13	8.8

* The present coding scheme does not differentiate between Units 16A and 13 along the Chulitna River drainage. Data for this drainage were arbitrarily placed in Unit 16A. Thus, data presented in Appendix I may be an overestimation of reported harvest in Unit 16A.

PREPARED BY: Peggy Merritt, Game Biologist I

Appendix II. Historical Beaver Harvest for Unit 16(B).*

Year	53"		54 - 59"		60 - 64"		65+"		Total	Number of Trappers	Average Number Beaver/Trapper
	No.	%	No.	%	No.	%	No.	%			
1969-70	47	22.7	39	18.8	76	36.7	45	21.7	207	17	12.2
1970-71	27	17.8	27	17.8	58	38.2	40	26.3	152	13	11.7
1971-72	28	13.9	44	21.8	94	46.5	36	17.8	202	15	13.5
1972-73	74	20.6	53	14.7	126	35.0	107	29.7	360	20	18.0
1973-74	16	15.0	22	20.6	43	40.2	26	24.3	107	12	8.9
1974-75	71	20.4	89	25.6	117	33.6	71	20.4	348	29	12.0
1975-76	22	14.6	41	27.2	52	34.4	36	23.8	151	14	10.8
1976-77	84	24.1	103	29.6	93	26.7	68	19.5	348	32	10.9
1977-78	18	11.7	36	23.4	51	33.1	49	31.8	154	23	6.7

* The present coding scheme does not differentiate between Units 16A, 16B, 14A and 14B along the Susitna River drainage. Data for this drainage were arbitrarily placed in Unit 16B. Thus, reported harvest in Unit 16B may be overestimated.

PREPARED BY: Peggy Merritt, Game Biologist I

BEAVER

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 17 - Bristol Bay

Seasons and Bag Limits

Unit 17(B) except that portion draining into the Mulchatna River between the mouth of the Stuyahok River and the Mulchatna confluence with the Nushagak River, and that portion drained by the Nushagak River between the mouth of the Nuyakuk River and the Nushagak confluence with the Mulchatna River.	Feb.1-Feb.28	15 per season
Remainder of Unit 17(B), 17(A) and 17(C)		No open season

Harvest and Trapping Pressure

A total of 75 trappers sealed 802 beavers (an average of 10.7 beavers per trapper) from Unit 17 during the 1977-78 trapping season (Appendix I). The sealing breakdown shows 23.5 percent of the beavers harvested were kits as indicated by hide sizes of less than 54 inches.

Composition and Productivity

Cache surveys were flown during the fall of 1977 on 11 rivers for which historical data are available (Appendix II). Overall, the miles per cache ratio declined 11 percent (1.09 to 0.97 miles per cache) in 1977. The Klutuk River was the only stream surveyed in both 1976 and 1977 to show an increase in miles per cache.

Management Summary and Conclusions

Beaver trapping in Unit 17 during the 1977-78 season was restricted to the Mulchatna River and the upper drainages of the Nushagak River. The closure of the Togiak drainages and the lower drainages of the Nushagak River, implemented in 1975, remained in effect for this reporting period. The closure was effected to improve the beaver populations in those drainages which had received the most intensive trapping pressure.

The beaver population in the lower drainages has responded well to the closure. The 1977 cache surveys show the beaver population in Unit 17 at the highest level since surveys were initiated in 1968 (Appendix II). In light of the expanding beaver population, area residents are now requesting the entire Unit 17 be reopened to beaver trapping.

The 23.5 percent kits harvested during the 1977-78 season is a significant increase from 17.7 percent kits harvested during the 1976-77 season, but only slightly above the 8-year mean of 21.8 percent. This high level of kits in the harvest indicates the accessible portions of open area are now receiving trapping pressure similar to that exerted on the lower drainages prior to the closure. The high kit harvest could also be an indicator of extensive illegal harvest on the expanding population in the closed area. However, this possibility is refuted by the low miles per cache ratio observed during the fall surveys.

The survey and inventory report published for Unit 17, regulatory year 1976-77 is in fact for regulatory year 1975-76. No report was prepared for regulatory year 1976-77. Appendices I and II of this report include the 1976-77 data.

Recommendations

The closure of beaver trapping in parts of Unit 17 presently in effect should be retained for at least 1 more year. Although cache surveys show the highest population level since the initiation of surveys in 1968, it takes approximately 3 years before newly established houses are contributing sexually mature offspring to the population. It must, therefore, be assumed that most of the new houses surveyed contain only a minimum number of beavers and these of relatively small size. Trapping this young population before it is providing sexually mature offspring would in all likelihood destroy the house and the population gains achieved during the past 3 years. The economic gain of trapping the population early would also be hampered by the reduced hide size and lower value of those small hides.

PREPARED BY:

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SUBMITTED BY:

James B. Faro
Regional Management Coordinator

Appendix I. Historical Beaver Harvest from Unit 17, 1957 through 1978.

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
17	1957	10	22.9	36.8	63.2	367	46	8.0
	1958	15	19.1	33.0	67.0	3,165	263	12.0
	1959	10	19.6	29.4	70.6	3,245	369	8.8
	1960	15	24.3	34.2	65.8	3,721	279	13.3
	1961	15	23.1	24.7	65.2	2 849	230	12.3
	1962	15	29.5	41.5	58.5	1,903	175	10.8
	1963	15	23.3	36.8	63.2	2,172	189	11.5
	1964	15	28.4	38.4	61.6	1,766	180	9.8
	1965	15	22.1	34.9	65.1	957	97	9.9
	1966	15	25.2	37.9	62.1	1,424	143	10.0
	1967	15	25.3	37.0	63.0	2,711	215	12.6
	1968	20	25.7	36.4	63.6	3,158	198	15.9
	1969	15	No Harvest Reported			Est. 1,750	Est. 150	Est. 11.6
	1970	15	22.6	34.1	65.9	1,190	118	10.1
	1971	15	27.5	41.0	59.0	824	80	10.3
	1972	15	20.5	34.0	66.0	762	70	10.9
	1973	15	23.9	35.8	64.2	1,849	163	11.3
	1974	15	23.9	36.6	63.4	1 681	169	9.9
	1975	15	15.8	27.2	72.8	928	85	10.9
	1976	15	22.2	33.0	67.0	637	66	9.7
	1977	15	17.7	32.3	67.7	766	73	10.5
	1978	15	23.5	35.6	64.4	802	75	10.7

PREPARED BY: Nicholas C. Steen, Game Biologist II

Appendix II. Beaver Cache Survey - Miles Per Cache, Unit 17, 1976 through 1977.

Stream	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Klutuk	2.20	-	2.90	-	-	-	2.50	1.38	1.00	1.14
Kokwok	1.40	-	1.50	-	-	-	.70	1.25	1.07	1.00
Iowithla	2.40	-	1.90	1.90	-	-	1.72	1.29	1.29	.91
Sunshine	-	-	-	1.30	-	-	1.14	1.47	-	.41
Togiak	7.60	-	1.30	-	-	-	-	3.04	-	1.15
Ongivinuk	-	-	-	-	-	-	1.03	1.28		.68
Harris	.70	-	.59	.76	-	-	1.50	1.38	1.45	-
Mosquito	.70	-	.58	.78	-	-	.66	.63	.81	.64
Mulchatna	.94	-	.52	.44	-	-	.44	.51	.80	.80
Stuyahok	-	-	-	.85	-	-	.63	.93	1.90	1.33
N. Napotoli	2.50	-	2.70	-	-	-	-	-	1.30	-
S. Napotoli	1.40	-	1.70	-	-	-	-	-	.84	-
King Salmon	1.30	-	1.09	1.01	-	-	-		1.38	1.30
Tikchik	1.30	-	1.00	.99	-	-	-	-	.92	-
Nushagak	1.60	-	1.00	-	-	-	-	-	-	1.20
AVERAGE	2.0	-	1.4	1.0	-	-	1.15	1.32	1.09	.97

PREPARED BY: Nicholas C. Steen, Game Biologist II

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 18 - Yukon-Kuskokwim Delta

Period Covered - July 1, 1977 - June 30, 1978

Seasons and Bag Limits

<u>Species</u>	<u>Hunting</u>	<u>Trapping</u>
Beaver	No Open Season	Feb. 1-Mar. 31 15/season
Arctic Fox	Sept. 1-Apr. 30 2 foxes	Nov. 10-Apr. 15 No limit
Red Fox	Sept. 1-Feb. 15 2 foxes	Nov. 10-Apr. 15 No limit
Lynx	Sept. 1-Mar. 31 2 lynx	Nov. 10-Mar. 31 No limit
Marten	No Open Season	Oct. 20-Feb. 28 No limit
Mink/Weasel	No Open Season	Nov. 10-Jan. 31 No limit
Land Otter	No Open Season	Nov. 10-Mar. 31 No limit
Muskrat	No Open Season	Nov. 10-Jun. 10 No limit
Red Squirrels	No Open Season	No Closed Season No limit
Ground Squirrels	No Open Season	No Closed Season No limit

Harvest and Hunting Pressure

Beaver: Beavers are abundant and expanding in the Yukon-Kuskokwim Delta. They have radiated into areas of the tundra that appear to provide only marginal habitat and where they have not been observed by local people for several generations. For example, beavers now occupy the Chakchak River and Toksook River on Nelson Island in numbers that have drawn some concern by residents of Nightmute, Toksook Bay, and Tununuk. These villages report that they have not seen beavers here in the past and traditionally do not know how to trap for them.

In the 1977-78 season, 178 trappers took 1,956 beavers compared with a catch of 2,209 by 258 trappers in the 1977-78 season. This year's harvest is in line with the 1974-75 and 1975-76 seasons when nearly the same number of trappers (180) harvested 1,350 and 1,389 beavers respectively. The average price for beavers during this season was generally suppressed at \$25 - \$20 for a large (55" to 59") pelt. This low price coupled with the lack of buyers in the spring tended to discourage trapping effort for beavers particularly in the lower tundra areas, and is responsible for the decreased harvest from last year.

Consistent with the reports that beavers are abundant throughout the tundra areas our sealing certificates revealed 483 beavers taken by 39 trappers on the Johnson River drainage and 209 beavers taken by 24 trappers of the Kashunuk River system. The following is the breakdown of beavers reported taken by major drainages in Game Management Unit 18, beginning with the greatest harvest.

Drainage	Beaver	Trappers	Avg. Beaver/Trapper
Johnson River	483	39	12.4
Goodnews River	283	28	10.1
Lower Yukon (Pilot Station down river)	267	32	8.3
Kuskokwim (Kalskag to Akiak)	265	1+	-
Kashunuk River	209	24	8.7
Kwethluk, Kasiguluk Rivers	104	12	8.7
Kiseralik River	62	8	7.8
Eek River	61	7	8.7
Chuelinguk River	54	7	7.7
Unknown (general Unit 18)	40	4	10.0
Kanektok River	35	3	11.7
Devil's Elbow, Yukon	34	4	4.3
Andreafsky River	24	4	6.0
Tuluksak River	19	2	9.5
Reindeer River	10	1	10.0
Pastolik River	6	2	3.0
Total	1,956	178+	10.9

Kits made up 23.8 percent of the seasons catch, 31 percent of the catch were super blankets (65 inches and up), and the remaining 45.2 percent were pelts between 54 and 64 inches.

Arctic Fox: Arctic foxes were abundant along the coastal fringes of Game Management Unit 18 this year. The pelts appeared to deteriorate earlier in the season than usual which is probably due to the warm weather the coast experienced in February and March. An average white fox brought between \$25 and \$45. Based on summer sightings reported by U. S. Fish and Wildlife Service in the Old Chevak and Kashunuk River area the arctic fox population has remained steady for the last 5 years.

Red Fox: Red foxes continue to be abundant in Game Management Unit 18, particularly on Nunivak Island. On the mainland, red foxes tend to inhabit the area about 60 to 100 miles from the coast inland towards the interior portions of this Unit. Considerable effort was expended by delta residents to take red foxes this season especially since the average pelt brought between \$80 and \$125, depending on the depth of the red color. The total catch was possibly around 1000 animals. Like the arctic foxes, the red fox pelts appeared to shed in early February and deteriorated quickly in early spring.

Lynx: Fifty lynx were taken in Unit 18 during this season; 26 males, 21 females, and three of unknown sex. The majority of the lynx were harvested in December with 17 lynx sealed; February, 14; January, six; March, four; and November, three. Forty-two lynx, or 84 percent of the total take were trapped, six were snared, and two were taken by an unreported method.

The sealing certificates showed about 25 lynx harvested from the Yukon River basin and the same harvested from the Kuskokwim system with the majority of the animals taken upriver near the borders of Game

Management Units 18, 19, and 21. Some lynx were taken in the delta area where they appear to be locally abundant, depending on the pockets of snowshoe hare and arctic hare populations. Lynx continue to be very valuable furs, bringing around \$200 to \$275 depending on the condition of the pelt. The hare populations did not appear to fluctuate much this year so it appears that this level of lynx harvest may be normal for this area.

Marten: Marten were not taken in great numbers this year. Some animals were harvested along the main Kuskokwim River as far down river as Akiak and along the main Yukon River near Marshall and Russian Mission. An average marten in this area brought \$25 to \$35 this season.

Mink: Minks continue to be important to the tundra villages. Fewer minks were harvested this year than in the 1976-77 season because a late freezeup hindered trapping efforts early in the season. An estimated harvest for 1977-78 is around 800 animals. This year, large Kuskokwim minks brought \$35 to \$45.

Muskrat: Muskrats were common over most of Unit 18 this year. No figures were available on the numbers caught. Large muskrats from the Lower Yukon and Kuskokwim area brought between \$2.00 and \$2.50.

Land Otter: Four hundred, ninety land otters were sealed from Unit 18 this year; 217 males, 137 females, and 136 of unknown sex. Two hundred, forty-four otters were taken in December, 64 in November, 57 in February, 53 in January, and 36 in March. Thirty-five animals were harvested at an unknown time. Two hundred and thirty-seven otters or 48.8 percent were trapped, 181 were snared, 45 were ground shot, and 27 were taken by unreported methods.

From a sample size of 393 otters sealed, 217 otters or 55 percent, were taken from Lower Yukon drainages and 176 otters, or 45 percent, were harvested in the Lower Kuskokwim drainages.

Local people expressed some reservations about the sealing program which began in December 1977. They felt the sealing program also reflected a change in the bag limit from the no limit they had in the past to some defined number per season similar to the beaver bag limit. For this reason people were afraid to bring all of their otters in to be sealed and it is felt another hundred otters were taken by Unit 18 residents during the 1977-78 season. Yukon and Kuskokwim otters continue to be a valuable fur, bringing \$45 to \$55 for large pelts.

Red and Ground Squirrels: Squirrels have not been observed north of the Kuskokwim River in Unit 18. They appear to occur only locally around the village of Quinhagak in the lower Kanetok River basin. The majority of the squirrels taken are used by local residents to make parkas. This year a bail of 30 pelts sold for \$100 in the Quinhagak village store.

Abundance and Productivity

Due to adverse weather conditions and scheduling problems, no beaver cache counts were conducted in Unit 18 during the 1977 fall season.

Management Summary and Recommendations

Beaver cache counts should have been conducted on key drainages each year. Due to the common use of bank caches, a ground survey should be done annually in addition to the fall aerial surveys.

An increase from 15 to 20 beavers per season is recommended at this time.

PREPARED BY:

SUBMITTED BY:

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Game Biologist II

Robert E. Pegau
Regional Supervisor

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 19 - McGrath

Period Covered: July 1, 1977 - June 30, 1978

Harvest and Hunting Pressure

Coyote - No coyotes were known to have been trapped during 1977-1978.

Red Fox - Red fox were again scarce in Unit 19, but trappers reported seeing more sign than in the past several years. Again, high pelt values encouraged trappers to seek fox at every opportunity. Some red fox pelts brought over \$200 in 1978 and, on the average, were worth \$80 to \$90. Fox seemed more plentiful than during 1976-1977 in the upland areas to the east of McGrath and in the western portions of Subunit 19A. The estimated red and cross fox catch for Unit 19 was 300.

Lynx - Lynx abundance in Unit 19 increased from that of the previous season, especially in Subunits 19A and 19D. This increase was reflected in the sealing data. Seventy-six lynx were taken between November and March. Among these, 70 percent were caught after January 1, 1978. Lynx numbers can be expected to increase during the next few years, especially along the tributaries of the upper Kuskokwim and in the southwest corner of Unit 19 near Aniak and Kalskag. Trappers received an average of \$325 per lynx during the 1977-1978 season.

Marten - Marten remained abundant throughout most of Unit 19, except to the west and northwest of McGrath. The estimated marten catch for 1977-1978 was 4,000 to 4,500. Pelt values remained high with good lots averaging \$45 through February, after which average lots brought less than \$30.

Mink - Although mink appeared to be increasing over much of Unit 19, little trapping effort was directed toward this species. High marten prices and low values for most mink resulted in little interest in mink trapping. Large, male mink were worth \$30 to \$45, but such mink were relatively uncommon except in the Aniak and Kalskag areas. The estimated mink catch for Unit 19 during 1977-1978 was 300.

Muskrat - Muskrats were fairly abundant in some areas of Unit 19, but despite high pelt values few were taken. Some trappers reported receiving as high as \$6 per pelt, but most spring hides averaged \$2 to \$3. The unit catch was probably in excess of 1,000.

Land Otter - Otter continued to be scarce in the upper Kuskokwim, but relatively abundant along middle sections of the river. Of the 102 otter reported taken during the 1977-1978 season, 83 were caught in Subunit 19A (Aniak-Sleetmute-Kalskag region), only 18 were taken in 19D

and 1 in 19C. There was an unusual early catch of otter during November and December, which I attribute to mild weather and lack of snow. Normally, most otter are taken during the spring months (January-March). Pelt values declined during 1977-1978 and averaged about \$40 per skin.

Beaver - Beaver cache counts were not made in Unit 19 during 1977. Trend counts will be resumed in the Holitna drainages during early fall 1978. Beaver populations throughout the entire unit were near or at carrying capacity on many drainages. Since pelt values were low, trappers were reluctant to expend much effort trapping beaver. Trapping pressure on many drainages was insufficient to reduce expansion and overpopulation of beaver in these systems.

Because beaver populations continued to grow throughout Unit 19, many drainages appeared to be past or approaching carrying capacity. These conditions are especially evident in Subunit 19D and portions of 19C. Liberalization of seasons and bag limits in all or portions of these areas is advisable.

Wolverine - Seventy-five wolverines were taken in the 1977-78 harvest season; this was almost equal to the previous year's take of 74. The December to March time period accounted for 87 percent of the entire take. Trapping and shooting took 69 and 28 percent of the harvest, respectively. Because of non-compliance with the sealing of furs, the actual harvest may be higher.

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SUBMITTED BY:

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 21 - Middle Yukon

Period Covered: July 1, 1977 - June 30, 1978

Harvest and Trapping Pressure

Trapping conditions were good during the 1977-1978 season. Snowfall was light in most areas and made trailbreaking and travel by snow machine relatively easy, temperatures were mild except for the first half of December, and ice was shallow and ideal for beaver trapping. Trapping pressure was light in most outlying areas but generally greater immediately adjacent to villages. Good pelt prices for marten, fox and lynx did not greatly stimulate trapping interest for those species but the low prices for beaver resulted in decreased trapping effort. Low fuel supplies and/or very high fuel prices in some villages influenced trapping pressure in those areas.

Lynx - Analysis of the first year of mandatory sealing data for lynx showed a unit-wide harvest of 58 (19 male, 35 female and 6 of undetermined sex). The low harvest was not indicative of lynx abundance in Unit 21 since most active trappers concentrated on marten despite the very high value of lynx hides.

The lynx population was on the increase in Unit 21 during 1977-1978. Snowshoe hares and lynx were numerous in the northwestern portion of the unit and similar conditions are expected to extend eastward throughout the unit during the next 2 years.

Otter - The Unit 21 land otter harvest, based on sealing records, was 65 (32 males, 27 females and 6 of undetermined sex). The catch was not indicative of the Unit 21 population because most active trappers directed little effort toward otters. Many of the otters taken were caught incidental to beaver trapping or were shot by trappers traveling on snow machines.

Otter sign was commonly observed along all major river valleys surveyed for moose or wolves during winter 1977-1978. Otter sign was especially abundant in areas where lakes contained populations of blackfish.

Wolverine - Based on sealing data, 30 wolverines (20 males, 10 females) were harvested in Unit 21. The total catch was probably higher since wolverines used locally for garment trim were not sealed. The distribution of the harvest among trappers was relatively uniform with many of the active trappers catching one or two wolverines. Conversations with hunters and trappers indicated that wolverines were more numerous in 1977 than during the preceding 2 years.

Marten - The marten was the most important species economically during 1977. Marten were abundant in all areas, pelt prices were good and catches of 100 or more marten were common. Two individuals trapping the Little Mud drainage, a tributary of the Innoko River, caught 449 marten.

Mink - Minks were plentiful in most areas but the harvest was low.

Red Fox - Red foxes were common but according to several trappers fox abundance was considerably lower than during 1976.

Coyote - One coyote was caught in the Hogatza River drainage by a trapper from Hughes. The same trapper also caught an arctic fox.

Muskrat - Muskrat numbers were very low in the Galena area during spring 1978. Residents of Nulato and Kaltag reported that muskrats were scarce on the Kaiyuh Flats and attributed this to predation by pike in that area.

Management Summary and Conclusions

The present fur regulations are adequate to meet the needs of local trappers. Members of advisory committees have expressed interest in registered traplines and a later opening date for marten trapping. The beaver population in most areas probably could sustain higher harvests.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 22 - Seward Peninsula

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

	<u>Hunting</u>	<u>Trapping</u>
Beaver	No open season	Feb 1-Apr 15 50 per season
Arctic Fox	Sept 1-Apr 30 Two foxes	Nov 10-Apr 15 No limit
Red Fox	Sept 1-Feb 15 Two foxes	Nov 10-Apr 15 No limit
Mink & Weasel	No open season	Nov 1-Jan 31 No limit
Muskrat	No open season	Nov 1-Apr 15 No limit
Land Otter	No open season	Nov 1-Apr 15 No limit

Harvest Hunting Pressure, and Abundance

Exceptional prices for long-haired furs, coupled with a strong demand for some of the short-haired furbearers, resulted in increased trapping effort throughout Unit 22. There were only a few "fulltime" trappers in each village; however, for the second year in a row there was a marked increase in the number of people who trapped on a part time or recreational basis. Most trappers in this latter category probably took less than 20 furbearers, but as a group they accounted for a substantial harvest. Trappers were hampered by lack of snow during the first 2 months of the season, but travel and snow conditions improved considerably in mid-January. This resulted in a corresponding improvement in trapping success.

Beaver

Reports from knowledgeable village residents, and aerial observations by biologists indicated that beavers have continued to increase numerically and to expand their range from the eastern portion of Unit 22. Beavers now occur as far west as the Kwiniuk River near Elim, and in the near future will likely move west into the Fish River drainage if they have not already done so. Trapping effort has not kept pace with this expanding population; in fact there are few trappers living in these areas who are experienced in taking beavers. The only area where beavers have been taken in any substantial number is the southeastern portion of the Unit.

Trapping effort was confined largely to the drainages of the Unalakleet, Pikmiktalik, and Nunavulnuk Rivers. The reported harvest was only 18 beavers, but the actual harvest was undoubtedly much higher. Many of the beavers taken were probably cut up by the trapper's family for garments and were never sealed. Beaver trapping pressure was light through Unit 22, and the harvest probably did not exceed 150 animals.

