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

FURBEARERS



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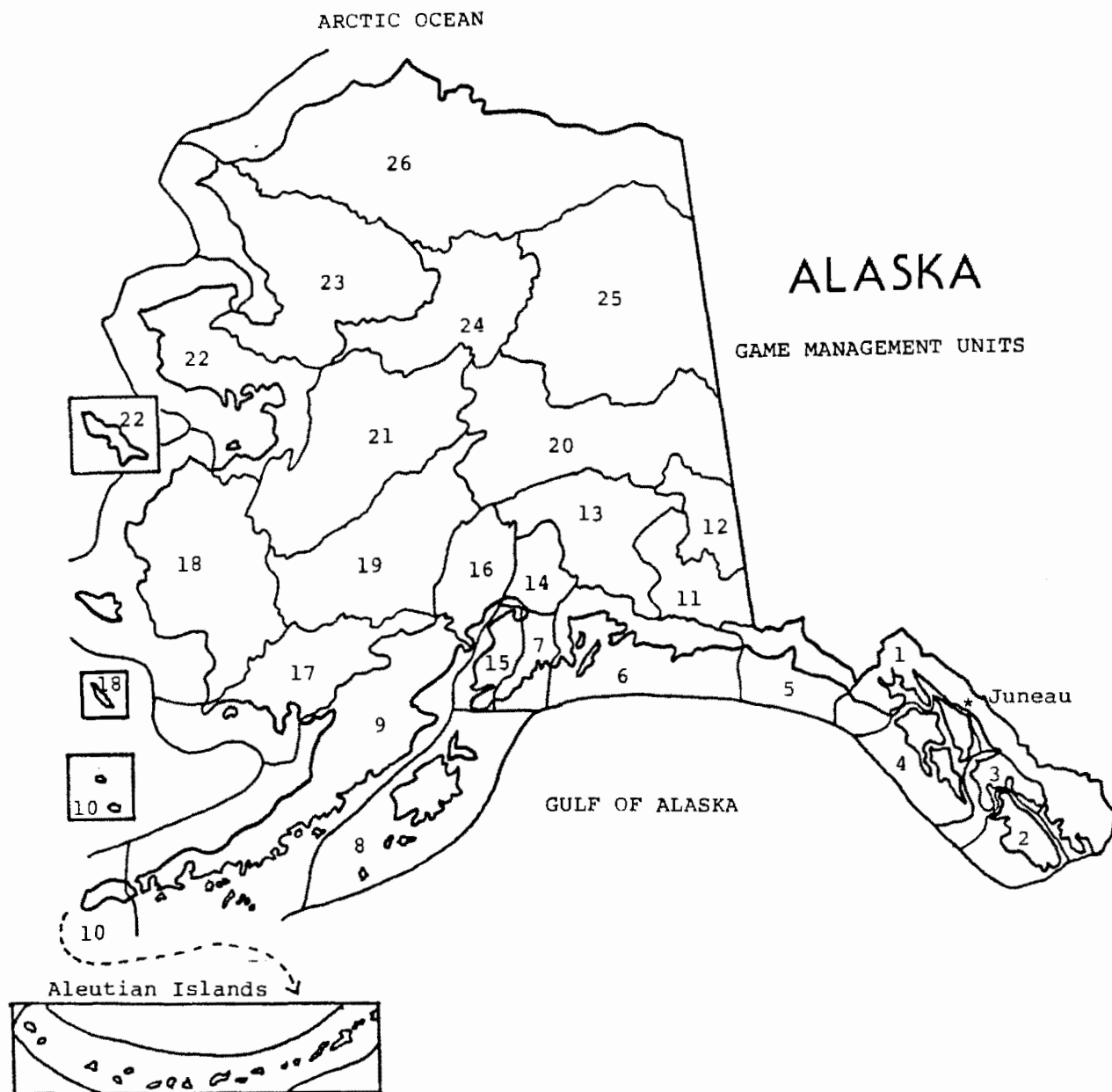
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STATEWIDE HARVEST SUMMARY

In Alaska, 19 species of mammals are classified as furbearers by the Board of Game; however, only 13 of these species are normally harvested for entry into the fur trade. No harvest information is gathered for the arctic ground squirrels, flying squirrels, Alaskan marmots, hoary marmots, least weasels, or woodchucks.