Arctic Fox

The arctic fox population appeared down somewhat compared to the relatively high numbers during the 1976-77 season. Fair to good catches were recorded on St. Lawrence Island and most trappers averaged 25 to 30 skins. Success on the mainland was much lower. In the previous year white foxes were caught all along the coast north of Elim, but during the 1977-78 trapping season the villages of Wales and Shishmaref were the only two areas where white foxes were taken in any number. Good trappers caught 25 to 30 foxes but the average was probably less than 10. The total catch for the entire Unit was estimated to be less than 2,000 white foxes.

Red Fox

The most dramatic change in furbearer numbers occurred in the red fox population. During the 1976-77 season they were extremely abundant throughout the Unit, and all trappers experienced moderate to high success. Fox numbers appeared to be dramatically lower during the 1977-78 trapping season. The exact cause of this change is unknown but may have been related to an epidemic of distemper and rabies. During the spring and summer of 1977 the virology rabies unit at the University of Alaska diagnosed several cases of rabies from the Seward Peninsula. Many foxes that tested negative for rabies exhibited the pathological symptoms of distemper.

Trappers, reindeer herders, pilots, and others repeatedly confirmed that fox numbers were down from the previous season. The depressed fox population was reflected in the harvest. Few, if any, trappers took 30 foxes and the average was probably less than 10. The total Unit 22 harvest was estimated to be less than 1,000 animals and may have been nearer 500.

Land Otter

Trapping effort for otters was usually incidental to the take of other furbearers. The total reported harvest was only 16 otters; eight males, four females, and four of unknown sex. It is unlikely that all the otters were sealed; still, the total Unit take was probably less than 30 animals. The harvest was distributed almost evenly during the season; the highest take was five in December, the lowest was two in January, and three were taken in the other months. Otters were commonly hunted and a snow machine was used for transportation, but the reported data indicated 13 of the 16 were taken with leg-hold traps.

Trapper pressure for otters has been low for many years. In response it appears the population has expanded into most areas of suitable habitat. Otter sign was common in all the major drainages throughout the Unit, and sign was noted in many of the small creeks, and feeder streams.

Mink and Weasel

The harvest of these animals continued to be low. Corresponding to a noticable increase in the microtine population, both mink and weasel

density appeared to be up, though there were few, if any, full-time trappers who took advantage of the situation.

Management Summary and Recommendations

Fur prices have remained high for several consecutive years, but there has been only a moderate increase in trapping pressure. Only a few trappers in Unit 22 depend on fur catches for a significant portion of their income, and the vast majority of people who trap do so primarily as a winter recreational activity. Even though there has been a recent revival in trapping interest, it is quite apparent that populations of furbearers could withstand a substantial increase in harvest. Beaver trapping should be encouraged throughout Unit 22, particularly in the eastern portion. Considering the relatively low harvest, liberal seasons and bag limits should be retained.

PREPARED BY:

SUBMITTED BY:

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Robert. E. Pegau
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LYNX

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 22 - Seward Peninsula

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Hunting	Sept. 1-Mar. 31	Two lynx
Trapping	Nov. 1-Mar. 31	No limit

Harvest, Trapping and Hunting Pressure

This 1977-78 season was the first time State or Federal regulations required lynx hides to be sealed. The program was initiated on December 10, 1977 as an emergency regulation. A tabulation of the harvest from the sealing certificates revealed some interesting results. In previous reports the take of lynx was estimated to be less than 100 per trapping season. However, the minimum reported harvest this year was 168 lynx; 70 males, 70 females, and 28 animals of unknown sex. The harvest was distributed among 34 trappers, for an average of five lynx per person. It is likely that a high percentage of the actual harvest was sealed because lynx brought exceptional prices, and most trappers (or fur buyers) wanted to ship the skins out of Alaska for sale. However, a number of lynx were probably taken that were not sealed. Based on the sealing data, the total harvest was estimated to be 175-200 lynx. The distribution of the known harvest by drainage was as follows:

Fish River.....	49
Kwik River.....	39
Koyuk River.....	29
Kwiniuk River.....	16
Tubutulik River.....	7
Shaktoolik River.....	5
Kuzitrin River.....	4
Igultalik River.....	4
Unalakleet River.....	3
Ungalik River.....	1
Unknown.....	11
Total.....	168

Somewhat surprisingly, trappers experienced the best success during the last month of the season when they took 65 lynx or 39 percent of the harvest. In contrast, only seven animals (4%) were trapped during November. With the exception of one lynx that was snared, all of the harvest was taken with leg-hold or body traps.

Seasonal Distribution, Migration and Concentration

Lynx habitat is primarily limited to the central southeastern portion 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 over a period of time. The vegetation of the area is predominately spruce, interspersed with trees and 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 any spruce stands, and they 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 probably act as reservoirs to provide "colonizing stock" for less favorable habitats.

In the central and eastern portion of Unit 22 snowshoe hares have increased for several years, and appeared to be approaching an abnormal high relative to carrying capacity. Several winter trips to the Kuzitrin River indicated that snowshoe hares may have numbered in excess of 3,000 per square mile along the main river. This situation was not uncommon in other drainages in the Unit. During the last 4 years, lynx numbers responded to the abundant food source and appeared to have increased substantially in most areas. Numerous lynx tracks were observed on the Kuzitrin River, and some sign was noted as far west as the Agiapuk River. John Burns (personal communication) indicated lynx numbers were moderate to high in all drainages with favorable habitat.

Management Summary and Recommendations

The available information indicates the lynx population increased in number, and expanded their range rather rapidly during the last 4 years. Snowshoe hare and ptarmigan populations were high and ample food appeared to be abundant. Only 34 trappers participated in the harvest, and most of this effort was concentrated within a 30 mile radius of the villages. Although lynx brought unprecedented high prices, trapping effort did not appear to have any adverse effect on the population. No changes in seasons and bag limits are recommended.

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Robert E. Pegau
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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 23 - Kotzebue Sound

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

<u>Species</u>	<u>Trapping Season</u>	<u>Bag Limit</u>
Beaver	Nov. 1-Apr. 15	20 per season
Coyote	Nov. 1-Apr. 30	No Limit
Arctic Fox	Nov. 10-Apr. 15	No Limit
Red Fox	Nov. 10-Apr. 15	No Limit
Lynx	Nov. 1-Mar. 31	No Limit
Marten	Oct. 20 - Feb. 28	No Limit
Mink and Weasel	Nov. 10-Jan. 31	No Limit
Muskrat	Nov. 1-June 10	No Limit
Land Otter	Nov. 1-Apr. 15	No Limit
Ground Squirrel	No Closed Season	No Limit

Harvest and Hunting Pressure

Beaver

Beavers have commonly been taken by shooting during the spring immediately after breakup until late June. Such harvests occur during the closed season and by illegal means; consequently, most of the beavers taken in Unit 23 are not sealed. Both the hide and meat of beavers are utilized locally. Most hides are also tanned locally so that there is no need to ship pelts out of state. This further complicates collecting accurate harvest data through a sealing program or the fur export report.

Arctic and Red Fox

Red foxes were abundant and frequently seen during fall and spring moose surveys along the Noatak, lower and middle Kobuk, and Selawik Rivers. As with lynx, because of a large rabbit population, the large red fox population can be sustained.

The incidence of rabies was down as compared to last year. No arctic fox tested positive for rabies and only one red fox tested positive. The latter was taken in Kotzebue on September 6, 1977.

Lynx

Two hundred and thirty lynx (11 percent of the State's harvest) were taken in Game Management Unit 23. The statistics reveal a nearly even take of males (124) and females (103) with three of undetermined sex. Harvest was nearly equal for January (60), February (67), and March (61) with fewer taken in October (3), November (11), and December (28).

The preferred method of take was by trapping, (97%). The majority of the lynx harvested were in the Squirrel River area (23%), the area near the confluence of the Hunt and Kobuk Rivers (17%), and the lower Selawik River area (12 %).

With prices ranging from \$150.00 to \$250.00 per hide, lynx have contributed greatly to the local economy in Game Management Unit 23.

Muskrat

Musk rats are plentiful in several areas. Local taking by shooting is common in the spring near the villages of Ambler, Buckland, Kiana, Kotzebue, Noatak, Noorvik, and Selawik. Muskrat trapping is not widely practised.

Land Otters

The Alaska Department of Fish and Game started sealing otters December 10, 1977. Eleven otters (less than 1% of the statewide harvest) were taken in Game Management Unit 23.

Management Summary and Recommendations

As with last year, it is evident that the taking of beavers by shooting has not affected the population. Also, the local utilization of beaver meat and hides will continue to be important to residents of Unit 23. Therefore, one recommendation is the legalization of hunting of beavers and having the season run from Nov. 1 through June 30 with a bag limit of two beavers. Another recommendation is to have the trapping season open the same time.

Rabbit populations remain high and thus are supporting a relatively high population of lynx and red foxes. No changes in furbearer seasons are recommended other than for beavers.

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SUBMITTED BY:

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Regional Supervisor

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 24 - Koyukuk

Period Covered: July 1, 1977 - June 30, 1978

Harvest and Hunting Pressure

Trapping conditions were good in Unit 24 during the 1977-1978 season with light to moderate snowfall and prevailing mild winter temperatures. Trapping pressure was light to moderate in most outlying areas but heavier adjacent to villages. Trappers received good prices for all furs except beaver.

Lynx - Lynx were moderately abundant in the unit, and according to sealing data 100 lynx were harvested (40 males, 35 females and 25 of undetermined sex). Approximately twice as many lynx were taken in Unit 24 as in adjacent Unit 21 which reflected the relative abundance of this species in the two units. The best catches of lynx were made in the northern half of Unit 24.

Land Otter - The Unit 24 otter harvest, based on sealing certificates, was 43 (24 males, 17 females and 2 of undetermined sex). Ninety-five percent of the otter were taken from the southern half of the unit which has the best otter habitat and populations. One trapper from Huslia accounted for 41 percent of the reported otter harvest.

Wolverine - Wolverine were reported to be numerous during 1977, especially in the northern half of Unit 24. The wolverine harvest as indicated by sealing certificates was 36 (18 males and 18 females). The total catch was probably higher since some wolverine used locally for garment trim were not sealed.

Marten - Marten was the most important species economically during the 1977-1978 season. Marten populations were moderate to high in most areas and individual catches of 100 or more were common.

Mink - Mink were reported to be plentiful in the Huslia area and some good catches were made by local trappers. Similar to otter, the best mink habitat and populations occur in the southern half of the unit.

Management Summary and Conclusions

The present fur regulations are adequate to meet the needs of local trappers in Unit 24.

PREPARED BY:

SUBMITTED BY:

Roland Quimby
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Oliver E. Burris
Regional Management Coordinator

WOLF

SURVEY-INVENTORY PROGRESS REPORT FOR YEAR 1977-78

Game Management Units 1A and 2 - Ketchikan and Prince of Wales

Seasons and Bag Limits

Hunting	No closed season	No limit
Trapping	Nov. 1 - Apr. 30	No limit

Harvest and Hunting Pressure

The wolf harvest in Subunit 1A rose 16 percent from 19 wolves taken last year to 22 taken this year. The Unit 2 harvest declined from 25 wolves in 1976-77 to 23 for 1977-78, an 8-percent drop. The overall Southeast wolf harvest of 69 is the lowest recorded since 1961-62 and is 22 percent below the harvest of 88 reported for 1976-77 (Appendix I).

Of the 22 wolves taken in Subunit 1A, 10 were taken on Revilla Island and 12 came from the mainland. Last year only four wolves were taken on the mainland, while Revilla Island produced 15.

Eighty-two percent of the 1A harvest was taken between January and June. Incidental hunting accounted for all the wolves taken in April, May and June (mostly by bear hunters) while the 11 wolves taken in January, February and March were all taken in traps by two trappers.

The chronology of wolf harvest in Unit 2 was quite different. Eighty-seven percent of the harvest was taken between September and January (inclusive), with half of the wolves taken in January alone. Five trappers took the 11 wolves that were taken in traps in Unit 2 in 1977-78.

One black and 21 brown-gray wolves were taken in Subunit 1A, while four black, 18 brown-gray and one of unknown color were reported from Unit 2.

In Subunit 1A females made up 55 percent of the harvest and nine of the 16 wolves that were aged were pups. The Unit 2 harvest was 61 percent females with 12 pups, eight adults and three wolves of unknown age sealed.

One black and 21 brown-gray wolves were taken in Subunit 1A while four black, 18 brown-gray and one of unknown color were reported from Unit 2.

In Subunit 1A, females made up 55 percent of the harvest, and nine of the 16 wolves that were aged were pups. The Unit 2 harvest was 61 percent females, with 12 pups eight adults and three wolves of unknown age sealed.

Composition and Productivity

Aerial surveys were flown over Revilla Island on three days in late December when reasonably good snow conditions prevailed. A minimum of 32 and a maximum of 44 wolves were estimated to be on Revilla Island during the survey time. This is about the same number as was estimated to be present on Revilla during the winter of 1974-75.

Managment Summary and Conclusions

Some wolves taken in Unit 2 are probably reported as being taken in Unit 1A by Ketchikan residents claiming bounty payments. Since the Board of Game eliminated bounty payments for 1978-79, the reported wolf harvest for next year will probably increase for Unit 2 and decrease for Unit 1A as the reason for incorrect reporting of locality of harvest will be gone.

Recommendations

Seasons and bag limits should remain unchanged.

PREPARED BY:

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APPENDIX I

ALASKA WOLF HARVEST

X Bounty Records

*Through June 1, 1966

**From Aerial Permits and Bounty Records

***Mandatory Sealing

Unit	YEAR																
	X	X	X	X	X*	X	X	X	**	**	***	***	***	***	***	***	***
	61-62	62-63	63-64	64-65	65-66	66-67	67-68	68-69	69-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78
1A											62	22	26	33	34	19	22
1B											19	1	7	12	16	7	2
1C											5	1	5	2	12	2	8
1D											13	9	12	15	3	13	4
Totals																	
1	67	23	36	36	17	24	53	41	53	67	99	33	50	62	65	41	36
2	12	43	53	57	50	66	78	113	83	59	42	29	15	10	44	25	23
3	18	26	37	27	52	40	82	15	72	38	57	24	27	11	24	15	9
5			1	4	7	3	6	8	2	10	2	5	2	9	11	7	1
Total	97	92	127	124	126	133	219	177	210	174	200	91	94	92	144	88	69
Total Statewide Harvest	605	675	713	800	1292	1679	1711	764	929	635	1335	1071	970	1090	1243	1076	865
Percent of Harvest From Units 1,2,3,5	16	14	18	16	10	8	13	23	23	27	15	9	10	8	12	8	8

WOLF

SURVEY-INVENTORY PROGRESS REPORT FOR REGULATORY YEAR 1977-1978

Game Management Unit 1C and 1D - Juneau and Haines/Skagway

Seasons and Bag Limits

Trapping	Nov. 1 - Apr. 30	No limit
Hunting	No closed season	No limit

Harvest and Hunting Pressure

Eight wolves were harvested in 1977-78 in Unit 1C and four were taken in 1D (Appendix I and II). (This harvest represents an increase of 75 percent in 1C and a decrease of 69 percent in 1D). The harvest in 1C was evenly spread throughout the year while in 1D all four animals were taken in April.

Composition and Productivity

No data available.

Management Summary and Recommendations

The wolf harvest from Units 1C and 1D fluctuates yearly depending on trapping effort and weather. The number of wolves taken is low and estimates of population levels and the effects of harvest are difficult to determine. Wolves range over most of the area of Units 1C and 1D and current harvest levels appear within limits of a sustained population. No changes in bag limit or lengths of seasons recommended.

PREPARED BY:

SUBMITTED BY:

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Regional Research/Management Coordinator

WOLF

SURVEY-INVENTORY PROGRESS REPORT FOR REGULATORY YEAR 1977-78

Game Management Unit 5 - Yakutat

Seasons and Bag Limits

Hunting	No closed season	No limit
Trapping	Nov. 10 - Apr. 30	No limit

Harvest and Hunting and Trapping Pressure

One wolf was harvested in Unit 5 during the 1977-78 season. Both hunting and trapping pressures were very light. For the second consecutive year, the winter was mild with only moderate snowfall, making it difficult for hunters to land light aircraft and shoot wolves, as well as poor snow conditions for operating snow machines for hunting and trapping.

Distribution

No aerial surveys were conducted specifically to locate wolves but sightings and tracks were recorded incidental to other big game surveys.

Composition and Productivity

No data available.

Recommendations

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

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SUBMITTED BY:

Ronald E. Ball
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WOLF

SURVEY AND INVENTORY PROGRESS REPORT FOR REGULATORY YEAR 1977-78

Game Management Unit 6

Seasons and Bag Limits

Hunting	Aug. 10 - Apr. 30	Two wolves
Trapping	Nov. 10 - Mar. 31	No limit

Harvest and Hunting Pressure

Three wolves were taken in Unit 6 during the 1977-78 hunting and trapping seasons: one female pup and two adult males (Appendix I). The pup was taken from a pack of three wolves by a sport hunter in Unit 6(C). The two adult wolves were taken from a pack of 12 by a trapper in Unit 6(B). A third wolf was also shot from this pack of 12, but lost.

Composition and Productivity

No data available.

Management Summary and Conclusions

The status of wolves in Unit 6 is unknown. Lack of an experienced wolf survey pilot the past winter prevented aerial surveys to determine wolf distribution and abundance.

The harvest of three wolves during the 1977-78 season is not a reflection of abundance. Wolves in Unit 6 are found primarily east of the Copper River, a roadless area not accessible to most hunters or trappers.

One trapper based in Cordova, trapped the area from Copper River to Icy Bay via aircraft. He reported wolf distribution and pack size as follows:

West of Copper River	-	Pack of five
Martin River-Bering River	-	Pack of nine, Pack of five
Suckling Hills-Cape Yakataga	-	Pack of seven, Pack of six
Cape Yakataga-Icy Bay	-	Pack of five

If the above observations are accurate, 37 wolves represents a substantial increase in the Unit 6 wolf population. Past estimates have been approximately 20 wolves.

Recent mountain goat surveys between Copper River and Bering Glacier indicate a 50 percent reduction of goats, presumably due largely to wolf predation. If the goat population continues to decrease, wolves may begin to prey more heavily on moose, thereby adversely competing with moose hunters for this highly sought-after resource.

Surveys to determine wolf pack distribution and size are needed, along with predation data, to evaluate the extent of wolf predation on goat and moose populations.

Recommendations

Retain the current seasons and bag limits.

PREPARED BY:

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SUBMITTED BY:

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APPENDIX I
WOLF HARVEST DATA

Unit 6

<u>Year</u>	<u>Number</u>
1963 - 1964*	1
1964 - 1965*	1
1965 - 1966**	5
1966 - 1967*	0
1967 - 1968*	0
1968 - 1969*	0
1969 - 1970**	1
1970 - 1971**	0
1971 - 1972***	0
1972 - 1973***	3
1973 - 1974***	6
1974 - 1975***	4
1975 - 1976***	7
1976 - 1977***	4
1977 - 1978***	3
Total	35
Average	2.3

* Bounty records.

** Bounty records and aerial permits.

*** Mandatory sealing.

PREPARED BY: Jerome Sexton, Game Biologist II
Julius Reynolds, Game Biologist III

WOLF

SURVEY-INVENTORY PROGRESS REPORT FOR REGULATORY YEAR 1977-78

Game Management Units 7 and 15 - Kenai Peninsula

Seasons and Bag Limits

Hunting	Aug. 10 - April 30	Two Wolves
Trapping	Nov. 10 - March 31	No Limit

Harvest and Hunting Pressure

Thirty-six wolves were reported killed in Game Management Units 7 and 15 (Appendices I and II) during the 1977-78 hunting and trapping season. Trapping and snaring accounted for 16 wolves during 1977 compared to five wolves during 1976 for both Units. The harvest by ground shooting during 1977-78 was seven wolves in Unit 7 and 12 wolves in Unit 15.

The harvest was comprised of 18 females, 13 males and 5 of unknown sex (Appendix I and II). Age data from 35 harvested wolves indicated that 12 (34%) were pups and 23 (66%) were adults.

Composition and Productivity

Wolf surveys were not conducted during the winter of 1977-78 due to unfavorable weather conditions. However, observations by Department of Fish and Game and Fish and Wildlife Service personnel suggest that wolves are abundant and that pack territories are contiguous throughout Units 7 and 15 (Appendix III).

Management Summary and Conclusions

The harvest of 36 wolves in Game Management Units 7 and 15 indicates a lightly hunted population. Poor hunting and trapping conditions due to a mild winter of constant freezing and thawing conditions, plus the dense cover on the Kenai Peninsula may be the primary reasons for the low harvests.

Recommendations

Wolves should be harvested at a level to provide a spring population of approximately 40 wolves in Unit 15, and 15 in Unit 7.

PREPARED BY:

SUBMITTED BY:

Ted H. Spraker
Game Biologist III

James B. Faro
Regional Management Coordinator

Appendix I. Wolf - Game Management Unit 7 - Harvest - Method of Take - Age of Harvest - Chronology of Harvest.

Harvest

	<u>Males</u>	<u>Females</u>	<u>Unknown</u>	<u>Total</u>
1962-1973	No open hunting or trapping season			
1974 ¹	0	1	0	1
1975 ^{1&2}	4	5	0	9
1976 ^{2&3}	1	2	0	3
1977 ^{2&3}	4	7	5	16

- ¹ Wolf hunting by permit only (quota of 10 wolves), season Nov. 1 - Feb. 28.
² Open to trapping (no limit), Season Nov. 10 - March 31.
³ Hunting season and bag limit change, i.e., Aug. 10 - April 30 - two wolves.

Method of Take

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Ground Shooting	1 (100%)	3 (33%)	3 (100%)	7 (44%)
Trapping	- -	3 (33%)	- -	1 (6%)
Snaring	- -	3 (33%)	- -	8 (50%)
Other	- -	- -	- -	- -

Age of Harvest (Determined by Examining the Fusing Ends of Radius and Ulna Bones).

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Pup	-	4 (44%)	1 (33%)	4 (25%)
Adult	-	5 (56%)	1 (33%)	12 (75%)
Unknown	1 (100%)	- -	1 (33%)	- -

Chronology of Harvest

<u>Month</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
July	0 -	0 -	0 -	0 -
August	0 -	0 -	0 -	1 (6%)
September	0 -	0 -	0 -	1 (6%)
October	0 -	0 -	1 (33%)	-
November	0 -	2 (22%)	0 -	1 (6%)
December	1 (100%)	0 -	1 (33%)	3 (19%)
January	0 -	1 (11%)	0 -	3 (19%)
February	0 -	4 (44%)	0 -	6 (38%)
March	0 -	2 (22%)	1 (33%)	1 (6%)
April	0 -	0 -	0 -	0 -
May	0 -	0 -	0 -	0 -
June	0 -	0 -	0 -	0 -
Unknown	0 -	0 -	0 -	0 -

PREPARED BY: Ted H. Spraker, Game Biologist III
J. J. Sexton, Game Biologist II

Appendix II. Wolf - Game Management Unit 15 - Harvest - Method of Take - Age of Harvest - Chronology of Harvest.

Harvest

	<u>Males</u>	<u>Females</u>	<u>Unknown</u>	<u>Total</u>
1962-1973		No open hunting or trapping season		
1974 ¹	5	0	0	5
1975 ^{1&2}	4	8	0	12
1976 ^{2&3}	1	8	0	9
1977 ^{2&3}	9	11	0	20

¹ Wolf hunting by permit only (quota of 10 wolves), season Nov. 1 - Feb. 28.

² Open to trapping (no limit), season Nov. 10 - March 31.

³ Hunting season and bag limit change, i.e., Aug. 10 - April 30 - two wolves.

Method of Take

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Ground Shooting	5 (100%)	6 (50%)	4 (44%)	12 (60%)
Trapping	0 -	5 (42%)	5 (56%)	5 (25%)
Snaring	0 -	1 (8%)	0 -	2 (10%)
Other	0 -	0 -	0 -	1 (5%)

Age of Harvest (Determined by Examining the Fusing Ends of Radius and Ulna Bones).

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Pup	0 -	9 (75%)	5 (56%)	8 (40%)
Adult	0 -	2 (17%)	4 (44%)	11 (55%)
Unknown	5 (100%)	1 (8%)	0 -	1 (5%)

Chronology of Harvest

<u>Month</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
July	0 -	0 -	0 -	0 -
August	0 -	0 -	0 -	1 (5%)
September	0 -	0 -	1 (11%)	1 (5%)
October	0 -	0 -	0 -	0 -
November	0 -	6 (50%)	2 (22%)	0 -
December	1 (20%)	2 (17%)	2 (22%)	5 (25%)
January	0 -	0 -	1 (11%)	7 (35%)
February	4 (80%)	4 (33%)	1 (11%)	2 (10%)
March	0 -	0 -	1 (11%)	4 (20%)
April	0 -	0 -	1 (11%)	0 -
May	0 -	0 -	0 -	0 -
June	0 -	0 -	0 -	0 -

PREPARED BY; Ted H. Spraker, Game Biologist III
J.J. Sexton, Game Biologist II

Appendix III. Wolf - Game Management Units 7 & 15 - Kenai Peninsula, Wolf Observations and Population Estimates.

<u>Year</u>	<u>Unit 7</u>	<u>Unit 15</u>	<u>Remarks</u>
1961	?	?	1 wolf observed by Dept. Biologist on moose surveys.
1962-67	?	?	Occasional reports of wolves or wolf tracks but most thought to be non-reliable reports.
1968-69	?	10	One pack of 10 wolves observed by Dept. Biologist while surveying moose.
1969-70	?	10-15	One pack of 9 observed near Fox River and tracks of a pack of 4 observed at head of Tustumena Lake.
1970-71	2	15-25	Numerous reports and observations of wolves and tracks south of Kenai River.
1971-72	2-4	25-35	Numbers about the same of slightly higher south of Kenai River spreading into Unit 15 (A) and Unit 7.
1972-73	5-11	35-60	Wolves appear to be well established in all of Unit 15 and northwest part of Unit 7.
1973-74	10-20	70-80	Based on expansion of survey data.
1974-75	12-25	90-105	Based on expansion of previous data by 25%.
1975-76	21-40	95-120	Based on surveys.
1976-77	21-22	95-120	Based on surveys.
1977-78	24-42	95-130	Estimate based on harvest data and pers. comm. with Fish and Wildlife Service's Wolf Researcher, Rolf Peterson,

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SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 9 - Alaska Peninsula

Seasons and Bag Limits

Hunting Season	Aug.10-April 30	Two wolves
Trapping Season	Oct. 1-April 30	No limit

Hunting, Trapping and Harvest Pressure

A total of 26 wolves were sealed from Unit 9 in 1977-78. Fourteen of these wolves were trapped and 12 were shot. This is one animal less than the past 15-year average of 27.3 wolves. Males comprised 60 percent of the 1977-78 kill. Four of 15 wolves aged were pups (Appendix I).

Composition and Productivity

No data are available.

Management Summary and Conclusions

Wolf harvests have varied widely over the past 15 years in Unit 9, ranging from seven to 52 (Appendix II). The major factor affecting harvest levels is snow cover. In years with sufficient snow for the operation of ski-equipped aircraft and snow machines, the kill is high. In mild winters with little or no snow cover, few wolves are taken.

Winter 1977-78 was cold, but precipitation was minimal. Ski planes could operate from frozen lakes, most of the tundra was not suitable for landing. This resulted in an average wolf harvest. It is doubtful whether hunting and trapping would noticeably affect wolf populations in Unit 9, except under circumstances where a series of snowy winters permitted consecutive years of high harvests.

Recommendations

No changes in seasons or bag limits are recommended.

PREPARED BY:

Christian A. Smith
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I
Wolf Harvest Data 1977-78
Unit 9

Harvest

Males - 15 Females - 10 Unknown - 1 Total - 26

Chronology by Month

<u>Month</u>	<u>Number</u>	<u>Percent</u>	<u>Month</u>	<u>Number</u>	<u>Percent</u>
July	--	--	January	7	26.9
August	--	--	February	--	--
September	3	11.5	March	10	38.5
October	3	11.5	April	--	--
November	1	3.9	May	--	--
December	1	3.9	June	--	--
			Unknown	1	3.9
			Total	26	100.1

<u>Method of Take</u>	<u>Number</u>	<u>Percent</u>
Ground Shooting	12	46.2
Trapping	14	53.8
Snaring	--	--
Other	--	--
Total	26	100.0

<u>Color of Wolves Taken</u>	<u>Number</u>	<u>Percent</u>
White	3	11.3
Brown	--	--
Gray	23	88.5
Black	--	--
Unknown	--	--
Total	26	100.0

<u>Age (Determined by Examining the Fusing Ends of Radius and Ulna Bones)</u>		
	<u>Number</u>	<u>Percent</u>
Pup	4	15.4
Adult	11	42.3
Unknown	11	42.3
TOTAL	26	100.0

PREPARED BY: Jerome J. Sexton, Game Biologist II

APPENDIX II

Historical Wolf Harvest, Unit 9, 1961-78

Year	Harvest
1961-62 <u>1</u> /	4
1962-63 <u>1</u> /	9
1963-64 <u>1</u> /	16
1964-65 <u>1</u> /	44
1965-66 <u>1</u> /	27
1966-67 <u>1</u> /	51
1967-68 <u>1</u> /	24
1968-69 <u>1</u> /	22
1969-70 <u>2</u> /	26
1970-71 <u>2</u> /	7
1971-72 <u>3</u> /	24
1972-73 <u>3</u> /	24
1973-74 <u>3</u> /	31
1974-75 <u>3</u> /	52
1975-76 <u>3</u> /	27
1976-77 <u>3</u> /	8
1977-78 <u>3</u> /	26

1/ Data from bounty analysis

2/ Data from aerial permits - should be considered incomplete

3/ Data from hide sealing program

PREPARED BY: Christian A. Smith, Game Biologist III

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SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 10 - Aleutian Islands

Seasons and Bag Limits

Hunting Season	Aug.10-April 30	Two wolves
Trapping Season	Oct. 1-April 30	No limit

Hunting, Trapping and Harvest Pressure

Nine wolves were reported taken in 1977-78 on Unimak Island, the only portion of Unit 10 where wolves are found. Two adult males, four adult females and three male young-of-the-year were harvested by shooting. All nine were taken by a single trapper from one location on the east coast of the island.

Composition and Productivity

No data are available.

Management Summary and Conclusions

The harvest of nine wolves in Unit 10 is noteworthy because prior to 1977-78 only two wolves were reported taken from this Unit; one each in 1972-73 and 1974-75. Hunting and trapping pressure on Unimak has been light to non-existent because of the extreme cost and difficulty of getting to, and around on, the island. Access is limited both by severe weather and by restrictions on aircraft and motor vehicles imposed by the U.S. Fish and Wildlife Service. It is unlikely that this year's harvest is indicative of any significant change in long-term patterns.

A total of nine wolves, probably from a single pack, were taken in Ikatan Bay by a trapper living in an abandoned village. Although it seems likely that this represents the removal of a pack, it is doubtful that the wolf population on the island has been significantly affected. The territorial vacancy created by this localized heavy pressure will probably be filled by subadults emigrating from adjacent unhunted areas.

Future harvest should be monitored to determine if trapping pressure is developing on other areas on the island. Unless such a trend occurs, there is no reason to alter seasons or bag limits.

Recommendations

No change in seasons or bag limits are recommended.

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SUBMITTED BY:

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SURVEY-INVENTORY PROGRESS REPORT FOR 1977-78

Game Management Unit 11 - Wrangell Mountains - Chitina River

Seasons and Bag Limits

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

Harvest and Hunting Pressure

Fifty-one wolves were reported harvested during the 1977-78 season. Harvest data from 1966-67 through 1977-78 are summarized in Appendix I. Prior to the 1976-77 season, trapping and snaring accounted for the majority of wolves taken in Unit 11. In 1976-77 ground shooting accounted for 53 percent (8) of the harvest. In the 1977-78 season the number of wolves taken by ground shooting increased further to 69 percent (35) of the harvest. Data from the 1977-78 harvests indicate that 45 percent (23) of the harvest were adults and 55 percent (28) were pups. The percentage of males in the harvest appears constant.

Composition and Productivity

No information is available.

Management Summary and Conclusions

The harvest data for 1977-78 show a significant increase (240%) in the number of wolves harvested over the previous report period. This increased harvest reflects an increased efficiency on the part of a few hunters utilizing ground shooting methods. Despite increased hunter effort and efficiency, it is felt that the increased harvest by trapping and snaring also indicates an actual increase in the number of wolves in Unit 11. The 1977-78 harvest is not considered to be biologically detrimental.

Recommendations

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

PREPARED BY Robert Tobey
Game Biologist II

SUBMITTED BY: James B. Faro
Regional Management Coordinator

APPENDIX I. Wolf harvest data from 1966-67 through 1977-78 for GMU 11.

	<u>1966-67^a</u>	<u>1967-68^a</u>	<u>1968-69^a</u>	<u>1969-70^b</u>	<u>1970-71^b</u>	<u>1971-72^c</u>
Total Wolf Harvest:	70	40	7	10	23	56
Percent Males in Harvest, (Number) ^d :	51%(36)	53%(21)	86%(6)	50%(5)	61%(14)	57%(32)
Number Sex Unknown:	0	1	0	0	0	1
Ratio Blacks to 100 Grays:	43	29	17	--	--	59
Method of Kill, Percent (Number):						
Aerial Shooting:	80%(56)	55%(22)	0%(0)	100%(10)	100%(23)	30%(17)
Ground Shooting:	7%(5)	30%(12)	0%(0)	--	--	18%(10)
Trapping/Snaring:	13%(9)	15%(6)	100%(7)	--	--	52%(29)
Other:	0%(0)	0%(0)	0%(0)	0%(0)	0%(0)	0%(0)
Age Structure of Harvest ^f :						
Adult	--	--	--	--	--	--
Pup	--	--	--	--	--	--
Unknown	--	--	--	--	--	--
	<u>1972-73^c</u>	<u>1973-74^c</u>	<u>1974-75^c</u>	<u>1975-76^c</u>	<u>1976-77^c</u>	<u>1977-78^c</u>
Total Wolf Harvest:	48	28	34	18	15	51
Percent Males in Harvest, (Number) ^d :	42%(20)	71%(20)	53%(18)	50%(9)	77%(10)	51%(25)
Number Sex Unknown:	1	0	0	0	2	2
Ratio Blacks to 100 Grays:	26	35	45	42	36	13
Method of Kill, Percent (Number):						
Aerial Shooting:	0%(0)	0%(0)	0%(0)	0%(0)	0%(0)	0%(0)
Ground Shooting:	8%(4)	18%(5)	27%(9)	33%(6)	53%(8)	69%(35)
Trapping/Snaring:	92%(44)	82%(23)	73%(25)	45%(8)	47%(7)	31%(16)
Other:	0%(0)	0%(0)	0%(0)	22%(4) ^e	0%(0)	-(-)
Age Structure of Harvest ^f :						
Adult	--	--	--	33%(6)	40%(6)	45%(23)
Pup	--	--	--	17%(3)	47%(7)	55%(28)
Unknown	--	--	--	50%(9)	13%(2)	-(-)

a. Harvest figures are based on the number of wolves submitted for bounty.

b. Harvest figures are based on returned aerial wolf hunting permits alone. The bounty was discontinued during 1970 and mandatory sealing of wolf pelts was not required until July 1971.

c. Harvest figures are based on mandatory wolf sealing records.

d. Percentages males are based only on wolves whose sex was specified in the data.

e. Four wolves taken by unreported method in 1975-76.

f. Determined by examining the fusing end of radius and ulna bones, initiated in 1975-76.

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SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 12 - Upper Tanana River-White River

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Hunting	Aug. 10 - Apr. 30	Two wolves
Trapping	Nov. 1 - Mar. 31	No limit

Harvest and Hunting Pressure

Sealing documents indicate that 31 wolves were harvested in Unit 12 during the reporting period. The largest harvest occurred in the Tanana drainage where 11 animals were taken, followed by the Nabesna (7), Chisana (6), White (4) and Tok (3) drainages.

The gray color phase predominated (13), followed by black (11), brown (2) and white (2). Color was not recorded for three animals.

Five animals were shot while the remainder were taken by traps or snares.

Composition and Productivity

Pups comprised 58 percent (18) of the harvest, adults 29 percent (9), while the remaining 13 percent (4) were not aged at the time of sealing. Since pups are more vulnerable to trapping than adults, the proportion of pups was probably higher in the harvest than in the population. Males constituted 55 percent (17 animals) of the harvest.

Management Summary and Recommendations

The wolf harvest in Unit 12 has remained fairly consistent over the past several years. Current high fur prices have encouraged trapping effort, as indicated by the large number of trappers. There is no indication that trapping has reduced or otherwise influenced overall wolf abundance in Unit 12.

Casual observations throughout Unit 12 indicated a low to medium density wolf population which is capable of depressing the moderately low Unit 12 moose population. Because trappers apparently are incapable of significantly reducing wolf numbers, public aerial wolf hunting should be reinstated. Without a concerted predator control program, no significant increase in moose populations can be expected in Unit 12.

Recommendations

No changes in seasons or bag limits are recommended.

PREPARED BY:

SUBMITTED BY:

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Game Biologist III

Oliver E. Burris
Regional Management Coordinator

WOLF

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 13 - Nelchina, Upper Susitna, and Upper Copper River Basin.

Seasons and Bag Limits

Hunting	August 10 - April	Two wolves
Trapping	October 1 - April 30	No limit

Hunting and trapping seasons were closed in portions of Unit 13 by Emergency Order on February 22, 1978. The closed areas included Subunits 13A, 13B east of the Maclaren River, 13C except that portion drained by the Slana River and 13D lying east of Tazlina Glacier, Tazlina Lake and Tazlina River and west of Stephens Glacier, Stephens Creek, Klutina Lake and Klutina River.

Harvests and Hunting Pressure

Appendix I shows reported harvests of wolves from Unit 13 since 1967. The 1977-78 harvest of 128 wolves is the largest recorded harvest since mandatory wolf sealing began. All but nine of the wolves reported killed were taken by sport hunters and trappers.

Abundance, Composition and Productivity

Intensive efforts by trappers using aircraft to locate wolf packs substantially reduced wolf populations in Subunits 13A and C, necessitating the emergency closure. Portions of Subunits 13B and D were closed primarily to prevent harvest of wolf packs deemed critical to the wolf research program. Further information on wolf abundance, composition and productivity is being reported under the wolf research report.

Recommendations

No changes in seasons and bag limits are proposed until wolf research findings are available.

PREPARED BY:

Sterling Eide
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I. Wolf harvest data from 1966-67 through 1977-78 - GMU 13.

	<u>1966-67^a</u>	<u>1967-68^b</u>	<u>1968-69^c</u>	<u>1969-70^c</u>	<u>1970-71^c</u>	<u>1971-72^d</u>
Total Wolf Harvest:	31	120	1	41	91	111
Males in Harvest,*						
Percent (No.):	65%(20)	56%(67)	--	39%(16)	49%(44)	58%(61)
Unknown Sex:	0	1	0	0	1	5
Number Blacks/ Number Grays:	16/15	45/69	--	--	--	11/68
Ratio Blacks to 100 Grays:	107	65	--	--	--	16
Method of Kill, Percent (No.):						
Aerial Shooting:	--	65%(78)	100%(1)	100%(41)	100%(91)	41%(26)
Ground Shooting:	13%(4)	8%(9)	--	--	--	20%(22)
Trapping/Snaring	84%(26)	28%(33)	--	--	--	39%(43)
Other:	3%(1)	--	--	--	--	--
	<u>1972-73^e</u>	<u>1973-74^e</u>	<u>1974-75^e</u>	<u>1975-76^e</u>	<u>1976-77^e</u>	<u>1977-78^e</u>
Total Wolf Harvest:	80	75	103	110	102	128
Males in Harvest,*						
Percent (No.)	44%(35)	54%(40)	52%(54)	55%(61)	55%(54)	53%(64)
Unknown Sex:	0	1	0	0	4	7
Number Blacks/ Number Grays:	16/58	23/49	20/77	38/64	23/77	13/106
Ratio Blacks to 100 Grays:	28	47	26	59	30	12
Method of Kill, Percent (No.):						
Aerial Shooting:	--	--	--	--	--	--
Ground Shooting:	25%(20)	29%(22)	40%(41)	33%(36)	48%(49)	53%(68)
Trapping/Snaring:	71%(57)	71%(53)	58%(60)	44%(48)	25%(25)	40%(51)
Other:	4%(3)	--	2%(2)	24%(26)	27%(28)	7%(9)**

- a. Harvest figures are based on the number of wolves submitted for bounty. Only ground hunting and trapping were authorized. The reporting method of kill was probably incorrect.
- b. Harvest figures are based on the number of wolves submitted for bounty. A limited aerial hunt, in addition to ground hunting and trapping was authorized.
- c. Bounty discontinued and harvest data was based on aerial permits only.
- d. Harvest figures are based on mandatory wolf sealing records.
- e. Harvest figures are based on mandatory wolf sealing records. No aerial wolf hunting permits were issued to the public during this period.
- * Percentage of males in the harvest is based on wolves whose sex was specified in the data.
- ** Seven wolves were taken on a scientific collecting permit, 2 wolves were found dead.

PREPARED BY: Sterling Eide, Game Biologist III

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SURVEY-INVENTORY PROGRESS REPORT FOR REGULATORY YEAR 1977-78

Game Management Subunits 14A and 14B - Upper Cook Inlet

Seasons and Bag Limits

Hunting	Aug. 10 - April 30	Two wolves
Trapping	Oct. 1 - April 30	No limit

Harvest and Hunting Pressure

Twenty-three wolves were harvested from Unit 14 during 1977-78 (Appendix I). In the past 10 years, an annual average of 12.8 wolves has been taken in Unit 14. Comparisons throughout this period, however, should be made with caution because the data have been compiled from a variety of sources.

The 1977-78 harvests in Subunits 14A and 14B by month and by method of take are shown in Appendix II. Twenty-two percent of the wolves were taken by ground shooting compared to 47 percent taken in 1976-77 by the same method. Forty percent of the harvest occurred in March in 1976-77, but in 1977-78, 22% of the wolf harvest was taken in each of the following months: October, November and February. Age data (not shown in Appendices) based on epiphyseal closures of 23 wolves from these Subunits reveals that pups comprised about 48 percent of the sample.

Composition and Productivity

Pack observations have been insufficient to provide composition information. No productivity information is available. Although wolves are relatively common, reports from the public on pack information are rare.

Management Summary and Conclusions

Eight of the 16 wolves taken in Subunit 14A, a rural area, were taken by snaring. The harvest of seven wolves in subunit 14B was more than double the 1975-76 harvest, possibly indicating more interest by trappers. Wolf trapping is practiced by only a few persons and the catch per unit effort is low. Some livestock-wolf problems exist at various times but are usually taken care of by directing trapping and/or hunters to the vicinity.

Recommendations

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

PREPARED BY:

SUBMITTED BY:

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Game Biologist III

James B. Faro
Regional Management Coordinator

Appendix I. Wolf Harvest from Bounty Records, Aerial Wolf Permit Returns and Wolf Sealing Certificates for The Entire Game Management Unit 14, 1962-63 through 1977-78 and Game Management Subunits 14A and 14B, 1972-73 through 1976-78.

Regulatory Year	Game Management Unit 14				Game Management Subunits 14A and 14B Only			
	Male	Female	Unknown	Total	Male	Female	Unknown	Total
1962-63*	3	0	0	3				
1963-64*	4	4	0	8				
1964-65*	6	5	0	11				
1965-66**	9	6	4	19				
1966-67*	15	15	0	30				
1967-68*	7	10	0	17				
1968-69*	0	1	0	1 ^{1/}				
1969-70***	1	0	0	1				
1970-71***	5	3	0	8				
1971-72****	5	3	4	12				
1972-73****	9	5	2	16	8	4	2	14
1973-74****	7	1	0	8	6	1	0	7
1974-75****	13	10	1	24	13	10	1	24
1975-76****	11	8	0	19	9	7	0	16
1976-77****	7	7	1	15	7	7	1	15
1977-78****	15	9	0	24	14	9	0	23

* Harvest data compiled from bounty records.

** Harvest data compiled from bounty records through June 1, 1966.

*** Harvest data compiled from returned aerial wolf permits.

**** Harvest data compiled from wolf sealing certificates.

^{1/} Effective July 21, 1968 no bounty was paid on wolves in Game Management Unit 14.

PREPARED BY: Jack C. Didrickson
Game Biologist III

Appendix II. Wolf Harvest by Sex, Chronology, and Method of Take in Alaska's
Game Management Subunits 14A and 14B During the 1977-78 Season.

HARVEST	14A		14B		Total 14A & B	
	No.	%*	No.	%*	No.	%*
Males	8	50.0	6	86.0	14	61.0
Females	8	50.0	1	14.0	9	39.0
Unknown Sex	0	0.0	0	0.0	0	0.0
TOTAL	16	100.0	7	100.0	23	100.0
<u>CHRONOLOGY BY MONTH</u>						
September	0	0.0	0	0.0	0	0.0
October	5	31.3	0	0.0	5	21.7
November	2	12.5	2	28.6	4	17.4
December	4	25.0	1	14.3	5	21.7
January	2	12.5	0	0.0	2	8.7
February	1	6.2	4	57.1	5	21.7
March	1	6.2	0	0.0	1	4.4
April	1	6.2	0	0.0	1	4.4
TOTAL	16	99.9	7	100.0	23	100.0
<u>METHOD OF TAKE</u>						
Ground Shooting	5	31.3	0	0.0	5	21.7
Trapping	3	18.7	7	100.0	10	43.5
Snaring	8	50.0	0	0.0	8	34.8
TOTAL	16	100.0	7	100.0	23	100.0

* Percentage based on known sex wolves.

PREPARED BY: Jack C. Didrickson
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Jerome J. Sexton
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WOLF

SURVEY-INVENTORY PROGRESS REPORT FOR REGULATORY YEAR 1977-78

Game Management Unit 16 - West Side of Cook Inlet

Seasons and Bag Limits

Hunting	Aug. 10 - April 30	Two wolves
Trapping	Oct. 1 - April 30	No Limit

Harvest and Hunting Pressure

Eleven wolves (5 males and 6 females) were reported taken in Game Management Unit 16 during the 1977-78 hunting and trapping season (Appendices I and II). This was considerably below the average annual harvest of 30 wolves from 1962-63 through 1976-77. Eight wolves were taken by ground shooting, two by trapping and one by snaring. Chronology of the harvest indicates an earlier harvest than normal. Three wolves were taken prior to December, five were taken in December and three were taken in January. None were harvested in February and March when most are usually taken.