Estimates of Alaska's annual statewide furbearer harvests are derived from 3 sources: (1) furbearer sealing certificates, (2) fur export reports, and (3) reports of acquisition of furs. Since furs kept for personal use often are not reported, actual harvests exceed those estimated from these data sources. Of the 3 sources, pelt sealing gives us the most accurate and complete information. Five species (beaver, lynx, otter, wolf, and wolverine) must be sealed statewide and marten must be sealed in Game Management Units (GMU's) 1 through 5 (i.e., Southeast Alaska). However, sealing data underestimate harvest in some areas of Alaska, especially in rural areas lacking a department office or sealing agent. Rural people commonly home-dress and utilize beavers, wolves, and wolverines without bothering to get them sealed.

The number of animals sealed for each GMU is presented in Table 1. The numbers in this table may not agree with the numbers reported for specific GMU's in reports that follow this summary. There are several reasons why a difference might occur: (1) pelts may be sealed late, (2) certificates may arrive late, (3) the GMU/subunit designation may have been incorrect for the specific location of harvest shown, then corrected at a later date, etc.

The total number of animals sealed statewide in 1986-87 (21,629) was 24% higher than the total number sealed in 1985-86 (16,415). This increase can be attributed to the increase in the number of beavers, otters, and wolverines that were sealed. The number of beavers sealed in 1986-87 rose 33%, while the number of land otters, wolves, and wolverines sealed increased by 18%, 18%, and 17%, respectively, from those in 1985-86. The number of lynx sealed declined by 18% from that in 1985-86, representing the fourth season of decline following the peak season of 1982-83 when 5,673 lynx were sealed. The natural cyclic decline of lynx that follows the decline in abundance of their principal prey, the snowshoe hare, as well as shortened or closed seasons for lynx in some GMU's account for the overall downward trend in lynx harvest since the 1982-83 season. Seasonal sealing data for wolves are presented in a separate survey-inventory activities report.

Data from fur export and acquisition-of-furs reports are summarized in Table 2. Compared with the previous season,

these data show a marked increase in the harvest of beavers and marten and a marked decline in that of muskrats. However, the total number of pelts sold or exported (column 5, table 2) in 1986-87 (64,030) was similar to the number for the previous season (64,987).

In 1985-86 dealer acquisitions were less than dealer exports for all species but one (i.e., muskrat). The ratio of dealer acquisition to dealer export ranged from a low of 0.2:1 (red squirrel) to a high of slightly less than 1:1 (mink); the exception was muskrat with a ratio of 2.8:1. However, this past season (1986-87), dealer acquisition exceeded dealer exports for 6 species and acquisitions were less than exports for 7 species (Table 2, cols 1 and 2). As a general rule, one could expect the ratio of dealer acquisitions to dealer exports to be approximately 1:1, if dealers export in the same season all the pelts they purchased. If the ratio is greater than 1:1, this could indicate dealers are holding furs over to another season or that they have found intrastate markets. If the ratio is less than 1:1, it could indicate that dealers have been exporting pelts acquired during more than 1 season or they have not been reporting all of their purchases. Without more information, it is not possible to distinguish among the alternative explanations.

Statewide beaver populations continue to remain relatively high, even though the harvest has increased substantially. Coyotes appear to be increasing in some areas, especially in the east-central Interior region. Low pelt prices tend to discourage trappers from making sets to catch coyotes. Lynx populations are generally low throughout most of the state, but increases in snowshoe hares and signs of kittens in several areas indicate the populations in these areas have the potential for increasing. Wolverine harvests show a declining trend in Southcentral Alaska, and this could indicate a decline in population, a decline in trapper effort, or both. Because lynx populations are low, some trappers have reduced the number or temporarily eliminated the use of cubby sets for large carnivores. An overall reduction in the number of these sets could result in lower harvests of species, such as wolverine, that are commonly caught in them. However, we lack the data necessary to evaluate this possibility. No marked changes appear to be taking place in populations of other species.