Composition and Productivity

Wolf sealing data revealed seven adults and four pups were killed during the 1977-78 season in Unit 16. No observations of wolves were recorded. Wolf composition and productivity data collected prior to 1977-78, however, are available. A summary of wolf pack size over time is included as Appendix III.

Management Summary and Conclusions

Recorded wolf harvest data prior to 1971-72 are not comparable with subsequent data obtained from sealing records. Reasons for the below average harvest are speculative. Snow conditions in Unit 16 were better than 1976-77, but were poorer than usual, although they improved towards the end of March. Wolf harvests have declined steadily during the past 4 years in Unit 16 corresponding to a statewide trend. Poor snow conditions over the past three mild winters may have reduced hunter success.

Recommendations

No changes in bag limits or season lengths are recommended.

PREPARED BY:

SUBMITTED BY:

Jack C. Didrickson and Kenton P. Taylor
Game Biologist III and Game Biologist II

James B. Faro
Regional Management Coordinator

Appendix I. Wolf Harvest from Bounty Records, Aerial Wolf Permit Returns,
and Wolf Sealing Certificates for Alaska's Game Management
Unit 16, 1962-63 through 1977-78.

Regulatory Year	Male	Female	Unknown	Total
1962-63*	-	-	-	5
1963-64*	-	-	-	21
1964-65*	-	-	-	37
1965-66**	-	-	-	84
1966-67*	-	-	-	36
1967-68*	-	-	-	66
1968-69*	-	-	-	6 ^{1/}
1969-70***	-	-	-	2
1970-71***	-	-	-	21
1971-72****	18	18	4	40
1972-73****	9	4	0	13
1973-74****	6	6	1	13
1974-75****	20	18	3	41
1975-76****	15	19	0	34
1976-77****	13	14	0	27
1977-78****	5	6	0	11

Harvest data compiled from bounty records.

** Harvest data compiled from bounty records through June 1, 1966.

*** Harvest data compiled from returned aerial wolf permits.

**** Harvest data compiled from wolf sealing certificates.

1/ Effective July 21, 1968 no bounty was paid on wolves in Game Management Unit 16.

PREPARED BY: Jack C. Didrickson and Kenton P. Taylor
Game Biologist III and Game Biologist II

Appendix II. Wolf Harvest by Sex, Chronology and Method of Take in Alaska's
Game Management Subunits 16A and 16B during the 1977-78 Season.

HARVEST	16A		16B		Total Unit 16	
	No.	%	No.	%	No.	%
Males	0	0.0	5	50.0	5	45.5
Females	1	100.0	5	50.0	6	54.5
Unknown	0	0.0	0	0.0	0	0.0
TOTAL	1	100.0	10	100.0	11	100.0

CHRONOLOGY BY MONTH

August	0	0.0	1	10.0	1	9.1
Sept.-Nov.	0	0.0	2	20.0	2	18.2
December	1	100.0	4	40.0	5	45.5
Jan.-Feb.	0	0.0	3	30.0	3	27.3
March-April	0	0.0	0	0.0	0	0.0
TOTAL	1	100.0	10	100.0	11	100.1

METHOD OF TAKE

Ground Shooting	0	0.0	8	80.0	8	72.7
Trapping	1	100.0	1	10.0	2	18.2
Snaring	0	0.0	1	10.0	1	9.1
Other	0	0.0	0	0.0	0	0.0
TOTAL	1	100.0	10	100.0	11	100.0

PREPARED BY: Jack C. Didrickson and Kenton P. Taylor
Game Biologist III and Game Biologist II

Appendix III. Wolf Pack Sizes* as Reported by Successful Hunters and Field Observations By Fish and Game Personnel in Alaska's Game Management Unit 16, 1971-72 through 1977-78.

Year	Number of Packs in Sample	Range of Pack Sizes	Average Pack Size	Percent of Lone Wolves in Sample
1971-72	19	1-15	4.4	26.3
1972-73	7	1-10	4.7	14.3
1973-74	7	1-7	2.0	71.4
1974-75	36	1-18	5.9	8.3
1975-76	5	2-7	4.4	0.0
1976-77	2	1-2	1.5	33.3
1977-78	0	---	---	----

* Includes single wolves.

PREPARED BY: Jack C. Didrickson and Kenton P. Taylor
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WOLF

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 17 - Bristol Bay

Season and Bag Limits

Hunting Season	Aug.10-April 30	Two wolves
Trapping Season	Oct. 1-April 30	No limit

Hunting, Trapping and Harvest Pressure

A total of 17 wolves (7 males, 10 females) were sealed from Unit 17 during the 1977-78 season (Appendix I). This is the smallest harvest since 1970-71 and approximately 37 percent of the previous 2 years' levels (Appendix II). Nine of the wolves were shot and eight were trapped.

Composition and Productivity

No data are available.

Management Summary and Conclusions

Wolf harvests in the Bristol Bay area are a function of winter conditions. In warm winters, like 1977-78, access by snow machine and ski-equipped aircraft is severely limited. In such years, harvests are reduced.

Field observations made on surveys for other species and the reports of local pilots indicate that wolves are common throughout most of Unit 17, and that recent harvests have not significantly affected wolf population levels. Unless a series of winters with thorough snow cover aiding hunter/trapper access produces a number of consecutive high harvests, hunting and trapping will probably continue to play a minor role in regulating wolf numbers in Unit 17.

Recommendations

No change in seasons or bag limits is recommended.

PREPARED BY:

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SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I

Unit 17 Wolf Harvest Data 1977-78

Harvest

Males - 7

Females - 10

Unknown - 0

Total - 17

Chronology by Month

Month	Number	Percent	Month	Number	Percent
July	--	--	January	6	35.3
August	--	--	February	--	--
September	--	--	March	10	58.8
October	--	--	April	--	--
November	1	5.9	May	--	--
December	--	--	June	--	--
			Unknown	--	--
			Total	17	100.0

Method of Take	Number	Percent
Ground Shooting	9	52.9
Trapping	8	47.1
Snaring	--	--
Other	--	--
Total	17	100.0

Color of Wolves Taken	Number	Percent
White	--	--
Brown	--	--
Gray	10	58.8
Black	6	35.3
Unknown	1	5.9
Total	17	100.0

Age (Determined by Examining the Fusing Ends of Radius and Ulna Bones)

	Number	Percent
Pup	3	17.7
Adult	5	29.4
Unknown	9	52.9
Total	17	100.0

APPENDIX II

Historical Wolf Harvest, Unit 17, 1961-78

Year	Harvest
1961-62 <u>1</u> /	0
1962-63 <u>1</u> /	15
1963-64 <u>1</u> /	14
1964-65 <u>1</u> /	1
1965-66 <u>1</u> /	18
1966-67 <u>1</u> /	26
1967-68 <u>1</u> /	24
1968-69 <u>1</u> /	15
1969-70 <u>2</u> /	3
1970-71 <u>2</u> /	13
1971-72 <u>3</u> /	28
1972-73 <u>3</u> /	20
1973-74 <u>3</u> /	20
1974-75 <u>3</u> /	111
1975-76 <u>3</u> /	47
1976-77 <u>3</u> /	45
1977-78 <u>3</u> /	17

1/ Data from bounty analysis

2/ Data from aerial wolf permits should be considered incomplete

3/ Data from hide sealing program

Prepared by: Christian A. Smith, Game Biologist III

WOLF

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 18 - Yukon-Kuskokwim Delta

Period Covered July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Unit 18	Hunting	Aug. 10-Apr. 30	Two wolves
	Trapping	Oct. 1-Apr. 30	No Limit

Harvest, Hunting and Trapping Pressure

The reported 1977-78 harvest of wolves in Unit 18 was two animals, one male and one female. One was shot at the Bethel city dump in December and one was trapped in February. Wolves remained relatively rare in Unit 18 this year, although some sightings of wolves on the tundra and along the Kuskokwim River were reported. There does not appear to be any significant change in the population evident in the area at this time. The reported harvest has ranged from zero to three animals since 1959.

Management Summary and Recommendations

No changes are recommended at this time.

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Game Biologist II

SUBMITTED BY:

Robert E. Pegau
Regional Supervisor

WOLF

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 19 - McGrath

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

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

Harvest, Trapping and Hunting Pressure

Analysis of wolf sealing certificates revealed a harvest of 53 wolves (28 males, 24 females and 1 of undetermined sex) from Unit 19 during the 1977-1978 hunting and trapping season (Table 1). This represented a decrease of 19 percent from the 68 wolves taken in 1976-1977. Over 70 percent of the harvest occurred after January 1, 1978. Snow conditions were extremely poor for aerial hunting during 1977-1978 and few airborne hunters were successful. Nevertheless, hunters employing aircraft accounted for 55 percent of the harvest. Instead of concentrating on wolves, trappers directed efforts toward more easily caught furbearers such as marten, lynx and fox.

Populations, Trends and Densities

Wolf populations throughout Unit 19 were low to moderate in 1977-78, although concentrations of wolves were present in Subunits 19A, 19B and 19C. Wolves were especially abundant in Subunits 19A and 19B. In Subunit 19D wolf activity was primarily confined to the North Fork of the Kuskokwim and along the Kuskokwim between McGrath and Stony River. One pack of 21 wolves was seen in the latter area during February 1978.

Management Summary and Recommendations

Wolf predation on moose and other ungulates is severe in portions of Unit 19. Specific areas where ungulate populations are being impacted by wolf predation are: 1) the Alaska Range portion of Subunits 19B and 19C, 2) the Holitna and Aniak drainages in Subunit 19A and 3) the North Fork of the Kuskokwim and a section of the main Kuskokwim from McGrath to Stony River. These are all important moose hunting areas for both sport and subsistence hunters. It is recommended that aerial wolf hunting by permit be authorized for Unit 19.

PREPARED BY:

SUBMITTED BY:

Peter E. K. Shepherd
Game Biologist III

Oliver E. Burris
Regional Management Coordinator

Table 1. Unit 19 wolf harvest statistics, 1977-1978.*

Harvest

<u>Sex</u>	<u>Number</u>
Female	28
Male	24
Unknown	<u>1</u>
Total	53

Chronology by Month

<u>Month</u>	<u>Number</u>	<u>Percent</u>
September	1	1.9
October	3	5.7
November	3	5.7
December	8	15.1
January	11	20.8
February	14	26.4
March	<u>13</u>	<u>24.5</u>
Total	53	100.1

<u>Method of Take</u>	<u>Number</u>	<u>Percent</u>
Ground shooting	29	54.7
Trapping	21	39.6
Snaring	<u>3</u>	<u>5.7</u>
Total	53	100.0

<u>Color of Wolves Taken</u>	<u>Number</u>	<u>Percent</u>
Brown	1	1.9
Gray	32	60.4
Black	19	35.8
Unknown	<u>1</u>	<u>1.9</u>
Total	53	100.0

Age (determined by examining the fusing ends of radius and ulna bones)

	<u>Number</u>	<u>Percent</u>
Pup	24	45.3
Adult	18	34.0
Unknown	<u>11</u>	<u>20.8</u>
Total	53	100.1

* Data from sealing certificates.

WOLF

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 20 - Fairbanks, Central Tanana

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Hunting	Aug. 10 - Apr. 30	No limit; however, a number of wolves to be determined by the commissioner may be taken by aerial permit. The number of wolves to be taken and the conditions of the permit will be described by commissioner's announcement and as prescribed in secs. 50 and 55 of this chapter.
Trapping	Oct. 1 - Mar. 31	No limit

Harvest

The reported wolf harvest for the 1977-1978 season consisted of 201 animals (Appendix I). Trapping and sport hunting accounted for 162 wolves, while 39 wolves were taken by Department personnel in conjunction with the moose rehabilitation program south of the Tanana River between the Delta and Nenana Rivers.

Trapping effort remained unchanged from the previous season in terms of the number and location of animals harvested.

Composition and Productivity

Pups comprised 49 percent of the wolves taken by the Department within the rehabilitation area and 42 percent of the sport harvest from the remainder of the unit. Females comprised 54 percent of the Departmental harvest and 47 percent of the sport harvest. Combined harvest data for the entire unit indicate pups and females comprised 43 and 48 percent, respectively, of the known age and sex kill.

Age data (based on cementum examination) and reproductive condition of the wolves taken in Unit 20A were not available at the time of this report.

Population Trends

Prior to implementing a moose rehabilitation program in spring 1976, approximately 240 wolves inhabited the area south of the Tanana River between the Delta and Nenana Rivers. Commencing with the 1975-

1976 season, 3 consecutive years of wolf removal by the Department accounted for 132 wolves. During this same period the sport harvest accounted for 108 wolves. Hence, during the last three seasons 240 wolves have been removed from the area, and this has allowed the moose population to gradually respond from the low of 2,000 animals in 1975. Nevertheless, it appears that the reduced level of competition within the remaining wolf population resulted in higher productivity. Following birth of pups in spring 1977, 80-120 wolves occupied the area. Removal of 43 wolves during winter 1978 resulted in a pre-pupping population of 37-77 wolves. Surveys conducted during spring 1978 refined this estimate to 54-63 wolves, most of which (approximately 80%) inhabited the foothills and mountainous portions of the area. Recruitment of pups into the population during spring 1978 should produce a fall 1978 population of 108-126 wolves, or a wolf:moose ratio of 1:28-35. Therefore, a minimum of 70 wolves should be removed during the 1978-1979 season to achieve the desired population of 38 wolves.

Based on spring 1978 survey data in areas surrounding Unit 20A, it appears that wolf numbers in the central portions of the unit were at a moderate to high level. For example, 11 packs comprised of 88 wolves ranged throughout the Chena, Salcha, Shaw Creek, Goodpaster, Volkmar, Birch and Chatanika drainages. Age composition of the 1977-1978 trapper harvest (42% pups) in conjunction with these survey data suggest an upward trend in wolf numbers throughout the unit, wherever control efforts have not been applied.

Management Summary

Efforts to depress the wolf population and to achieve a wolf:moose ratio of 1:100 should continue in Unit 20A during 1978-1979. Departmental participation in this effort is mandatory in view of the relative inaccessibility of the remaining wolves and concurrent low trapping effort and success (e.g. only four wolves were taken in Unit 20A by trappers during the 1977-1978 season).

Traditional methods of harvesting wolves from the remainder of the unit appear insufficient to minimize the impact of predation which has resulted in declining moose populations. The decline in sport harvest during the past two seasons probably reflects reduced trapping effort rather than a lower wolf density.

Wolf management in Unit 20 should include manipulating all factors depressing ungulate populations. Desired population levels for wolves and their principal ungulate prey species should be identified, and methods of achieving these levels outlined. In areas where wolf levels are high enough to depress prey populations, greater public participation in the wolf harvest should be encouraged. Aerial wolf hunting may be the only viable option for controlling wolf abundance. Department control should be utilized to supplement public hunting when necessary. Surveys have already documented the need for this management scheme in central portions of Unit 20.

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SUBMITTED BY:

Mel Buchholtz
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Oliver E. Burris
Regional Management Coordinator

Appendix I. Unit 20 wolf harvest, 1977-1978 regulatory year.

Subunit	Age			Sex			Total
	Pup	Adult	Unk.	Male	Female	Unk.	
Trapping/Sport Harvest							
20A	1	2	1	4	-	-	4
20B	8	5	5	8	10	-	18
20C	45	67	25	65	61	11	137
20D	-	1	2	3	-	-	3
Departmental Harvest							
20A, 20C	19	20	-	18	21	-	39
Unit Total	73	95	33	98	92	11	201

JOB PROGRESS REPORT (SURVEY & INVENTORIES)

State: Alaska

Cooperators: Jeannette Ernest and Robert Stephenson

Project No.: W-17-9 Project Title: Big Game Investigations

Job Nos.: 14.0 and 14.2 Job Title: Monitoring of Wolf
Population Dynamics
in Unit 20

Period Covered: January 1, 1976 to June 30, 1978

Period Covered: Jan

SUMMARY

Two hundred seventy-seven wolf carcasses were examined in the Fairbanks laboratory between January 1976 and April 1978. The majority of the carcasses originated from wolf control efforts in Game Management Units 1, 2, 3, 13, 20A, 23 and 24. This preliminary report outlines necropsy techniques employed to determine sex, age, nutritional condition, reproductive condition, food habits, disease status and the presence of physical infirmities. The results of these analyses will be published in subsequent papers.

BACKGROUND

Moose and caribou are the primary prey for wolves in most of Alaska. However, during the last several years many prey populations have declined due to the combined effects of severe winters, predation, hunting, and range deterioration (cf. Bishop and Rausch 1974, Davis 1977, Gasaway et al. 1977). This project was initiated to assess the effects of relatively low prey availability on wolves as indicated by reproductive status and nutritional condition of individuals and sex and age composition of populations.

OBJECTIVES

To compare various population parameters of the present GMU 20 wolf population with wolf populations in the 1960's, and to monitor age and sex composition, survival of pups and population trends in wolves currently inhabiting the area.

PROCEDURES

Between 15 January 1976 and 1 April 1978, 277 wolf carcasses were examined in the laboratory. One hundred forty-three of these originated in Game Management Unit (GMU) 20 with 132 being killed by Department biologists during wolf control efforts in Subunit 20A. Fifty-eight carcasses were collected from GMU's 23 and 24 in northwest Alaska with 48 of these being taken by aerial hunters operating under State permits during winter 1976-1977. Thirty-one wolves were taken in control efforts in Southeast Alaska and were examined by Department biologist Robert Wood of Ketchikan, who obtained weights and body measurements, and collected various specimens which were sent to Fairbanks for further examination. Forty-one wolf carcasses were obtained from GMU 13, including 25 collected by Department personnel during the initial stages of an experimental wolf removal program in 1976. Carcasses from GMU 13 were transported to the Anchorage office after skinning for necropsy. The carcasses of wolves from northwest Alaska were required to be salvaged as a condition of the aerial permits issued to aerial hunters, and carcasses were received in Bettles and Kotzebue and allowed to freeze before being shipped to Fairbanks. Wolves collected in GMU 20A were usually brought into the Fairbanks laboratory within 12 hours after death, and were weighed, measured, skinned and necropsied. Blood from the thoracic cavity was collected from wolves received in the laboratory within a few hours of death by elevating the hindquarters of the animal. After centrifuging whole blood, serum was collected and frozen for later analyses for diseases, including brucellosis, leptospirosis, infectious canine hepatitis and canine distemper. The presence of external infirmities such as abrasions or abscesses and the condition of fur were noted during skinning. Testes were also collected and weighed during skinning.

Procedures followed in necropsying skinned carcasses were described by Nielsen (1977) who reported organ weights, traumatic injuries and pathologies of several organ systems noted in 112 wolves taken during early 1976 in GMU's 13 and 20A. Other findings from these wolves will be discussed in future reports, and only those aspects of necropsy procedures pertinent to these additional data are discussed in this report.

After determining the sex and estimating the age of each wolf, the depth of subcutaneous fat was measured at three sites: 1) over the transversus abdominal muscle lateral to the spine and immediately anterior to the upper hind leg, 2) on the dorsal midline between the iliac crests of the pelvis, and 3) on the ventral midline over the sternum and pectoralis profundis muscles between the front legs. Previous necropsies indicated that subcutaneous fat is first deposited and remains the longest at these three sites.

Carcasses were opened by a midventral incision from the posterior abdomen to the anterior sternum. The ribs were palpated for signs of old breaks and pulmonary adhesions, and the heart removed, weighed and inspected internally for the presence of heartworms. The amount of fat in the greater and lesser omenta was characterized as abundant, moderate, light or none, based on the degree to which it covered the viscera. The stomach was removed and weighed if it contained food, and contents were identified. If the stomach was empty the intestines were opened and food remains were identified. In female wolves, the reproductive tract, including the ovaries, oviduct and uterus, was removed as a single unit. Each horn of the uterus was opened and the condition and location of placental scars and/or fetuses were noted. Fetuses were weighed, measured and their sex determined if possible. Follicle development of the ovaries was noted and the entire reproductive tract was stored in 10-percent buffered formalin for at least 2 weeks to harden ovaries so they could be sectioned, and numbers of corpora lutea and corpora rubra determined. The kidneys were removed by sagittal cuts through the retroperitoneal fat at their posterior and anterior boundaries. Each kidney was weighed with and without its capsular fat, and kidney fat values were calculated. The exterior surface of each kidney was examined for scars and then each was split longitudinally from the hilus to the lateral capsular surface to reveal any internal abnormalities of the cortices or medulla.

The left femur of each animal was removed to determine fat content of marrow according to the dry weight method described by Neiland (1970). The head was removed, and the skull was later boiled and cleaned and a lower canine tooth extracted for cementum aging.

Additional specimens were collected for ancillary studies. These included samples of heart, diaphragm and intercostal muscle preserved for analysis for *Sarcocystis* sp. A kilogram of muscle from one hindquarter was analyzed by Dr. D. Holleman, Institute of Arctic Biology, University of Alaska, to determine the burden of radio-cesium 137. The body burden of this isotope is increased by consumption of caribou, and may be used to indicate the proportion of caribou in the diet of wolves in various areas (Holleman and Stephenson, in prep.). Several whole carcasses were used by Dr. J. R. Luick, Institute of Arctic Biology, University of Alaska, in various metabolic studies. Specimens of the biceps brachii muscle from eight wolves were preserved for Dr. L. M. Julian of the School of Veterinary Medicine, University of California at Davis.

FINDINGS

The results of much of the necropsy work done to date are being prepared for journals, while other data are still being prepared and analyzed. Results of the analysis of radio-cesium 137 body burdens are being prepared for publication (Holleman and Stephenson, in prep.), as are the results of tests for the occurrence of canine distemper virus and infectious canine hepatitis virus (Ritter, Stephenson and Nielsen, in prep.). Although most wolves taken in GMU 20A were aged using tooth sectioning techniques, some recently acquired specimens remain to be aged. Recently obtained reproductive tracts are in the last stages of processing, and both sex and age composition and reproductive data will be prepared for publication in the near future. The significance and interrelationships of the various nutritional condition indices derived from carcass necropsies will also be treated in a future publication, and the possible relationships between sex and age, reproductive and disease status, and nutritional condition will be explored.

The numbers of pup and adult wolves examined from each area are given in Table 1.

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Table 1. Sex and age composition of wolves examined during 1976, 1977 and 1978.

Area and period	Male adult		Female adult		Total adults		Male pup		Female pup		Total pups		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
SOUTHEAST ALASKA													
1976-1977	9	29.0	8	25.8	17	54.8	9	29.0	5	16.0	14	45.2	31
GMU 13													
1976	14	34.0	8	19.5	22	53.7	13	31.7	6	14.6	19	46.3	41
GMU 20A													
1976	37	49.3	22	29.3	59	78.7	9	12.0	7	9.3	16	21.3	75
1977	11	29.7	17	45.9	28	75.7	4	10.8	5	13.5	9	24.3	37
1978	9	25.0	12	33.3	21	58.3	7	19.4	8	22.2	15	41.6	36
Total	57	38.5	51	34.5	108	73.0	20	13.5	20	13.5	40	27.0	148
NORTHWEST ALASKA													
1976-1977													
Selawik Area	8	22.8	10	28.5	18	51.4	5	14.3	12	34.3	17	48.6	35
Bettles Area	5	25.0	4	20.0	9	45.0	6	30.0	5	25.0	11	55.0	20
Misc.							1	--	1	--	2	--	2
Total	13	22.8	14	24.6	27	47.4	12	21.1	18	31.6	30	52.6	57
Grand Total	93		81		174		54		49		103		277

WOLF

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 21 - Middle Yukon

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

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

Harvest, Trapping and Hunting Pressure

During the 1977-1978 season 21 wolves (11 males, 7 females and 3 of undetermined sex) were harvested in Unit 21. Five wolves were trapped and the remaining 16 were taken by shooting from the ground. Sixteen wolves (76%) were adults.

The harvest of 21 wolves represented a substantial decrease from the reported harvest of 100 during the 1976-1977 season. This should not be interpreted as a decline in wolf abundance, since snow cover was very light throughout Unit 21 and resulted in poor tracking conditions during most of the open season.

Trapping pressure on wolves in Unit 21 was low, as indicated by the harvest. Most trappers concentrated on marten and beaver and did not attempt to take wolves. It was uneconomical to trap wolves when other, easily-caught species such as marten were abundant.

Population Trends, Composition and Productivity

Wolf surveys were conducted in portions of Unit 21 during February and March 1978. Four packs totaling 38 individuals (12, 2, 16 and 8) and tracks of four other packs containing a total of 30-37 wolves were observed on a survey of the Nowitna drainage from the headwaters to the Yukon and including the Susulatna and Sulukna Valleys. Several major tributaries of the Nowitna including the Sulatna, Little Mud, Grand Creek, Big Mud, Titna, Talsitna and Sethkokna were not surveyed. It is estimated that the population of wolves in the Nowitna drainage was between 100 and 150 animals.

The Koyukuk drainage from Koyukuk to the Unit 24 boundary contained at least 13 wolf packs representing a minimum of 90 individuals. Packs of 5, 5, 10, 8 and 8, and portions of two other packs were observed during moose and wolf surveys in this area. The maximum estimate of the wolf population in the Koyukuk portion of Unit 21 is 120 to 140 animals.

Management Summary and Recommendations

Wolves were numerous in most portions of Unit 21. Hunting effort and success were low due to the light snow cover and poor tracking conditions during the 1977-1978 season.

As a result of declining moose populations and reduced hunting opportunities elsewhere due to season restrictions and the adoption of permit hunts, Unit 21 is experiencing increased hunting pressure by both non-unit residents and out-of-state residents. Human populations in many Unit 21 villages are also increasing, which places additional demands for meat on accessible moose herds. Moose populations in several areas are already heavily exploited by both hunters and wolves. The demands on the moose resource for food, sport and trophy are expected to continue to increase in Unit 21.

The Department must decide upon one of the following philosophies with regard to moose-wolf management in Unit 21: 1) regulate moose hunting in such a way that one user group is allocated the resource at the expense of other users, or 2) develop a practical method of wolf management that benefits all consumptive users yet maintains viable wolf populations within the unit.

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SUBMITTED BY:

Oliver E. Burris
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WOLF

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 22 - Seward Peninsula

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Hunting	Aug. 10-Apr. 30	Two wolves
Trapping	Oct. 1-Apr. 30	No Limit

Harvest, Trapping and Hunting Pressure

Based on data from sealing certificates, three wolves were taken during the 1977-78 season. The annual take for the last 16 years has averaged nine, and ranged from two (1975) to 28 (1967-68).

The reported harvest of three wolves was significantly below the 16-year average, which suggests that wolf abundance may have declined. This was probably not the case; rather the low harvest was related to a shift in the distribution of wolves away from population centers and failure by hunters and trappers to report their catch. Although there were village sealing officers in most locations, it was common for wolf hides to be used for garments shortly after they were taken. It is estimated that the actual harvest was probably two to three times the reported kill, or six to nine wolves.

Two of the wolves were taken by ground shooting, and the other animal was trapped. It was likely that most of the wolves taken in the unreported harvest were shot by hunters who used snow machines for transportation.

Seasonal Distribution, Migration and Concentration

Reports from village residents, trappers, and aerial observations by biologists indicate that wolves in Unit 22 have gradually increased in number and have expanded their range westward. Wolf sign was fairly common in all the major drainages from the Shaktoolik River and westward to the Kuzitrin River. Wolves were seen occasionally as far west as Shishmaref, but generally they were sighted as individuals or as a group of two or three. During aerial moose surveys in March 1978, evidence of at least one pack of three to six wolves was observed in the upper drainages of the Kuzitrin River. Signs of two other small packs were reported in the Fish and Koyuk River drainages respectively. Sealing records from Unit 23 indicated that at least 17 wolves were taken on the Buckland and Deering Rivers. These drainages are immediately north of the Kuzitrin and Koyuk Rivers. Since numerous wolves were taken in the southern portion of Unit 23, it is likely that these packs also ranged into northern areas of Unit 22. Based on sealing data, wolf sign, and actual sightings, the wolf population in Unit 22 is estimated at 50 to 75 individuals.

Management Summary and Recommendations

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 not been very effective because state and federal regulations have, at times, precluded the efficient use of aircraft. These actions (or lack thereof) not only resulted in an increase in the total number of wolves, but also provided an opportunity for wolves to expand their range westward on the Seward Peninsula. During the last 10 years the harvest data suggest there has been an increase in the harvest of wolves in rural areas, but this is not well documented by sealing records. More enforcement effort should be directed toward gaining compliance with the sealing regulations, and it would be desirable to obtain accurate information to document trends in wolf numbers.

A realistic estimate of the wolf population should be obtained as well as the impact of wolves upon ungulate populations. No changes are recommended in seasons and bag limits.

PREPARED BY

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SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 23 - Kotzebue Sound

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

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

Harvest, Trapping, and Hunting Pressure

The reported wolf harvest in Unit 23 during the 1977-1978 season was 64 wolves (30 males and 34 females) which was 7 percent of the total statewide harvest. Of the 64 taken, 42 were grey, 17 black, 3 brown, and 2 white. Sixty-three percent were harvested by residents of the Unit, while 37 percent were harvested by other Alaskan residents.

Age analysis as determined by examining the fusing ends of the radius and ulna bones, revealed that 33 percent were adults, 23 percent were pups, and 44 percent of undetermined age.

Trapping accounted for 5 percent of the harvest, whereas, shooting from the ground accounted for 94 percent, and 1 percent was taken by other means. The majority of the harvest was in the southern part of the Unit with 36 percent taken from the Selawik River drainage, 23 percent from the upper Kobuk River drainage, 14 percent from the Buckland River drainage, 11 percent from the Inmachuk River drainage, and 8 percent from the Squirrel River drainage.

The chronology of wolf harvest was as follows: October, two; November, none; December, two; January, nine; February, three; March, 37; and April, 11. The lack of snow and high winds prevented a sizable harvest prior to March.

Population Trends

The estimated wolf population has changed little since the last population estimate. Surveys by Peter Shepherd and Robert Stephenson, in the spring of 1977, estimated 670 wolves in Unit 23, a density of one wolf per 68 mi². Lack of snow prevented a survey in the spring of 1978.

Management Summary and Recommendations

The caribou population was down from a high of approximately 240,000 in 1970 to approximately 80,000 animals. Moose populations have shown lower densities in such areas as the Seward Peninsula, Buckland River, lower Kobuk River, and the lower Noatak River systems in the last 2

years. Sheep populations are sparse and seemingly below the carrying capacity in the DeLong Mountains (Anthony Smith, 1977 Sheep Surveys).

The harvest of 9 percent (64 wolves) of the estimated wolf population (670 wolves) is below sustainable harvest level, thus, an increased harvest of wolves is desired. Aerial permits should be issued as soon as the temporary injunction is lifted and hunter efforts should be directed to those areas having the largest wintering populations of caribou, moose, and sheep.

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Regional Supervisor

WOLF

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 24 - Koyukuk drainage

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

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

Harvest, Trapping and Hunting Pressure

Analysis of wolf sealing certificates revealed a harvest of 58 wolves (32 males, 25 females and 1 of undetermined sex) from Unit 24 during the 1977-1978 hunting and trapping seasons. This was only a small increase over the 1976-1977 harvest of 55 wolves. Similar to previous years most of the wolves taken in Unit 24 were grey (79%), adults (67%) and harvested by shooting from the ground (69%).

Earlier opening of the hunting season (August 10 instead of September 1) and changing the bag limit from two to no limit resulted in an increased take of four wolves (6.8% of the season's harvest). Two wolves were taken during August and two others were harvested as a result of the increased bag limit.

Most of the take resulted from shooting in late winter and early spring in the northern half of the unit. Although hunting pressure in the Bettles area was high during this period, success was generally low due to snow conditions, the distribution of wolves and, in some cases, the inexperienced hunters (trappers).

Populations, Trends and Densities

Wolves were abundant in the southern portion of Unit 24 and adjacent Unit 21. A survey was conducted from the headwaters of the South Fork of the Huslia River to Huslia on March 9, 1978. Tracks of five distinct packs totaling 24-27 wolves were observed. In addition, Huslia residents reported wolves to be abundant along the Koyukuk River both north and south of the village and cumulatively harvested 15 within 20 miles of Huslia during the 1977-1978 season.

Aerial surveys in selected portions of Unit 24 north of the Koyukuk River were conducted from a Super Cub between March 21 and 26, 1978. Conditions for these surveys were excellent with clear skies and 5 inches of fresh snow. The total area surveyed (approximately 10,350 square miles) included the North Fork of the Koyukuk, the drainages of the John River, the Alatna River and the Hogatza drainage. During this 40-hour survey 10 packs or subpacks of wolves, comprised of 47 individuals were tracked and located. Tracks of an estimated 79 other wolves were recorded,

thus suggesting a minimum of 126 wolves in the area at the time of the survey (Appendix I). Mean pack size of observed animals was 4.7 wolves, but direct counts of wolves plus tracks associated with these packs indicated that the average pack size may have been closer to 6.2 wolves.

Splitting of packs is common during the spring months, thereby suggesting smaller pack sizes than are actually present. The average pack size from a total of 29 track observations was 4.3 wolves. Of interest is the lower estimate produced by averaging the track observations and comparing this figure to a mean calculated from actual wolf sightings. This disparity occurred during the course of surveys in Unit 20A and tends to support the assumption that aerial track counts may normally underestimate pack or subpack size.

Estimated Wolf Population

Wolf track counts and pack observations on the 10,350-square-mile survey area suggested that a minimum of 126 wolves were present in this area at the end of March 1978. Harvest data indicated that 53 wolves were taken prior to or during the survey. Combining both harvest and count data provides a base population of 179 or one wolf/57 square miles for the early winter months of 1977. Further extrapolation of these data gives a 1977 midwinter population estimate of 490 wolves for the 27,940-square-mile unit. In the same manner the spring 1978 population can be computed at 438 wolves.

Patterns of Wolf Distribution and Predation

Wolf activity was largely confined to the mountainous portions of the survey area, most often at an altitude of from 3,000 feet to 4,000 feet. This choice of terrain was no doubt influenced by the distribution and availability of caribou. The dependence of wolves on the caribou population was demonstrated by the proportion of caribou kills in relation to moose and fall sheep kills. Fifteen of the 19 kills located were comprised of caribou remains, whereas three moose and one Dall sheep were found killed by wolves. These findings may have been influenced somewhat by the fact that moose numbers were low in the survey area and sheep kills are often difficult to identify from the air.

Management Summary and Recommendations

The debate over the wolf issue continues, while managers, concerned with declining ungulate populations and increasing human demands for meat and recreation, are seeking a mechanism to manage wolves. Under existing regulations and court injunctions wolf control measures are not possible.

The impact of trapping on the wolf population is insignificant. There are relatively few trappers in the unit, and most trappers concentrated on marten and beaver even though wolves were abundant. It is uneconomical to trap for wolves when easily-caught species such as marten are numerous. The few wolves taken are usually shot from the ground, although they are frequently reported as having been trapped.

Trappers who take wolves by landing and shooting likewise have an insignificant impact on wolf abundance. Success depends upon the wolves being in the open where an airplane can be landed, and the trapper must be able to shoot a fleeing wolf before it gets out of range or to cover. Due to these practical limitations, the vulnerability of wolves to this method of take in Unit 24 is low.

It is expected that some form of d-2 legislation will eventually be passed and that this legislation will have provisions either closing large areas to the taking of game or severely limiting hunting opportunity. The result will be a greater demand for game animals on the acreage open to hunting. If there is a desire to accommodate this increased demand, then some mechanism of manipulating wolf densities is essential.

Comparisons of 1977 and 1978 survey and harvest data indicated that the wolf population in the Brooks Range portion of Unit 24 was unchanged. The most obvious difference between years is the movement of wolf packs from the lowland habitat of the survey area to the upland and alpine sections of the unit. This shift is directly attributable to the distribution and availability of caribou. Furthermore, even though the 1978 snow pack was less than half that of 1977, wolves were found infrequently in the river valleys. Ungulates other than caribou were low in number throughout the survey area. However, even with caribou as a buffer species, predation on moose and Dall sheep continued. If unchecked this situation can only lead to a general decline of all ungulate species in the area. Therefore, it is recommended that aerial wolf hunting administered by permit be authorized for Unit 24.

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SUBMITTED BY:

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(Appendix I). Wolf track counts and pack observations in Unit 24, March 21 to 26, 1978.

Date	Area	Tracks	Color of Wolves Comprising Packs	Species of Kills
3/21/78 ¹	Kanutu River	8+	3 grey, 1 black	
3/22/78	Malmute Fork, John R.	4		
3/22/78	Malmute Fork, John R.	2		
3/22/78	Henshaw Creek	6		
3/22/78	Huggins Island	4		
3/22/78	Pah R. Flats	10+	1 grey, 1 black	2 caribou
3/23/78	Publituk River	5	4 grey	1 caribou
3/23/78	Agiaak R. - Loon Lk.	3	1 grey	
3/23/78	Kevuk Creek	10	8 grey	1 caribou
3/23/78	Alatna River (headwaters)	3	1 grey	1 caribou
3/23/78	Alatna River (Ram Creek)	6	6 grey	
3/23/78	Helpmejack Hills	5		
3/24/78	Nahtuk	8	6 grey, 2 black	1 sheep
3/24/78	Pingaluk Creek	2		
3/24/78	Sixtymile River	7		1 moose
3/24/78	Allen River	3	3 grey	
3/24/78	John (near Hunt Fork)	3		
3/24/78	John (Lower)	1		
3/25/78	Siruk Creek	2		1 moose
3/25/78	Siruk Creek	6		
3/25/78	Alatna (lower)	2		
3/26/78	Middle Fork Koyukuk	1		
3/26/78	North Fork Koyukuk	4		5 caribou
3/26/78	North Fork Koyukuk	2		
3/26/78	Moving Mountain	4		
3/26/78	Moving Mountain	2		
3/26/78	Moving Mountain	1		
3/26/78	Moving Mountain	6		
3/26/78	Tinaygik River	6	6 grey	3 caribou
3/26/78	Pass Creek	8	8 grey	2 caribou

¹ Not included in population estimates.

WOLF

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 25 - Chandalar and eastern Yukon drainages

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

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

Harvest and Hunting Pressure

The total number of wolves harvested in Unit 25 during the 1977-1978 seasons, as indicated by sealing records, was 37 compared to 103 taken during the 1976-1977 seasons and 49 taken during the 1975-1976 seasons.

The number of wolves taken from various drainages was as follows: Coleen, 9; main Yukon, 8; Black, 7; and Chandalar, 6. Some wolves were also taken in the Wind, Kandik, Nation and Sheenjek drainages.

The harvest was heaviest from January through March with 76 percent of the take occurring during this period. Twenty-two percent of the kill occurred from October through December and only one wolf was taken in April. Trapping accounted for 59 percent of the harvest (n=22), followed by ground shooting (n=9) and snaring (n=6).

Composition and Productivity

Of the 37 wolves taken, no sex determination was made on five animals. Among the remaining 32 wolves, 63 percent (n=20) were judged to be adults and 37 percent (n=12) were pups. The sex ratio was essentially equal, with 18 males and 19 females taken. Most animals were gray (n=26), followed by blacks (n=9). One brown wolf was taken, and no color was given for one wolf.

Management Summary and Recommendations

The 1977-1978 wolf harvest was the lowest recorded during the past 5 years; however, the productivity and/or early survival of pups has increased since last year (Appendix I). It should be noted that the percentage of pups in the harvest normally exceeds their occurrence in the population because of the vulnerability of young wolves to trapping, the primary means of harvest.

Even though currently high fur prices have probably stimulated trapping effort in the unit, it is doubtful that the current level of harvest is having a significant effect on the population. It is more

likely that a decrease in the Unit 25 moose population is causing a similar decline in wolf numbers.

No changes in seasons and bag limits are recommended.

PREPARED BY:

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SUBMITTED BY:

Oliver E. Burris
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Appendix I. Harvest and age composition of wolves taken in Unit 25, 1973-1978.

<u>Year</u>	<u>Harvest</u>	<u>Percent Pups*</u>
1973-74	56	not known
1974-75	48	not known
1975-76	49	22
1976-77	103	11
1977-78	37	37

* Of those animals for which age was determined.

WOLF

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 26 - Arctic Slope

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

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

Harvest, Hunting and Trapping Pressure, and Natural Mortality

During the 1977-78 regulatory year, 36 wolves were taken in Unit 26 and presented for sealing. This number is nearly the same as the reported kill for 1976-77 (35) and 1975-76 (34). These records do not accurately reflect the number of wolves actually killed by trappers because there is a high local demand for wolf hides to be used for garments and some trappers do not present hides for sealing. Of the 36 wolves reported taken, 16 (44%) were males. The age composition of the wolves killed was: adults, 58 percent; pups, 25 percent; unknown age, 17 percent.

In addition to the harvest determined from sealing records, at least seven wolves were killed out of a pack of 10 that inhabited the upper Hula Hula River drainage (Chapman, 1978). One was shot and six died of natural causes. Rabies was confirmed in the wolf that was shot and in two others that had not decomposed by the time they were found.

Population Trends, Composition and Productivity

The population of wolves in Unit 26 is estimated to be between 300 and 500 animals. Densities vary within the Unit, being highest in the mountain and foothill provinces and lowest to absent on the coastal plain. Based upon aerial surveys, wolf density in the southern portion of the National Petroleum Reserve-Alaska region is about one wolf per 397 km² (150 mi²) while in the northern portion of the area, density is less than one wolf per 518 km² (200 mi²).

Management Summary and Recommendations

The population of wolves in Unit 26 is generally low, especially in the coastal plain area. Of the reported harvest, 67 percent of the wolves taken were reported as having been ground shot by nonresidents of the Unit. Even though all wolves taken by Unit residents are not reported, it appears that the majority of wolves harvested in the area are removed from it. Although there is a high demand among Unit residents for wolf fur for ruffs and parka trim, the low density of wolves in the coastal plain region, where most of the local residents live, makes it difficult

for them to take wolves, while nonresidents of the Unit, who use aircraft for access, can hunt the foothill and mountain areas in the southern portion of the unit where wolf densities are higher.

Low wolf numbers on the coastal plain has meant that there has been little impact from predation on the 20,000 - 30,000 caribou that overwintered in the area. Thus, although the low numbers of wolves has meant less wolf fur for local hunters and trappers, the low level of predation has helped the Western Arctic Caribou Herd to increase.

No changes in seasons and bag limits are recommended.

Ref.: Chapman, R.C. 1978. Rabies: Decimation of a wolf pack in Arctic Alaska. Science 201:365-367.

PREPARED BY:

SUBMITTED BY:

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WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT FOR FISCAL YEAR 1977-1978

Game Management Units 1, 3 and 5 - Southeast Alaska

Seasons and Bag Limits

Hunting

Units 1-5	Nov. 10-Feb. 15	One wolverine
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Trapping

Units 1A, 1B, 1D, 3	Dec. 1-Feb. 15	No limit
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Unit 1C	Nov. 10-Feb. 15	No limit
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Unit 4, that portion of Admiralty Island including all drainages from Point Marsden north to Point Retreat, thence all drainages on the east, south to Point False Pybus.	Nov. 10-Jan. 31	No limit
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Remainder of Unit 4	Dec. 1-Jan. 31	No limit
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Unit 5	Nov. 10-Feb. 15	No limit
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Harvest and Hunting Pressure

Twenty-eight wolverines were harvested in the 1977-78 season, a decrease of 40 percent from the previous year. The kill was composed of 12 males, 15 females, and one unknown (Appendix I & II).

Composition and Productivity

No data available.

Management Summary and Conclusions

The wolverine harvest in Southeastern Alaska fluctuates annually from the effects of weather, fur prices, and trapping effort. Most of the trapping is done along the shoreline where wolverines are caught in sets made for other species. The mild winter of 1977-78 was probably the most significant factor in lowering the harvest. Lower than average depths enabled greater movement and less restriction of wolverines to lower elevations. No changes in seasons or bag limits are recommended.

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N. P. Johnson
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APPENDIX I. 1977-78 Wolverine Harvest Data, GMU's 1 through 5.

Unit	Sex				Method of Take		Month Taken			
	Male	Female	Unk	Total	Trapping	Shooting	November	December	January	February
1A	0	2	0	2	2	0	0	0	2	0
1B	6	3	0	9	9	0	0	2	2	5
1C	0	3	0	3	3	0	0	1	1	1
1D	5	6	0	11	11	0	0	1	4	6
Total Unit 1	11	14	0	25	25	0	0	4	9	12
3	1	1	0	2	2	0	0	2	0	0
5	0	0	1	1	1	0	1	0	0	0
Total Southeast	12	15	1	28	28	0	1	6	9	12

APPENDIX II. Summary of Wolverine Harvest Data for Southeastern Alaska 1971-72 to 1977-78.

Unit	1971-72		1972-73		1973-74		1974-75		1975-76		1976-77		1977-78	
	Total Harvest	%* Males	Total Harvest	% Males	Total Harvest	% Males	Total Harvest	% Males	Total Harvest	% Males	Total Harvest	% Males	Total Harvest	% Males
1A	4	100	2	100	4	75	9	55	16	50	6	83	2	0
1B	4	100	3	66	20	65	1	0	2	100	11	36	9	66
1C	4	100	4	50	9	44	9	33	5	80	8	37	3	0
1D	4	25	6	50	17	41	14	71	10	70	14	50	11	45
Total Unit 1	16	81	15	60	50	54	33	54	33	64	39	49	25	44
3	0	0	12	42	12	50	5	60	3	66	6	50	2	50
5	8	75	0	0	14	71	1	0	0	0	1	100	1	0
Total Southeast	24	79	27	52	76	57	39	54	36	64	46	50	28	43

* Remaining percentages include females and animals of unknown sex.

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT FOR REGULATORY YEAR 1977-78

Game Management Unit 6

Season and Bag Limits

Hunting	Sept. 1 - March 31	One Wolverine
Trapping	Nov. 10 - March 31	No Limit

Harvest and Hunting Pressure

The wolverine harvest in Unit 6 was 32 animals: 16 males and 16 females. Trapping accounted for 88 percent of the harvest. Most of the wolverines (44%) were taken in December (Appendix I).

Eight trappers trapped wolverines successfully. One trapper accounted for 56 percent (18 of 32) of the total harvest.

Fifteen wolverines were taken in Unit 6(A), five in Unit 6(B), five in Unit 6(C) and seven in Unit 6(D).

The 1977-78 harvest of 32 wolverines is 60 percent higher than the 16 year average of 20 animals and the third largest harvest to occur in Unit 6 (Appendix II).

Composition and Productivity

No data available.

Management Summary and Conclusions

The 1977-78 harvest of 32 wolverines although large, does not appear excessive. A significant number of the wolverine (9 males and 6 females) were taken in Unit 6(A), a large area extending from Katalla to Icy Bay.