Herbert R. Melchior
Statewide Furbearer Coordinator

Table 1. Number of beaver, lynx, otter (land), and wolverine sealed statewide during the 1986-87 regulatory year.

Unit	Species			
	Beaver	Lynx	Otter	Wolverine
1	282	1	115	35
2	411	--	62	--
3	67	--	45	2
4	5	--	166	--
5	8	--	2	2
6	103	7	182	16
7	79	23	7	11
8	98	--	111	--
9	604	51	164	70
10	--	--	--	--
11	46	16	5	9
12	55	80	4	32
13	335	9	36	42
14	355	6	36	7
15	132	52	31	10
16	649	6	66	36
17	2,818	13	188	40
18	4,153	11	390	8
19	1,634	26	72	52
20	1,901	221	71	58
21	1,842	64	64	30
22	9	18	5	27
23	56	17	12	62
24	920	127	22	20
25	528	487	13	58
26	--	--	--	6
TOTALS	17,090	1,235	1,869	633

Table 2. Reported fur dealer acquisitions from trappers, dealer exports, trapper exports, and number sealed for 13 species of furbearers, 1986-87.

Species	(1) Dealer Acquisitions	(2) Dealer Exports	(3) Trapper Exports	(4) Total Exports	(5) Col. (1) + Col. (3)	(6) Number Sealed
Beaver	12,082	11,615	2,983	14,598	15,065	17,090
Coyote	135	194	80	274	215	
Lynx	885	773	216	989	1,101	1,235
Marten	20,093	18,157	7,314	25,471	27,407	
Mink	2,778	2,614	2,243	4,857	5,021	
Muskrat	7,061	10,508	1,670	12,178	8,731	
Otter(land)	703	816	512	1,328	1,215	1,869
Red Fox	2,922	3,924	933	4,857	3,855	
Red squirrel	152	14	104	118	256	
Weasel (Ermine)	274	243	163	406	437	
White (Arctic) fox	71	291	94	385	164	
Wolf	143	293	155	448	298	802
Wolverine	179	239	86	325	265	633
Totals	47,478	49,681	16,553	66,234	64,030	21,629

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS: 1A AND 2

GEOGRAPHIC DESCRIPTION: Ketchikan and Prince of Wales
Island

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Beaver

The beaver harvests in Subunit 1A and Unit 2 were 52 and 411, respectively (Table 1). The harvest of this furbearer has remained fairly constant in Subunit 1A for many years; however, in Unit 2 the increasing road access and rising human populations have led to a substantial increase in the harvest (Table 2). Most of the harvest came from the roaded areas of Prince of Wales Island (Table 3). Since the beaver harvest depends greatly on the number of serious trappers afield, it tends to fluctuate widely from year to year; e.g., during this reporting period, 1 trapper accounted for 222 of the 411 beavers in Unit 2. Also, beavers appear to do well during the early successional stages of a forest; therefore, populations are currently higher than those in past years when less area had been logged. This trend will change as logged areas regrow and the understory vegetation disappears. No changes in seasons or bag limits are recommended.

Marten and Mink

The marten harvest in Subunit 1A was 127, down from 156 last year. Almost the entire harvest occurred in saltwater beach areas. Since the sealing program was started in 1984-85, the harvest in Unit 2 has declined steadily from 1039 to 301 marten in 1986-87 (Table 2). Reasons for the decline are unclear, but trapper contacts have indicated it is primarily due to less trapper effort. This conclusion is supported by sealing records from the past 2 years. However, marten populations may have decreased because of habitat loss and overharvest resulting from increased inland access.

The value of marten pelts jumped dramatically to their highest level in many years. Trapper effort apparently was not

affected because most trappers did not become aware of the changes in prices until after the season had been closed. Prices are projected to remain at these high levels, so trapping effort for all species will probably increase during the coming season.

Within both Units, 11 of 404 marten were harvested in clearcut areas and seven in beach fringes of old-growth forests adjacent to clearcuts. The remaining 386 marten were harvested in old-growth forest habitats. No changes in seasons or bag limits are recommended.