Recommendations

Retain the present seasons and bag limits.

PREPARED BY: Julius Reynolds
Game Biologist III

SUBMITTED BY: James B. Faro
Regional Management Coordinator

APPENDIX I

Wolverine 1977-78

Unit 6

Harvest

Males - 16 Females - 16 Unknown - 0 Total - 32

Chronology by Month

<u>Month</u>	<u>Number</u>	<u>Percent</u>	<u>Month</u>	<u>Number</u>	<u>Percent</u>
July	--	--	January	5	15.6
August	--	--	February	4	12.5
September	1	3.1	March	1	3.1
October	1	3.1	April	--	--
November	6	18.8	May	--	--
December	14	43.8	June	--	--
			Unknown	--	--
			Total	32	100.0

<u>Method of Take</u>	<u>Number</u>	<u>Percent</u>
Ground shooting	4	12.5
Trapping	28	87.5
Snaring	--	--
Other	--	--
Total	32	100.0

Prepared By: Jerome J. Sexton and Julius Reynolds, Game Biologists

APPENDIX II
Wolverine Harvest Data
Unit 6

<u>Year</u>	<u>Number</u>
1961 - 1962*	14
1962 - 1963*	3
1963 - 1964*	9
1964 - 1965*	12
1965 - 1966*	16
1966 - 1967*	26
1967 - 1968*	8
1968 - 1969*	13
1969 - 1970	UNK
1970 - 1971**	18
1971 - 1972***	21
1972 - 1973***	33
1973 - 1974***	55
1974 - 1975***	20
1975 - 1976***	30
1976 - 1977***	13
1977 - 1978***	32
Total	323
Average	20.2

* Bounty records.
 ** Cordova trapper questionnaire.
 *** Sealing records.

Prepared by: Julius Reynolds, Game Biologist III

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 7 - Eastern Kenai Peninsula

Seasons and Bag Limits

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

Harvest and Hunting Pressure

Eighteen wolverines were reported harvested during the 1977-78 season (Appendices I & II). The harvest was composed of 12 males and six females. Fourteen wolverines were taken by trapping, two by snaring, and two by ground shooting.

Composition and Productivity

Techniques for collecting composition and productivity data have not been developed. However, wolverine sealing data traditionally show a very high percentage of males in the harvest. The high percentage of males is believed related to their habits of ranging over much larger areas than do females.

Management Summary and Conclusions

The 1977-78 harvest (18) was up 200 percent from the 1976-77 level, but still 25 percent lower than the highest harvest (24) during 1972-73 and 1975-76. The high percentage of males in the harvest suggest that trapping had little effect on population size.

Recommendations

No changes are recommended.

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SUBMITTED BY:

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APPENDIX I

WOLVERINE 1977-1978
Unit 7

Harvest

Males - 12 Females - 6 Unknown - 0 Total- 18

Chronology by Month

<u>Month</u>	<u>Number</u>	<u>Percent</u>	<u>Month</u>	<u>Number</u>	<u>Percent</u>
July	--	--	January	4	22.2
August	--	--	February	4	22.2
September	--	--	March	6	33.3
October	1	5.6	April	--	--
November	--	--	May	--	--
December	3	16.7	June	--	--
			Unknown	--	--
			Total	18	100.0

<u>Method of Take</u>	<u>Number</u>	<u>Percent</u>
Ground Shooting	2	11.1
Trapping	14	77.8
Snaring	2	11.1
Other	--	--
Total	18	100.0

Prepared by: Jerome Sexton, Game Biologist II

APPENDIX II

UNIT 7

Wolverine Bounty and Sealing Records - Unit 7

<u>Year</u>	<u>Males</u>	<u>Females</u>	<u>Unknown</u>	<u>Total</u>
1961-62 ¹	-	-	1	1
1962-63 ¹	-	-	5	5
1963-64 ¹	-	-	16	16
1964-65 ¹	-	-	20	20
1965-66 ¹	-	-	11	11
1966-67 ¹	-	-	17	17
1967-68 ²	-	-	-	-
1968-69 ²	-	-	-	-
1969-70 ²	-	-	-	-
1970-71 ²	-	-	-	-
1971-72 ³	10	11	2	23
1972-73 ³	16	5	3	24
1973-74 ³	7	5	0	12
1974-75 ³	10	9	0	19
1975-76 ³	13	9	2	24
1976-77 ³	5	1	0	6
1977-78 ³	12	6	0	18

¹ Data from bounty records.

² Bounty discontinued, no record of harvest.

³ Data from sealing records.

- Zero data.

PREPARED BY: Ted H. Spraker, Game Biologist III

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 9 - Alaska Peninsula

Seasons and Bag Limits

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

Hunting, Trapping and Harvest Pressure

A total of 86 wolverines were reported taken from Unit 9 during the 1977-78 season (Appendix I). This harvest represents an increase of 40 wolverines over the 1976-77 level, but is similar to the previous 5-year mean of 78.6 (Appendix II). As in past seasons, trapping accounted for the majority of the wolverines taken (66). Ground shooting was the second most common method of take (19) and snaring was of minor significance (1). The composition of the harvest was 43 males, 23 females and 20 of unknown sex.

Composition and Productivity

No data are available.

Management Summary and Conclusions

The winter of 1977-78 was colder than the previous year producing moderate ice conditions and maintaining a light snow cover. This combination permitted access by snow machines and ski equipped aircraft to remote portions of the Unit, resulting in a harvest commensurate with the mean level of past years'.

Recommendations

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

PREPARED BY:

Nicholas C. Steen
Game Biologist II

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I
Wolverine Harvest Data 1977-78
Unit 9

Harvest

Males - 43 Females - 23 Unknown - 20 Total - 86

Chronology by Month

Month	Number	Percent	Month	Number	Percent
July	--	--	January	19	22.1
August	--	--	February	23	26.7
September	--	--	March	7	8.1
October	6	7.0	April	--	--
November	4	4.7	May	--	--
December	27	31.4	June	--	--
			Unknown	--	--
			Total	86	100.0

Method of Take	Number	Percent
Ground Shooting	19	22.1
Trapping	66	76.7
Snaring	1	1.2
Other	--	--
Total	86	100.0

PREPARED BY: Jerome J. Sexton, Game Biologist II

APPENDIX II

Historical Wolverine Harvest, Unit 9, 1962-78

<u>Year</u>	<u>Harvest</u>
1962-63 <u>1</u> /	14
1963-64 <u>1</u> /	34
1964-65 <u>1</u> /	39
1965-66 <u>1</u> /	40
1966-67 <u>1</u> /	63
1967-68 <u>1</u> /	43
1968-69 <u>1</u> /	10
1969-70 <u>2</u> /	5
1970-71 <u>3</u> /	--
1971-72 <u>4</u> /	46
1972-73 <u>4</u> /	71
1973-74 <u>4</u> /	89
1974-75 <u>4</u> /	72
1975-76 <u>4</u> /	115
1976-77 <u>4</u> /	46
1977-78 <u>4</u> /	86

1/ Data from bounty analysis

2/ Data from harvest report cards

3/ No data available

4/ Data from hide sealing program

PREPARED BY: Nicholas C. Steen, Game Biologist II

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 10 - Aleutian Islands

Seasons and Bag Limits

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

Hunting, Trapping and Harvest Pressure

Two wolverines were reported harvested in Unit 10 during this reporting period. Both animals were males and were taken in traps.

Composition and Productivity

No data are available.

Management Summary and Conclusions

Wolverines in Unit 10 are restricted to Unimak Island. Access to the island is controlled by the U.S. Fish and Wildlife Service, which restricts aircraft landings to designated runways, water surfaces or beaches below the high tide mark. Also, no mechanized equipment is allowed off established roads. This limited access severely restricts hunting and trapping activity.

It is doubtful if the present harvest level has any affect upon the wolverine population in Unit 10.

Recommendations

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

PREPARED BY:

Nicholas C. Steen
Game Biologist II

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT FOR 1977-78

Game Management Unit 11 - Wrangell Mountains, Chitina River

Seasons and Bag Limits

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

Harvest and Hunting Pressure

Twenty-nine wolverines (12 males, 17 females) were taken in the 1977-78 season. The average annual harvest has been 35 wolverines from Unit 11 since the 1971-72 season, with the highest annual harvest of 55 wolverines occurring in 1973-74 (Appendix I). Appendix II shows additional data from harvest records over the last seven years. The percentage of males (41%) in the 1977-78 harvest continues to show a decline from the high of 71% males in 1971-72. This decline in the percentage of males in the harvest has been consistent except for a minor increase in 1975-76 (Appendix II). Fifty-two percent (15) of the harvest occurred during February and March in 1977-78 (Appendix II). Steel traps accounted for 86 percent of the wolverines taken, a figure consistent with the average for the previous six years (92%).

Composition and Productivity

No information is available.

Management Summary and Conclusions

The wolverine harvest for Unit 11 is low, and this small sample size presents a problem in analyzing data. The continued decline of males as a percentage of the harvest may be a cause for concern. If the small sample size is indicative of the entire unit population and does not represent just a few heavily trapped sections, an imbalanced sex ratio may exist. This imbalance may result from previous heavy harvests of more susceptible males coupled with decreased reproduction. A review of other units in the state reveals only GMU 1 has a higher percentage of females than males in reported harvests.

Recommendations

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

2. Monitor harvest for 1978-79 season to observe harvest sex ratios and population trends.
3. Evaluate harvest data to determine if it accurately reflects Unit 11 populations or just local areas of concentrated trapping effort.

PREPARED BY:

Robert Tobey
Game Biologist II

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I. Annual wolverine harvests from 1961-62 through 1977-78 in GMU 11.

<u>Year</u>	<u>Harvest</u>	<u>Year</u>	<u>Harvest</u>
1961-62	1 ^a	1969-70	No data ^b
1962-63	7 ^a	1970-71	No data ^b
1963-64	38 ^a	1971-72	28 ^c
1964-65	12 ^a	1972-73	48 ^c
1965-66	30 ^a	1973-74	55 ^c
1966-67	33 ^a	1974-75	29 ^c
1967-68	22 ^a	1975-76	35 ^c
1968-69	22 ^a	1976-77	21 ^c
		1977-78	29 ^c

^a Harvest figures are from bounty records.

^b The bounty was discontinued on wolverines, and no harvest data are available.

^c Harvest figures are from sealing records.

APPENDIX II. Wolverine harvest data from 1971-72 through 1977-78 - GMU 11^a.

	<u>1971-72</u>	<u>1972-73</u>	<u>1973-74</u>	<u>1974-75</u>
Total Wolverine Harvest:	28	48	55	29
Percent (No.) Males in Harvest ^b :	71%(20)	70%(33)	62%(32)	52%(15)
Harvest Chronology, Percent (No.):				
November:	-(-)	-(-)	2% (1)	7% (2)
December:	-(-)	38%(18)	20%(11)	21% (6)
January:	4% (1)	33%(16)	43%(24)	21% (6)
February:	25% (7)	17% (8)	22%(12)	21% (6)
March:	67%(19)	10% (5)	7% (4)	27% (8)
Other Months:	4% (1)	2% (1)	6% (3)	3% (1)
Unknown:	-(-)	-(-)	-(-)	-(-)
Method of Take, Percent (No.):				
Ground Shooting:	4% (1)	2% (1)	-(-)	7% (2)
Trapping:	96%(27)	92%(44)	92%(51)	93%(27)
Snaring:	-(-)	6% (3)	6% (3)	-(-)
Other:	-(-)	-(-)	2% (1)	-(-)
	<u>1975-76</u>	<u>1976-77</u>	<u>1977-78</u>	
Total Wolverine Harvest:	35	21	29	
Percent (No.) Males in Harvest ^b :	53%(18)	48%(10)	41%(12)	
Harvest Chronology, Percent (No.):				
November:	11% (4)	24% (5)	14% (4)	
December:	34%(12)	32% (7)	14% (4)	
January:	38%(13)	5% (1)	10% (3)	
February:	14% (5)	19% (4)	21% (6)	
March:	-(-)	10% (2)	31% (9)	
Other Months:	3% (1)	10% (2)	10% (3)	
Unknown:	-(-)	-(-)	-(-)	
Method of Take, Percent (No.):				
Ground Shooting:	3% (1)	14% (3)	10% (3)	
Trapping:	91%(32)	86%(18)	86%(25)	
Snaring:	6% (2)	-(-)	4% (1)	
Other:	-(-)	-(-)	-(-)	

a. Harvest data are based on sealing data only.

b. Percentage males are based only on animals where sex was known.

Prepared by: Robert Tobey, Game Biologist II

LYNX, LAND OTTER AND WOLVERINE
SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 12 - Upper Tanana River

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Lynx

Trapping	Nov. 1 - Mar. 31	No limit
Hunting	Sept. 1 - Mar. 31	Two lynx

Otter

Trapping	Nov. 1 - Apr. 15	No limit
Hunting	No open hunting season	

Wolverine

Trapping	Nov. 1 - Mar. 31	No limit
Hunting	Sept. 1 - Mar. 31	Two wolverine

Harvest and Hunting Pressure

Lynx - Sealing documents indicated that 72 lynx (30 males, 35 females and 7 of undetermined sex) were presented for sealing. Although the sealing program did not begin until December, most lynx taken prior to December were probably sealed later because of the ESSA restrictions governing export of lynx pelts.

The Tanana drainage produced the largest harvest with 36 percent (26 lynx) of the total harvest, followed by the Nabesna with 32 percent (23 animals), the Chisana with 24 percent (17 animals), the White with 7 percent (5 animals) and the Tok with 1 percent (1 animal).

Twenty-three lynx were taken in December, 16 in January, 13 in November, 10 in March and 9 in February. The harvest date for one animal was not known.

Pelt length was determined at the time of sealing by measuring from the tip of the nose to the base of the tail. It was assumed that kit pelts are 36 inches or less and adults are over 36 inches. On this basis, kits comprised 22 percent (16 animals) of the harvest and adults 72 percent (52 animals). Pelt length was not recorded for 6 percent (4 animals) of the take.

Otter - Five land otter, three males and two females, were presented for sealing in 1977-1978. The entire harvest occurred in the Chisana River drainage. Two animals each were taken in January and February while the remaining otter was trapped during March.

Wolverine - According to sealing records, 28 wolverines were harvested in Unit 12 during 1977-1978. Harvest by drainage was as follows: Tok, 11; Tanana, 7; Nabesna, 5; Chisana, 4; and White, 1. The monthly harvest was: September, 2; October, 1; November, 4; December, 8; January, 7; February, 4; and March, 2.

The wolverine catch consisted of 16 males and 12 females.

Because of the prevailing high fur prices, considerable interest was exhibited in lynx and wolverine by Unit 12 trappers during the reporting period.

Management Summary and Recommendations

Accurate lynx and otter harvest information was not available prior to initiation of a mandatory sealing program in December 1977. However, casual observations, fur export permit information and conversations with trappers and furbuyers indicated that the lynx abundance was near the cyclic low in Unit 12, but there may have been a slight population increase over the previous year. The snowshoe hare population was obviously larger than during 1976-1977; therefore, one can logically assume that the lynx population was likewise increasing.

Although the wolverine harvest decreased slightly in 1977-1978, the harvest has not changed significantly since the mandatory sealing program was initiated in 1973. We believe wolverines in Unit 12 were moderately abundant and reasonably productive, based on the size and consistency of the harvest.

The otter population is generally low because of restricted habitat in Unit 12. The harvest has traditionally been low and little interest in otter trapping has been exhibited by most Unit 12 trappers. With the current low value of otter pelts much of the harvest is used locally for clothing manufacture.

Except for local situations, trapping is believed to have little influence on overall furbearer numbers. Fur prices were generally high and there was considerable interest in trapping, particularly for land mammals. Because of difficulties associated with trapping aquatic furbearers such as beaver and otter, and the current low to moderate pelt value for these species, interest in trapping them was generally low.

No changes in seasons or bag limits are recommended.

PREPARED BY:

SUBMITTED BY:

Larry B. Jennings
Game Biologist III

Oliver E. Burris
Regional Management Coordinator

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 13 - Nelchina, Upper Susitna, and Upper Copper
River Basins

Seasons and Bag Limits

Hunting	Sept. 1-Mar. 31	One Wolverine
Trapping	Nov. 10-Mar. 31	No Limit

Harvest and Hunting Pressure

The annual wolverine harvests from 1962-63 through 1976-77 are presented in Appendix I. Harvest data from 1971-72 through 1977-78, based on sealing data, are shown in Appendix II. The 1977-78 harvest of 58 wolverines was significantly (44%) below the 1971-77 six-year average of 104 wolverines. The percentage of males (62%) was relatively high in the 1977-78 harvest. A high percentage of wolverines (79-88%) were taken by trapping from 1971-72 through 1977-78.

Composition and Productivity

No information is available.

Management Summary and Conclusions

The total harvest of wolverines appears small compared to the size of Unit 13. However, the 1977-78 decline should be watched and data compared to 1978-79 harvests to see if a population trend is developing. The high percentage of males reflects a good population structure and is desired in the harvests.

Recommendations

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

PREPARED BY:

Robert Tobey
Game Biologist II

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I. Comparison of annual wolverine harvests from 1962-63 through 1977-78
GMU 13

<u>Year</u>	<u>Harvest</u>	<u>Year</u>	<u>Harvest</u>
1962-63	37*	1969-70	No Data**
1963-64	32*	1970-71	No Data**
1964-65	65*	1971-72	75***
1965-66	102*	1972-73	140***
1966-67	132*	1973-74	121***
1967-68	86*	1974-75	96***
1968-69	No Data**	1975-76	105***
1969-70	No Data**	1976-77	85***
		1977-78	58***

* Harvest figures are from bounty records.

** The bounty was discontinued on wolverines during this period, and no information on the harvest is available.

*** Harvest figures are from sealing records.

PREPARED BY: Bob Tobey, Game Biologist II

APPENDIX II. Wolverine harvest data from 1971-72 through 1977-78 - GMU 13^a

	<u>1971-72</u>	<u>1972-73</u>	<u>1973-74</u>	
Total Wolverine Harvest:	75	140	121	
Percent (No.) Males in Harvest ^b :	57%(40)	65%(89)	63%(76)	
Harvest Chronology, Percent (No.):				
November:	4% (3)	14%(20)	17%(21)	
December:	12% (9)	23%(32)	20%(24)	
January:	9% (7)	19%(27)	23%(28)	
February:	21%(16)	26%(36)	23%(28)	
March:	41%(31)	15%(21)	15%(18)	
Other Months:	1% (1)	3% (4)	2% (2)	
Unknown:	11% (8)	- (-)	- (-)	
Method of Take, Percent (No.):				
Ground Shooting:	20%(15)	9%(13)	8%(10)	
Trapping:	80%(60)	86%(121)	88%(106)	
Snaring:	- (-)	4% (5)	4% (5)	
Other:	- (-)	1% (1)	- (-)	
	<u>1974-75</u>	<u>1975-76</u>	<u>1976-77</u>	<u>1977-78</u>
Total Wolverine Harvest:	96	105	85	58
Percent (No.) Males in Harvest ^b :	61%(59)	55%(58)	58%(49)	62%(36)
Harvest Chronology, Percent (No.):				
November:	4% (4)	10%(11)	6% (5)	17%(10)
December:	9% (9)	25%(26)	28%(24)	35%(20)
January:	20%(19)	16%(17)	22%(19)	16% (9)
February:	31%(30)	27%(28)	17%(14)	22%(13)
March:	29%(28)	13%(14)	25%(21)	7% (4)
Other Months:	5% (5)	9% (9)	2% (2)	3% (2)
Unknown:	1% (1)	- (-)	- (-)	- (-)
Method of Take, Percent (no.):				
Ground Shooting:	14%(13)	11%(12)	21%(18)	12% (7)
Trapping:	84%(81)	87%(91)	79%(67)	88%(51)
Snaring:	2% (2)	1% (1)	- (-)	- (-)
Other:	- (-)	1% (1)	- (-)	- (-)

a. Harvest data are based on sealing data only.

b. Percentage males are based only on animals where sex was specified.

PREPARED BY: Bob Tobey, Game Biologist II

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT FOR REGULATORY YEAR 1977-78

Game Management Unit 14 - Upper Cook Inlet

Seasons and Bag Limits

Subunits 14A, 14B and 14C (except Chugach State Park)		
Hunting	Sept. 1 - Mar. 31	One wolverine
Trapping	Nov. 10 - Mar. 31	No limit
Subunit 14C in Chugach State Park		
Hunting and Trapping		No open season

Harvest and Hunting Pressure

A total of 26 wolverines were taken in Unit 14 during the 1977-78 hunting-trapping season. The harvest has fluctuated since the mid-1960's without an apparent trend, but is probably dependent upon trapper effort. Wolverine trapping and hunting have been prohibited in Chugach State Park since 1972.

The majority of wolverines (54%) were taken in Subunit 14B, 35 percent were taken in Subunit 14A and 12 percent were taken in Subunit 14C (Appendix I). Of 25 wolverines of known sex, 60 percent were males. The total harvest period was five months (November through March). The major method of take was trapping (92%).

While the number of wolverines taken during the 1977-78 season was nearly twice that taken during the 1976-77 season, the male to female capture ratio remained the same. A paired t-test performed on weighted male to female capture ratios in Unit 14 from the 1971-72 season through the 1977-78 season determined that male captures significantly outnumber female captures. ($P < 0.01$) The skewed sex ratio suggest that males are more susceptible to capture. The indication that males exhibit a larger activity range than females (Hornocker and Hash 1976, Magoun 1978), increasing their probability of encountering a trap per given time period, supports the above findings.

Composition and Productivity

No population composition information is available.

Management Summary and Conclusions

Fluctuating fur prices and closures of large areas such as Chugach State Park reduces the usefulness of harvest reports as an index of

population size. The available data indicate that the population is not being altered by hunting or trapping to any great degree.

Recommendations

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

Literature Cited

Hornocker, M. and H. Hash. 1976. Ecology of the wolverine (*Gulo gulo*) in northwestern Montana. Idaho Cooperative Wildlife Research Unit, Univ. of Idaho. Moscow.

Magoun, A. 1978. Ecology of wolverines on the north slope of the Brooks Range, Alaska. Alaska Coop. Wildlife Research, Univ. of AK, Fairbanks.

PREPARED BY:

Jack C. Didrickson
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

Appendix I. Wolverine Harvest by Sex, Chronology and Method of Take in
Alaska's Game Management Unit 14 During the 1977-78 Season.

HARVEST

<u>AREA</u>	<u>MALES</u>	<u>FEMALES</u>	<u>UNKNOWN</u>	<u>TOTAL</u>
14A	3	5	1	9
14B	10	4	0	14
14C	2	1	0	3

Including all Subunits

Males - 15 Females - 10 Unknown - 1 Total - 26

Chronology by Month

<u>Month</u>	<u>Number</u>	<u>Percent</u>	<u>Month</u>	<u>Number</u>	<u>Percent</u>
July	--	---	January	4	15.4
August	--	---	February	12	46.2
September	--	---	March	4	15.4
October	--	---	April	--	----
November	4	15.4	May	--	----
December	2	7.7	June	--	----
			Unknown	--	----
			Total	26	100.1

<u>Method of Take</u>	<u>Number</u>	<u>Percent</u>
Ground Shooting	1	3.9
Trapping	24	92.3
Snaring	1	3.9
Other	-	---

PREPARED BY: Jack C. Didrickson, Game Biologist III.
J. J. Sexton, Game Biologist II

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 15 - Western Kenai Peninsula

Seasons and Bag Limits

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

Harvest and Hunting Pressure

Thirteen wolverines were reported harvested in Unit 15 during the 1977-78 season (Appendices I & II). The harvest was composed of 10 males and three females. A breakdown of the harvest by Subunit is provided in Appendices III, IV and V.

The continued low percentage (23%) of females in the 1977-78 harvest implies that trapping is not a major factor in limiting wolverine numbers.

Composition and Productivity

Techniques for collecting composition and productivity data have not been developed. Wolverine sealing data traditionally show a high percentage of males in the harvest. The high percentage of males in the harvest is believed due to their habit of ranging over larger areas than females.

Management Summary and Conclusions

The 1976-77 and 1977-78 harvests of 13 wolverines were up from the low harvest of eight in 1975-76. The increase in harvest over the past two seasons most likely reflects an increase in effort and favorable trapping conditions.

Recommendations

No changes are recommended.

PREPARED BY:

Ted H. Spraker
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I
WOLVERINE 1977-1978
Unit 15
(Including all subunits)

Harvest

Males - 10 Females - 3 Unknown - 0 Total- 13

Chronology by Month

Month	Number	Percent	Month	Number	Percent
July	--	--	January	4	30.8
August	--	--	February	2	15.4
September	1	7.7	March	2	15.4
October	--	--	April	--	--
November	2	15.4	May	--	--
December	2	15.4	June	--	--
			Unknown	--	--
			Total	13	100.1

Method of Take	Number	Percent
Ground Shooting	1	7.7
Trapping	12	92.3
Snaring	--	--
Other	--	--
Total	13	100.0

Prepared by:

Jerome J. Sexton, Game Biologist II

APPENDIX II

Wolverine Bounty and Sealing Records - Unit 15

<u>Year</u>	<u>Males</u>	<u>Females</u>	<u>Unknown Sex</u>	<u>Total</u>
1961-62 ¹	-	-	1	1
1962-63 ¹	-	-	-	-
1963-64 ¹	-	-	3	3
1964-65 ¹	-	-	13	13
1965-66 ¹	-	-	15	15
1966-67 ¹	-	-	16	16
1967-68 ¹	-	-	19	19
1968-69 ²	-	-	-	-
1969-70 ²	-	-	-	-
1970-71 ²	-	-	-	-
1971-72 ³	18	7	0	25
1972-73 ³	14	6	0	20
1973-74 ³	11	3	1	15
1974-75 ³	10	3	1	14
1975-76 ³	4	2	2	8
1976-77 ³	10	2	1	13
1977-78 ³	10	3	0	13

¹ Data from bounty records.

² Bounty discontinued, no record of harvest.

³ Data from sealing records.

- Zero Data

Prepared by:

Ted H. Spraker, Game Biologist III

APPENDIX III
WOLVERINE 1977-1978
Subunit 15A

Harvest

Males - 1 Females - 0 Unknown - 0 Total- 1

Chronology by Month

<u>Month</u>	<u>Number</u>	<u>Percent</u>	<u>Month</u>	<u>Number</u>	<u>Percent</u>
July	--	--	January	--	--
August	--	--	February	--	--
September	--	--	March	--	--
October	--	--	April	--	--
November	1	100.0	May	--	--
December	--	--	June	--	--
			Unknown	--	--
			Total	1	100.0

<u>Method of Take</u>	<u>Number</u>	<u>Percent</u>
Ground Shooting	--	--
Trapping	1	100.0
Snaring	--	--
Other	--	--
Total	1	100.0

Prepared by:

Jerome J. Sexton, Game Biologist II

APPENDIX IV

WOLVERINE 1977-1978

Subunit 15B

Harvest

Males - 4 Females - 1 Unknown - 0 Total- 5

Chronology by Month

<u>Month</u>	<u>Number</u>	<u>Percent</u>	<u>Month</u>	<u>Number</u>	<u>Percent</u>
July	--	--	January	3	60.0
August	--	--	February	2	40.0
September	--	--	March	--	--
October	--	--	April	--	--
November	--	--	May	--	--
December	--	--	June	--	--
			Unknown	--	--
			Total	5	100.0

<u>Method of Take</u>	<u>Number</u>	<u>Percent</u>
Ground Shooting	--	--
Trapping	5	100.0
Snaring	--	--
Other	--	--
Total	5	100.0

Prepared by:

Jerome J. Sexton, Game Biologist II

APPENDIX V

WOLVERINE 1977-1978

Subunit 15C

Harvest

Males - 5 Females - 2 Unknown - 0 Total- 7

Chronology by Month

Month	Number	Percent	Month	Number	Percent
July	--	--	January	1	14.3
August	--	--	February	--	--
September	1	14.3	March	2	28.6
October	--	--	April	--	--
November	1	14.3	May	--	--
December	2	28.6	June	--	--
			Unknown	--	--
			Total	7	100.1

Method of Take	Number	Percent
Ground Shooting	1	14.3
Trapping	6	85.7
Snaring	--	--
Other	--	--
Total	7	100.0

Prepared by:

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WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT FOR REGULATORY YEAR 1977-78

Game Management Unit 16 - West Side of Cook Inlet

Seasons and Bag Limits

Hunting	Sept. 1 - March 31	One Wolverine
Trapping	Nov. 10 - March 31	No Limit

Harvest and Hunting Pressure

Forty-four wolverines, 30 males and 14 females, were reported taken in Game Management Unit 16 during the 1977-78 hunting and trapping season (Appendix I). This is considerably below the 1971-77 average annual harvest of 63 wolverines and is substantially less than the 1976-77 harvest of 78 wolverines. Four were taken in Subunit 16A and 40 were taken in Subunit 16B (Appendix II). Trapping was the most common method of take, accounting for 29 (66%) wolverines harvested. Fourteen (32%) were ground shot and one (2%) was snared.

Chronology of the harvest data shows a relatively uniform harvest from November through March. December was the highest month with 11 (25%) taken.

Composition and Productivity

No data are presently collected to determine age or productive status of the wolverine population in Unit 16.

Management Summary and Conclusions

The 1977-78 harvest of 44 wolverines in Unit 16 is the lowest on record since these data became available in 1971. Trapping accounts for the major portion of the wolverine harvest, although the percentage taken by ground shooting has been steadily increasing until this year. Data presently collected from the wolverine population in Unit 16 are inadequate to make accurate assumptions concerning its present status.

Recommendations

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

Techniques to determine population density should be developed.

Methods of age determination by tooth cementum line analysis such as those described by Myhre (1968) and Rausch and Pearson (1972) should be refined and employed as soon as practical.

Literature Cited

- Myhre, R. 1968. Jerven I. Norge. Alderonalyse, reproduksjon og ernaering, (*Gulo gulo* L.). PhD. Thesis. Univ. of Oslo. 50 pp.
- Rausch, R.A. and A.M. Pearson. 1972. Notes on the wolverine in Alaska and the Yukon Territory. Jour. Wildl. Manage., 36(2): 249-268.

PREPARED BY:

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Game Biologist III and Game Biologist II

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

Appendix I. Wolverine Harvest by Sex, Chronology and Method of Take in
Alaska's Game Management Unit 16 during the 1977-78 Season.

HARVEST

<u>AREA</u>	<u>MALES</u>	<u>FEMALES</u>	<u>UNKNOWN</u>	<u>TOTAL</u>
16A	3	1	0	4
16B	27	13	0	40
Total Unit	30	14	0	44

CHRONOLOGY BY MONTH

<u>Month</u>	<u>16A</u>	<u>16B</u>	<u>Total Unit</u>
September		2	2
October			
November	2	7	9
December		11	11
January	1	7	8
February	1	4	5
March		9	9
TOTAL	4	40	44

METHOD OF TAKE

Ground Shooting	1	13	14
Trapping	3	26	29
Snaring	1	1	1
Other			
TOTAL	4	40	44

PREPARED BY: Jack C. Didrickson and Kenton P. Taylor
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Appendix II. Wolverine Harvest from Bounty Records and Wolverine Sealing Data in Alaska's Game Management Unit 16, 1962-63 through 1968-69 and 1971-72 through 1977-78.

Regulatory Year	Harvest			
	<u>Unit Total</u>	<u>16A</u>	<u>16B</u>	<u>16 Unk.</u>
1962-63*	13	Breakdown Not Available		
1963-64*	43	Breakdown Not Available		
1964-65*	34	Breakdown Not Available		
1965-66*	58	Breakdown Not Available		
1966-67*	51	Breakdown Not Available		
1967-68*	44	Breakdown Not Available		
1968-69*	15	Breakdown Not Available		
1969-70 through 1970-71	No Data			
1971-72	51	Breakdown Not Available		
1972-73	67	5	59	3
1973-74	52	10	42	0
1974-75	45	11	34	0
1975-76	86	15	71	0
1976-77	78	6	72	0
1977-78	44	4	40	0

Average number bountied 36.9
1962-63 through 1968-69

* 1962-63 through 1968-69 data from bounty records.
1971-72 through 1977-78 data from wolverine sealing records.

PREPARED BY: Jack C. Didrickson and Kenton P. Taylor
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WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 17 - Bristol Bay

Seasons and Bag Limits

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

Hunting, Trapping and Harvest Pressure

During the 1977-78 season 49 wolverines (32 males, 14 females and 3 unknown sex) were harvested in Unit 17 (Appendix I). This is similar to the previous 5-year mean of 49.8 wolverines (Appendix II). As in past seasons, ground shooting accounted for the majority of the harvest, 28 wolverines (52.8%) with the remaining 25 animals (47.2%) harvested by traps or snares.

Composition and Productivity

No data are available.

Management Summary and Conclusions

The wolverine harvest in Unit 17 is a direct reflection of the winter climatic conditions. In cold winters with solid ice on creeks and rivers and unblown snow, trappers have excellent access to all portions of the Unit by snow machine or ski-equipped aircraft. As conditions favorable to winter travel deteriorate, trapping activity is restricted with a resultant decline in harvest.

It is doubtful if the present level of harvest has any influence on the wolverine population in Unit 17.

Recommendations

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

PREPARED BY:

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SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I
Wolverine Harvest Date 1977-78
Unit 17

Harvest

Males - 32 Females - 14 Unknown - 3 Total - 49

Chronology by Month

<u>Month</u>	<u>Number</u>	<u>Percent</u>	<u>Month</u>	<u>Number</u>	<u>Percent</u>
July	--	--	January	16	32.7
August	--	--	February	11	22.4
September	--	--	March	7	34.7
October	--	--	April	--	--
November	2	4.1	May	--	--
December	3	6.1	June	--	--
			Unknown	--	--
			Total	49	100.0

<u>Method of Take</u>	<u>Number</u>	<u>Percent</u>
Ground Shooting	6	12.3
Trapping	42	85.7
Snaring	1	2.0
Other	--	--
Total	49	100.0

PREPARED BY: Jerome J. Sexton, Game Biologist II

APPENDIX II

Historical Wolverine Harvest, Unit 17, 1962-78

<u>Year</u>	<u>Harvest</u>
1962-63 <u>1/</u>	8
1963-64 <u>1/</u>	70
1964-65 <u>1/</u>	7
1965-66 <u>1/</u>	27
1966-67 <u>1/</u>	31
1967-68 <u>1/</u>	35
1968-69 <u>1/</u>	24
1969-70 <u>2/</u>	--
1970-71 <u>2/</u>	--
1971-72 <u>3/</u>	21
1972-73 <u>3/</u>	45
1973-74 <u>3/</u>	22
1974-75 <u>3/</u>	78
1975-76 <u>3/</u>	51
1976-77 <u>3/</u>	53
1977-78 <u>3/</u>	49

1/ Data from bounty analysis

2/ Data not available

3/ Data from hide sealing program

PREPARED BY: Nicholas C. Steen, Game Biologist II

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 18 - Yukon-Kuskokwim Delta

Period covered July 1, 1977-June 30, 1978

Seasons and Bag Limits

Unit 18	Hunting	Sept. 1-Mar. 31	One Wolverine
	Trapping	Nov. 10-Mar.31	No Limit

Harvest, Trapping, and Hunting Pressure

The 1977-78 reported harvest of wolverines in Unit 18 was eight, four males and four females. This total is an increase over the 1976-1977 catch of one wolverine but is not close to the 1975-76 high of 29 animals.

Three wolverines were taken by hunters shooting from the ground and five by trapping. Three animals were harvested in January, four in February and one in December.

More animals are likely to have been harvested but not sealed as local residents often use their wolverine pelts for ruffs and trim without having the pelts sealed.

Management Summary and Conclusions

The hunting and trapping efforts of local residents are dependent on the weather and snow conditions and the harvest level may only reflect that year's environmental conditions and not population trends.

Wolverine continues to be an extremely valuable fur, and in great demand by fur buyers and local residents. Efforts should continue to encourage better compliance with the sealing regulations.

PREPARED BY:

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SUBMITTED BY:

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Regional Supervisor

LYNX, LAND OTTER AND WOLVERINE
SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 20

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Lynx

Trapping	Nov. 1 - Mar. 31	No limit
Hunting	Sept. 1 - Mar. 31	Two lynx

Otter

Trapping	Nov. 1 - Apr. 15	No limit
Hunting	No open hunting season	

Wolverine

Trapping	Nov. 1 - Mar. 31	No limit
Hunting	Sept. 1 - Mar. 31	Two wolverine

Harvest and Hunting Pressure

Lynx - A total of 371 lynx from Unit 20 were sealed, according to sealing records. The sealing program was not initiated until December 1977, but most lynx caught in the 1977-1978 season were probably sealed, as otherwise they could not be sold on the international fur market.

The reported harvest for Unit 20 was as follows:

	<u>Males</u>	<u>Females</u>	<u>Unk.</u>	<u>Total</u>
Subunit 20A	29	33	4	66
Subunit 20B	21	29	4	54
Subunit 20C	100	111	35	246
Subunit 20D	12	11	0	23
Unit 20 Total	162	184	43	389

In Subunit 20A, 33 percent of the harvest (22 lynx) was taken in the Wood River drainage, 29 percent (19 lynx) in the Dry Creek area and 21 percent (14 lynx) in the Little Delta-Delta Creek area. Much of the remaining harvest from Unit 20A occurred along the Tanana River.

In Subunit 20B, 33 percent of the catch (18 lynx) was from the Chena and Little Chena drainages; 39 percent (21 lynx) came from the Rosie Creek, Bonanza Creek and Goldstream Valley areas; 18 percent (10

lynx) was taken along the Chatanika River; and the remaining harvest occurred in scattered areas near Minto and the Elliott Highway.

In 20C, 27 percent of the harvest (67 lynx) occurred in the Birch Creek area and along the Yukon near Circle; 26 percent (62 lynx) in the Nenana, Healy, McKinley and Kantishna areas; and 38 percent (93 lynx) in the Delta, Tok and Taylor Highway areas. The remaining harvest occurred in scattered locations near Manley, Livengood and the Elliott Highway.

Otter - According to sealing records, a total of 53 land otters were harvested in Unit 20. The reported harvest was as follows:

	<u>Males</u>	<u>Females</u>	<u>Unk.</u>	<u>Total</u>
Subunit 20A	0	3	0	3
Subunit 20B	4	7	0	11
Subunit 20C	19	18	1	38
Subunit 20D	0	1	0	1
Unit 20 Total	23	29	1	53

Although otters were caught throughout the season, slightly more were taken during December and February (25% and 27% of the harvest, respectively).

Wolverine - Sealing documents indicated that a total of 115 wolverines were harvested in Unit 20 in the 1977-1978 season. The reported wolverine harvest was as follows:

	<u>Males</u>	<u>Females</u>	<u>Unk.</u>	<u>Total</u>
Subunit 20A	8	7	0	15
Subunit 20B	3	3	0	6
Subunit 20C	52	39	1	92
Subunit 20D	0	2	0	2
Unit 20 Total	63	51	1	115

The harvest occurred throughout the seasons with 25 wolverines (22% of the harvest) taken in November, 32 (28%) in December, 19 (17%) in January, 19 (17%) in February and 20 (18%) in March.

Management Summary and Recommendations

Fur prices were at an all-time high for long-haired furs such as lynx, wolverine and red fox during 1977-1978, and, although lynx and fox populations were low, there was considerable interest in trapping for these species.

A mandatory sealing program on lynx and otter pelts was initiated in December 1977. Prior to that time accurate lynx and otter harvest information was not available. Fur export reports indicated that lynx populations were near the cyclic low during the 1977-1978 season, although there may have been a slight population increase over the

previous year. Trappers reported sighting more lynx kittens and snowshoe hares than during the 1976-1977 season.

The otter harvest was not directly monitored prior to the mandatory sealing program but, based on export data, otter annual harvest on a statewide basis have remained fairly constant during the last few years. There has been only moderate interest in trapping otter as the pelts were not bringing high prices compared to the long-haired furs.

The reported wolverine harvest decreased somewhat from the 1976-1977 take of 157 wolverines. It is possible that some sealing documents were not included and that the actual harvest during the 1977-1978 season was higher than reported here. Otherwise, the reasons for a decreased harvest are unknown, since wolverine populations in Unit 20 have been fairly stable over the past 5 years.

Except for local situations, trapping is believed to have little influence on overall furbearer numbers. With high prices, however, there is considerable interest in trapping and it is conceivable that this could have some effect on the furbearer populations in the immediate vicinity of Fairbanks.

No changes in seasons or bag limits are recommended.

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Regional Management Coordinator

WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 22 - Seward Peninsula

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

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

Harvest, Trapping and Hunting Pressure

Based solely on the analysis of sealing certificates, there were 24 wolverines taken in Unit 22. State regulations have required all wolverines to be sealed since 1971. During this eight-year period, an average of 17 wolverines have been taken annually, but the harvests ranged from a low of eight (1974-75) to a high of 26 (1975-76).

The distribution of the harvest by drainage was as follows:

Unalakleet River.....	4
Shaktoolik River.....	3
Inglutalik River.....	3
Koyuk River.....	3
Fish River.....	3
Serpentine River.....	3
Kwiniuk River.....	2
Tubutulik River.....	1
Pilgrim River.....	1
Mint River.....	1
Total.....	24

The reported harvest probably does not include all the wolverines that were taken because it was a common practice in rural areas to cut up hides for "domestic use" without first having them sealed. The actual harvest for the 1977-78 season is estimated to be 30 to 35 wolverines.

The composition of the reported harvest was 15 males and nine females. Trappers accounted for 20 wolverines (83 %) and the remaining four (17 %) were taken by hunters using rifles in combination with snow machines. It was interesting to note that all the wolverines taken by ground transportation were males.

Wolverines were taken in every month during the open season, but success was highest during the month of December when 11 wolverines (46 % of the harvest) were taken. Four wolverines (17 %) were taken in each of the months of November, January and March, and only one (3 %) animal was killed during February.

Wolverines were taken in every month during the open season, but success was highest during the month of December when 11 wolverines (46 % of the harvest) were taken. Four wolverines (17 %) were taken in each of the months of November, January and March, and only one (3 %) animal was killed during February.

Seasonal Distribution, Migration and Concentration

Currently there is limited information on the population status of wolverines in Unit 22. The animal's small size and solitary habits combined with relatively low abundance have made it difficult to conduct accurate ground or aerial surveys, but knowledge of trends in wolverine abundance and geographical distribution has been obtained from incidental observations. In general, the wolverine population appears to be stable in Unit 22. However, aerial observations under ideal tracking conditions indicate relatively high numbers of wolverines in remote areas, and relatively low numbers near villages.

Aerial observations in conjunction with sealing records indicate that the larger river drainages of the Seward Peninsula provide the most important habitat. Such areas include the Kuzitrin, Koyuk, Unalakleet, Fish and Serpentine Rivers.

Management Summary and Recommendations

The primary management effort to date has been to obtain accurate harvest data. Even though this has been successful to some extent, considerable improvement is needed. Employing sealing agents in villages improved the program considerably, but satisfactory compliance with the regulations will probably be attained only by increasing public contact in villages and emphasizing the enforcement and management benefits of the sealing program.

Trappers and hunters have taken approximately the same number of wolverines year after year within a 30 mile radius of villages. Near population centers wolverine harvests probably exceeded the level of maximum sustained yield. However, areas of high density and/or high reproduction appeared to act as reservoirs and serve as a source for replacing harvested animals. Wolverine density in remote areas appears to be stable or increasing.

The price of pelts doubled during the last four years, and it became profitable for some individuals to use aircraft as a means of hunting wolverines. During ideal tracking conditions this method can be very efficient on the open tundra, and if this practice becomes widespread, it may be necessary to implement restrictive regulations. At the present time no changes in seasons and bag limits are recommended.

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WOLVERINE
SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 23 - Kotzebue Sound

Period Covered: July 1, 1977 - June 30, 1978

Season and Bag Limits

Hunting	September 1 - March 31	One Wolverine
Trapping	November 1 - March 31	No Limit

Harvest, Trapping and Hunting Pressure

Based on the sealing data, the 1977-1978 reported harvest in Unit 23 was 75 wolverines, 50 males and 25 females. The 2:1 sex ratio was consistent with the harvest from previous years. It is believed that the wolverine sealing program is still not entirely accurate due to the immediate local use of this fur. There has been an increase in the harvest during the last several seasons with the 1977-1978 harvest being a 35 percent increase over the previous high which occurred during the 1972-1973 season.

The chronology of this season's harvest was as follows: September and October, one percent each; November, nine percent; December, 11 percent; January, 39 percent; February, 23 percent; and March, 16 percent. Trapping accounted for 65 percent while trappers and hunters took 35 percent by shooting. The majority of wolverines were taken from the Selawik River area (20 %), Squirrel River area (12%), and middle Kobuk River area (36 %).

Management Summary and Recommendations

A student of the University of Alaska, conducting research on the natural history of wolverines in the western arctic, paid \$20.00 per carcass. This bonus probably assisted in the sealing of a higher proportion of the actual harvest. Hides that would not have been sealed because of local processing were sealed because of the additional \$20.00 bonus.

Hunting pressure appeared no any greater this year than in previous years. Snow conditions prevented much snow machine or ski airplane travel until February, again, reducing potential trapping pressure.

No changes in season or bag limits are recommended.

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LYNX, LAND OTTER AND WOLVERINE
SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 25

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Lynx

Trapping	Nov. 1 - Mar. 31	No limit
Hunting	Sept. 1 - Mar. 31	Two lynx

Otter

Trapping	Nov. 1 - Apr. 15	No limit
Hunting	No open hunting season	

Wolverine

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

Harvest and Trapping Pressure

Lynx - Sealing documents indicate that 364 lynx from Unit 25 were sealed. Sexes recorded on the sealing forms indicated that the harvest was comprised of 188 males, 150 females and 26 lynx of undetermined sex. This may be only a guess as it is difficult to determine the sex of a lynx from the pelt alone.

One hundred and fifteen lynx were taken in the Black River drainage. This is almost 32 percent of the total catch in Unit 25. The drainages of the Porcupine River and its tributaries and of the Yukon River upstream from Fort Yukon produced roughly 60 percent of the lynx sealed in Unit 25.

The harvest of lynx occurred throughout the year with 15 percent taken in November, 26 percent in December, 17 percent in January, 19 percent in February and 23 percent in March.

Land Otter - Sealing forms showed that only two otters from Unit 25 were presented for sealing during the 1977-1978 season. It is possible that additional otters were taken but not sealed.

Wolverine - Trappers in Unit 25 sealed a total of 79 wolverines. The recorded harvest consisted of 41 males, 35 females and three wolverines of undetermined sex.

The wolverine harvest occurred throughout the season with 18 percent taken in November, 23 percent in December, 19 percent in January, 23 percent in February and 13 percent in March. There were two wolverines (2.5% of the harvest) taken by hunters in October. The date of take was not determined for two other wolverines.

Management Summary and Recommendations

Trappers received record high prices for long-haired furs such as fox, lynx and wolverine during 1977-1978 and there was considerable interest in trapping for these species.

A mandatory sealing program on lynx and otter pelts was initiated in December 1977. Prior to that time accurate lynx and otter harvest information was not available, but trapper questionnaires indicated that the lynx populations, although near the cyclic low, were starting to increase in many parts of Unit 25. Trappers also reported more snowshoe hares in the area and said that they saw more lynx kitten tracks.

The traditionally low otter harvest in Unit 25 seems to be more indicative of the low interest in trapping this species rather than a scarcity of otters. The southern half of Unit 25 has good aquatic habitat and should support fair otter populations. It is possible that most otter pelts taken during 1977-1978 were not sealed, but were used at home for garments and trim rather than being sold on the fur market.

The Unit 25 wolverine harvest of 79 animals during 1977-1978 was little changed from the harvest of 82 reported for 1976-1977. The take of wolverine from Unit 25 has been fairly consistent for several years and it is believed that wolverine were fairly abundant and productive in the unit.

Except for local situations, trapping is thought to have little influence on overall furbearer abundance. Lynx numbers are expected to increase in Unit 25 over the next several years and with the current high prices for long-haired furs there will continue to be considerable interest in trapping for lynx and wolverine.

No changes in seasons or bag limits are recommended.

PREPARED BY:

SUBMITTED BY:

Jeannette R. Ernest
Game Biologist II

Oliver E. Burris
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WOLVERINE

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 26 - Arctic Slope

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Hunting	Sept. 1-Mar. 31	One wolverine
Trapping	Nov. 1-Apr. 15	No limit

Harvest, Hunting and Trapping Pressure

During the 1977-78 regulatory year, 12 wolverines were killed in Unit 26 and presented for sealing. Twenty-two carcasses from Unit 26 were purchased for an ongoing study of wolverines by the University of Alaska. These data do not represent the total kill for the Unit, as many skins are not being presented for sealing. Actual kill is estimated to be two to three times the number presented for sealing.

Population Trends, Composition and Productivity

Few data are available for estimating population size. Radio-telemetry records of animals radio-collared in the foothills habitat of the upper Utukok River area, indicates that the summer range of a female was about 100 km² (39 mi²) and the ranges of two males were about 460 km² (178 mi²) and 700 km² (270 mi²) respectively. Winter ranges of these animals are unknown but may be very different from the summer ranges. Also, ranges on other terrain such as on the coastal plain might be very different and no overall estimate of density (or population size) can be made until more information is obtained.

Carcasses from the Arctic Slope were fat and in good condition.

Management Summary and Recommendations

There is very high local utilization of wolverine skins for parka ruffs and other garment trim, but few of these skins are submitted for sealing. Thus, the current sealing program grossly underestimates actual wolverine harvest in Unit 26. However, the current harvest level does not appear to be detrimental to the wolverine population. No changes in season or bag limit are recommended.

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UPLAND GAME ABUNDANCE
SURVEY-INVENTORY PROGRESS REPORT

Statewide

Period Covered: July 1, 1977 - June 30, 1978

Techniques

The standard small game abundance questionnaire was mailed in mid-October 1977 to 275 people throughout the state, and by the end of January 1978 approximately 150 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 1978. Replies to the questionnaire are summarized in Appendix A.

Findings

Grouse

Replies to the 1977 questionnaire indicated that grouse populations had increased to moderate levels in most areas of the state, with the exception of the Brooks Range and the Gulf region where grouse populations were reported to be moderately low. Cooperators in Southeast reported moderately high grouse populations in that area. The only region reporting a decline in the number of grouse was the Brooks Range.

Ptarmigan

Ptarmigan populations were reported at moderate levels in the Interior, moderately low in the Gulf region, Southeast and Brooks Range, but moderately high in the Alaska Peninsula and the western portion of the State. Numbers of ptarmigan had increased in most areas of the State compared to 1976 population levels. Exceptions were the Brooks Range, where abundance had decreased, and the Alaska Peninsula, where ptarmigan numbers remained the same.

Hare

Snowshoe hare populations were reported to remain at low levels in most areas except for western Alaska where a high snowshoe hare population was reported. Cooperators reported increases in hare populations as compared to populations in 1976 everywhere but on the Alaska Peninsula. On the Peninsula a moderate decline in numbers of hares was reported.

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

Area and Species	Present Abundance				Comparison with 1976			
	High	Mod.	Low	Index	More	Same	Fewer	Index
Brooks Range - 6								
Grouse (general)	0	0	3	1.0	0	0	1	1.0
Spruce Grouse	0	0	2	1.0	0	1	1	3.0
Ptarmigan	0	2	2	3.0	0	2	2	3.0
Rock Ptarmigan	0	3	1	4.0	0	3	1	4.0
Willow Ptarmigan	0	0	1	1.0	0	1	0	5.0
Snowshoe Hare	0	0	5	1.0	1	3	1	5.0
Western - 14								
Ruffed Grouse	1	1	0	7.0	2	0	0	9.0
Spruce Grouse	0	1	1	3.0	1	1	0	7.0
Ptarmigan (general)	4	3	4	5.0	4	4	1	6.3
Willow Ptarmigan	4	1	0	8.2	3	0	1	7.0
Snowshoe Hare	6	2	2	6.6	4	3	0	7.3
Alaska Peninsula - 19								
Ptarmigan (general)	2	5	1	7.8	1	6	1	5.0
Willow Ptarmigan	2	7	2	5.0	1	5	5	3.5
Snowshoe Hare	0	4	4	3.0	0	5	3	3.5
Kodiak - 2								
Ptarmigan (general)	0	1	1	3.0	0	2	0	5.0
Snowshoe Hare	0	0	2	1.0	0	2	0	5.0
Southeastern - 15								
Grouse (general)	4	2	1	6.7	5	2	0	7.9
Blue Grouse	6	5	3	5.9	6	6	2	6.1
Ptarmigan (general)	1	0	5	2.3	2	2	2	5.0
Snowshoe Hare	0	2	3	2.6	2	3	0	6.6
Gulf - 37								
Grouse (general)	1	12	11	3.3	12	12	0	7.0
Ruffed Grouse	0	1	6	1.6	3	5	0	6.5
Spruce Grouse	2	12	14	3.3	15	14	1	5.9
Sharptail Grouse	0	0	6	1.0	3	3	0	7.0
Ptarmigan (general)	0	13	10	3.3	7	15	2	5.8
Rock Ptarmigan	0	4	5	2.8	2	7	1	5.4
Willow Ptarmigan	0	14	7	3.7	5	13	3	3.5
Whitetail Ptarmigan	1	0	4	2.6	1	2	2	4.2
Snowshoe Hare	0	4	26	1.5	11	14	6	5.6

Area and Species	Present Abundance				Comparison with 1976			
	High	Mod.	Low	Index	More	Same	Fewer	Index
Interior - 57								
Grouse (general)	10	26	11	4.9	36	10	3	7.7
Ruffed Grouse	7	23	11	4.6	30	7	3	7.7
Spruce Grouse	10	25	12	4.8	33	12	2	7.6
Sharptail Grouse	7	16	13	4.3	20	8	5	6.8
Ptarmigan (general)	5	23	8	4.7	17	15	2	6.8
Rock Ptarmigan	3	13	6	4.5	12	8	2	6.8
Willow Ptarmigan	2	14	3	4.8	10	8	1	6.9
Whitetail Ptarmigan	0	2	2	3.0	2	1	1	6.0
Snowshoe Hare	5	11	34	2.7	33	8	3	7.7
Statewide								
Grouse (general)	15	40	26	4.5	53	24	4	7.4
Ruffed Grouse	8	25	17	4.3	35	12	3	7.6
Spruce Grouse	12	28	29	4.0	49	28	4	7.2
Sharptail Grouse	7	16	19	3.9	23	11	5	6.8
Blue Grouse	6	5	3	5.9	6	6	2	6.1
Ptarmigan (general)	12	47	31	4.2	31	46	10	6.0
Rock Ptarmigan	5	21	13	4.2	14	20	5	5.9
Willow Ptarmigan	8	36	13	4.6	19	26	11	5.6
Whitetail Ptarmigan	1	2	7	2.6	3	3	5	4.2
Snowshoe Hare	11	23	76	2.6	51	38	13	6.5

SMALL GAME

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 18 - Yukon-Kuskokwim Delta

Period Covered July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Unit 18	Arctic Hare	No closed season	No limit
	Snowshoe Hare	No closed season	No limit
	Rock Ptarmigan	Aug. 10-Apr. 30	20 a day/limit of 40
	Willow Ptarmigan	Aug. 10-Apr. 30	20 a day/limit of 40
	Spruce Grouse	Aug. 10-Apr. 30	15 a day/limit of 30
	Ruffed Grouse	Aug. 10-Apr. 30	15 a day/limit of 30

Seasonal Distributions and Concentrations

ARCTIC (TUNDRA) HARE

Tundra hares occur along a 60-mile band on the coast of Unit 18 and are locally abundant in the willow and alder patches along some of the coastal rivers.

The Bethel area appears to be a transition zone between Tundra Hare and Snowshoe Hare habitat. Interactions between Tundra Hare and Arctic Foxes have been observed by Fish and Wildlife personnel during the summers on the Kashunuk River Delta. In all cases the Arctic Foxes have run from the Tundra hares suggesting that Arctic Foxes are not a major predator during the summer months. Red Foxes are very rarely seen during the summer along the coast, however they are fairly abundant during the winter months and may be a significant predator of the Tundra hare during this time. Predation and the habitat available during early February and March appear to be the limiting factors affecting this population.

Coastal villagers routinely hunt Tundra hares at night using their snow machine headlights primarily in March and April.

SNOWSHOE HARE

Snowshoe hares occur throughout most of Unit 18. They are concentrated in the willow and alder patches along most of the waterways and are more abundant upriver on both the Kuskokwim and Yukon Rivers. Snowshoe hare populations appear to be slightly greater than last year and may be on the upswing in this area.

Local residents often stage drives twice a year which account for most of the hunting. Residents of the village of Tuntutuliak are particularly regular about this activity and did fairly well this year. Harvest numbers are not available at this time.

ROCK PTARMIGAN

Rock Ptarmigan inhabit almost all of the rock outcrops found in Unit 18. They have been seen or taken on Nelson Island, Nunivak Island, in the Chevak mud volcanoes, the mountains north of Scammon Bay, headwaters of the Eek River and the mountains around Goodnews lake. These birds do not play an important role in the local diet because the populations are so localized.

There appears to be little fluctuation in the population at this time.

WILLOW PTARMIGAN

Unit 18 supports a healthy population of Willow Ptarmigan. They are distributed throughout the Unit in large numbers. Primarily villagers from Akiak down River on the Kuskokwim and Marshall down river on the Yukon actively hunt Willow Ptarmigan in the spring when they are concentrated in the willows along the major drainages. Willow Ptarmigan populations appear to have remained stable in this Unit for the last three years. The existing liberal bag limit appears suitable at this time.

SPRUCE GROUSE

Spruce trees radiate onto the tundra as far as Bethel on the Kuskokwim River and Marshall on the Yukon River. The distribution of Spruce Grouse follows a similar pattern. Spruce Grouse are not abundant in Unit 18 although they are common along the eastern border of the Unit.

RUFFED GROUSE

Little is known about the distribution of these birds in Unit 18. A few Ruffed Grouse have been taken across the river from Bethel in early October. These birds probably are not present in significant enough quantities to be very important in Unit 18.

Management Summary and Recommendations

No changes at this time.

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PTARMIGAN

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 20 - Fairbanks, Central Tanana Valley

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Unit 20	Aug. 10 - Apr. 30	20 per day 40 in possession
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Harvest and Hunting Pressure

Ptarmigan harvests were monitored at Eagle Summit by David M. Johnson on April 11, 16, and 19, 1978, and 35 ptarmigan were known to have been taken. Johnson concluded that most spring hunting in this area occurred on weekends after the road had been opened, but some hunting occurred prior to the road opening. In both cases hunters frequently used snow machines. During each weekend in April, four to five parties probably hunted the area. From this information we estimate that 50 to 100 ptarmigan were harvested at Eagle Summit during the spring of 1978.

The impact of this harvest on the subsequent spring density depends on a number of factors (McGowan 1975). While the harvest had little influence on ptarmigan abundance over broad areas, it certainly affected local breeding numbers. If no harvest had occurred at Eagle Summit during April, spring abundance would have been at least 40 percent greater than reported below.

Abundance, Composition and Productivity

The annual census of breeding rock ptarmigan on the 15-square-mile (39km²) study area at Eagle Summit was conducted during the period May 16-19, 1978. These counts revealed only 29 males on the study area. This breeding population was down from that of 1977 (36 males), but essentially the same as that of 1976 (30 males). The 1978 breeding population was the lowest on record for the Eagle Summit area.

Management Summary and Recommendations

Ptarmigan populations are known to undergo marked fluctuations in abundance throughout interior Alaska. Spring counts of territorial males peaked in 1968 (105 males), then declined steadily to 61 males in 1974. Since 1974 spring abundance has remained low and ranged between 29 and 36 males. The previous "cyclic" low, 66 males in 1966, persisted only during one spring. Reports from hunters and biologists indicated that during fall and winter (1977-78) ptarmigan were moderately abundant

in the Tanana drainage. Similarly, results from the Small Game Abundance Questionnaire seem to indicate that ptarmigan were moderately abundant during this period and that numbers were higher than during the previous year. This information suggests that the Eagle Summit breeding population may not be in phase with those elsewhere in the Tanana Hills. While spring hunting, under certain conditions, has been shown to directly reduce rock ptarmigan breeding populations, it cannot be definitely identified as the primary factor responsible for the sustained low population at Eagle Summit. Nevertheless, the new regulation that closes the season one month earlier during the spring along the Steese Highway is well justified in view of the extremely low breeding densities recorded for the last 4 years.

It is recommended that the Department develop a program to monitor spring and fall hunting pressure and success at the more popular ptarmigan hunting areas in Units 20 and 12. Such areas include Eagle Summit, Mt. Fairplay, Isabel and Broad Passes, and Ester, Murphy, and Wickersham Domes.

Literature Cited

McGowan, J. D. 1975. Effect of autumn and spring hunting on ptarmigan population trends. J. Wildl. Manage. 39(3):491-495.

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SPRUCE GROUSE

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 20D - Central Tanana Valley

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limit

Unit 20	Aug. 10-20	15 per day 30 in possession
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Harvest and Hunting Pressure

No formal systems were in operation to determine the harvest or hunting pressure in Unit 20 during the 1977-78 season. Nevertheless, part-time Central resident Bert Sharp reported that during the period September 26-October 2, 1977, 10 parties took 164 spruce grouse along the Steese Highway between Mile 128 and 155. This is an average of 16.4 grouse per party per day.

Abundance, Composition and Productivity

Spruce grouse road counts were conducted by Bert Sharp and J. Richardson along the standard Steese Highway route during the period September 26-October 2, 1977. Results of the 1977 counts are summarized below:

Location	Number of valid counts	Range in number grouse observed per count	Average number of grouse observed per mile driven
Steese Highway (Central airstrip to Mile 147)	4	23-27	1.50

During the 1977 survey an average of 29 grouse were observed along the standard 19-mile route each morning. Four counts were also made along the Steese Highway between Mile 147 and 155. These counts revealed an average of 15.0 grouse per morning or 1.9 grouse per mile driven. The 1.5 grouse per mile average (1977) suggests that a marked increase in abundance had occurred since 1976 (0.8 grouse per mile driven). Spruce grouse abundance has increased annually since the low (0.3 grouse per mile driven) in 1974, and abundance was higher in 1977 than any year on record, with the exception of 1966 when 2.1 grouse were observed per mile.

Management Summary and Recommendations

Spruce grouse populations are known to undergo fluctuations in abundance throughout interior Alaska. Currently, spruce and other grouse appear moderately abundant and markedly more numerous than in 1976. This information is in agreement with findings from the annual Small Game Abundance Questionnaire. While fall hunting has little influence on population fluctuations over broad geographical areas, a local abundance may be affected when heavy hunting pressure is exerted on restricted areas. Hunting pressure and success documented for 1977 along the upper Steese Highway is not considered excessive, but it is recommended that a system be initiated to more closely monitor fall hunting on this and other popular grouse hunting areas. Such areas include the Elliott Highway in the vicinity of Manley, various roads and trails in the Delta area, and certain sections of Chena Hot Springs Road.

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SMALL GAME

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 23 - Kotzebue Sound

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

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

Harvest and Hunting Pressure

No systems were in operation to determine harvest or hunting pressure in Unit 23 during this reporting period.

Abundance

Grouse are present but because of the scarcity of habitat, birds are not in large enough numbers to adequately determine changes in densities.

Willow ptarmigan densities were high as observed during fall caribou and moose surveys. The size of flocks observed were not enumerated but I would estimate the minimum size at 200 birds per flock.

Snowshoe hare densities were high on the lower drainages of the Noatak, Kobuk, and Selawik Rivers.

Arctic hares are present but no sighting were recorded during this report period.

Recommendations

No changes in current regulations.

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APPENDIX
MOOSE

SURVEY-INVENTORY PROGRESS REPORT

FISCAL YEAR 1977-1978

Game Management Unit 1D - Haines

Seasons and Bag Limits

Unit 1D	Sept. 15-Sept. 30	One bull
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Harvest and Hunting Pressure

Harvest ticket returns for the 1977 Haines moose hunt show a harvest of 31 bulls (Appendix I). The bulls only season saw 202 hunters attempt taking a moose with a success ratio of 15.3 percent. Of the successful hunters, 26 were Alaska residents, one was a non-resident, and four failed to list residence. Ninety-two percent of the successful residents were from Haines, four percent from Juneau and four percent from Wrangell. All of the unsuccessful hunters with known residence were Alaskans with 87 percent from Haines and Skagway, nine percent from the Juneau area, three percent from other Southeastern towns, and 0.6 percent from other Alaska towns. Eighteen percent of the unsuccessful hunters failed to list residence.

A check station was not operated in Haines in 1977, the first time since the late sixties. However, over the past five years where hunter reports are compared to check station data pertaining to hunter numbers, an average of 22 percent more hunters participated than report cards indicated. Using this figure for 1977 increases hunter numbers to 246. This estimate is still far below the previous five year average of 492 hunters and a decrease of 54 percent from 1976. Variability of data precludes using a similar technique in revising the kill figure.

Composition and Productivity

An aerial survey was flown in the Haines area in 1977. The survey showed a count of 30 bulls, 186 cows, and 71 calves (Appendix II & III).

Management Summary and Conclusions

The 1977 moose hunt in Haines was designated a bulls only season due to strong public concern for the herd's status. Some people believed either sex hunting was reducing the population to problem levels. Comparisons of harvest data and post-harvest survey tallies show 1977 levels of adult animals at or above normal levels. Calf numbers were the highest in six years and probably results from the effects of two successive mild winters or improved cow health and productivity. The bulls only hunt apparently had a major effect on reducing hunter effort.

Recommendations

Many people in the Haines area depend on moose for a food source and feel strongly about management of the herd. At this time public sentiment is opposed to an either sex hunt. Also, the population status data indicate somewhat lower productivity than in the mid- to late sixties. A bulls only season is recommended for the 1978 season.

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APPENDIX I

Unit 1D

Moose Harvest and Count Data

Yr	Season	<u>HARVEST</u>		Est. Hunter Numbers	<u>COUNTS</u>			
		<u>Bulls</u> Harvest	<u>Cows</u> Harvest		Bulls	Cows	Calves	
69 ¹	Sep.1-Oct.15	62	Sep.1-8	41		23	91	31
70	Sep.1-Oct.15	48	Sep.1-9	48				
71	Sep.1-Oct.15	72	Sep.1-7	43		27	170	34
72	Sep.1-Oct.15	46	Sep.1-10	45	430	33	178	56
73	Sep.1-Oct.15	69	Sep.1-9	46	663	30	189	45
74 ²	Sep.15-19	22	Sep.15-19	42	454	30	135	41
75 ³	Sep.15-19	28	None		374	Both sexes-151 ⁴		30
76	Sep.15-30	40	Sep.15&16	18	537			
77	Sep.15-30	31	None		246	30	186	71

¹ Either sex seasons since 1964 except 1975 and 1977.

² Maximum of 50 moose to be taken.

³ Maximum of 25 bulls to be taken.

⁴ Survey late in season and not complete.

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APPENDIX II. Moose Sex and Age Composition - Haines - Unit 1D

Date	Large MM	Small MM	Total MM	FF W/O	FF W/1	FF W/2	Total FF	Total Adults	Lone Calves	Total Calves	Unid.Sex & Age	Total Sample	Count Time (Hrs)
12/18/62	8		8				134	142		39		181	
11/4/63										36	157	193	
11/20/66	24	22	46	60	61	17	138	184	0	95	16	295	2.1
11/30-12/1/67	28	22	50	106	61	6	173	223	2	75	0	298	2.8
12/6-7/68	24	25	49	191	57	5	253	302	5	72	1	374	4.4
11/22/69	23	0	23	63	25	3	91	114	0	31	0	145	2.1
11/9-10-12-19/71	12	15	27	139	28	3	170	197	0	34	0	231	4.9
11/27-29/72	25	8	33	128	45	5	178	211	1	56	0	267	6.4
12/4-5/75	21	9	30	150	35	4	189	219	2	45	0	264	4.4
12/13-14-15/73	21	9	30	150	35	4	189	219	2	45	0	264	4.4
12/3-4/74	12	18	30	97	35	3	135	165	0	41	0	206	6.2
12/20-21/75								151	0	30	0	181	4.2
11/17/77	13	17	30	121	59	6	186	216	0	71	0	287	5.75

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APPENDIX III. Moose Sex and Age Ratios - Haines - Unit 1D

Year	Total MM per 100 FF	Small MM per 100 FF	Sm. MM per 100 Lg. MM	Sm. MM % in Herd	Sm. MM per 100 MM Calves	Calves per 100 FF	Twins per 100 FF w/Calf	Calf % in Herd	Animals per Hour	Total Sample
1962	5.9					29.1		21.5		181
1963								18.7		193
1964*										
1965	41.2	15.5	60.5	6.6	63.0	49.3	19.2	20.9	116	349
1966	33.3	15.9	91.7	7.5	46.3	68.8	21.8	32.2	140	295
1967	28.9	12.7	78.6	7.4	58.7	43.4	8.9	25.2	106	298
1968	19.4	9.9	104.2	6.7	69.4	28.5	8.1	19.2	85	374
1969	25.3	0.0	0.0	0.0	0.0	34.1	10.7	21.4	69	145
1970*										
1971	15.9	8.8	125.0	6.5	88.2	20.0	9.7	14.7	47	231
1972	18.5	4.5	32.0	3.0	28.6	31.5	10.0	20.9	42	267
1973	15.9	4.8	42.9	4.7	40.0	23.8	10.3	17.0	60	264
1974	22.2	13.3	150.0	8.7	87.8	30.4	7.9	19.9	33	206
1975								16.6	43	181
1976**										
1977	16.1	9.1	130.8	5.9	47.9	38.2	9.2	24.7	49.9	287

* Not sufficient data

** No data

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