Otter

The otter harvest for Subunit 1A was 63, compared with 70 in 1985-86 (Table 1). In Unit 2, the otter catch dropped 56%: from 141 otter in 1985-86 to 62 in 1986-87. Interest in otter trapping has been low during the last few years because of poor prices. Also, otters are difficult to trap and handle. No changes in seasons or bag limits are recommended.

Wolverine

Two wolverines were taken in Subunit 1A last year. Wolverine catches are almost always taken incidental to other trapping efforts and harvests do not closely reflect population levels. No changes in seasons or bag limits are recommended.

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Survey-Inventory Coordinator

Table 1. Furbearer catch data^a for Units 1A and 2, 1986-87.

Data type	Beaver		Marten		Otter		Wolverine
	1A	2	1A	2	1A	2	1A
No. Sealed	52	411	127	301	63	62	2
Males (%)	--	--	66	58	62	70	100
Trapped (%)	100	100	100	100	89	96	100
Boat Access (%)	45	33	94	63	91	74	100
Road Access (%)	55	67	6	37	5	26	0
Air Access (%)	0	0	0	0	4	0	0
No. Trappers	11	21	14	29	13	19	1
Catch/Trapper	5	20	9	10	5	3	2
Take by Month							
Dec. (%)	40	29	39	72	44	56	0
Jan. (%)	12	16	51	19	40	37	100
Feb. (%)	15	23	10	9	10	7	0
Mar. (%)	10	18	0	0	0	0	0
Apr. (%)	13	6	0	0	0	0	0
May (%)	10	7	0	0	0	0	0

^a Information from sealing certificates.

Table 2. Furbearer catch for Units 1A and 2, 1976-77 through 1986-87.

Season	Beaver		Marten		Otter		Wolverine
	1A	2	1A	2	1A	2	1A
1976-77	22	49	-- ^a	--	--	--	6
1977-78	18	38	--	--	103	305	2
1978-79	6	11	--	--	147	183	11
1979-80	67	53	--	--	126	226	3
1980-81	--	--	--	--	63	138	1
1981-82	--	--	--	--	42	108	1
1982-83	--	--	--	--	55	116	1
1983-84	95	215	--	--	50	153	1
1984-85	39	234	203	1,039	65	192	0
1985-86	20	292	156	571	70	141	0
1986-87	52	411	127	301	63	62	2

--^a Data not available.

Table 3. Furbearer catch by harvest area for Units 1A and 2, 1986-87.

Harvest area	Species			
	Beaver	Marten	Otter	Wolverine
Subunit 1A				
X01 Gravina Island	5	0	3	0
X02 Annette Island	0	0	0	0
X03 Duke Island	0	0	0	0
X04 S. Revilla Is.	40	35	28	0
X05 N. Revilla Is.	2	17	12	0
X06 Cleveland Pen.	1	34	6	0
X07 Upper Mainland	4	34	12	2
X08 Lower Mainland	0	7	2	0
Subtotals	52	127	63	2
Unit 2				
X09 Outer Island	0	0	0	0
X10 Hecata Island	0	0	0	0
X11 SW Prn. of Wales	27	59	2	0
X12 SE Prn. of Wales	4	87	1	0
X13 Ctr. Prn. of Wales	126	112	19	0
X14 NE Prn. of Wales	165	13	0	0
X15 N. Prn. of Wales	75	29	39	0
Unknown	14	1	1	0
Subtotals	411	301	62	0

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1B and 3

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

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

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Beaver

Beaver populations and trapping effort are increasing in Units 1B and 3. Sealing records indicated 67 beavers were taken in Unit 3 in 1986-87, up slightly from 62 in the 1985-86 season. The beaver harvest in Subunit 1B was 122, up considerably from the take of 37 in 1985-86. The take was 4 beavers in 1984-85 and 0 in 1983-84. No regulatory changes are recommended.

Marten

Marten populations continue to be high in most areas. High prices for marten pelts in 1986-87 resulted in an increase in trapping effort. Sealing records recorded sex composition of trapped marten; however, the sex ratio of trapped marten does not necessarily reflect that of the populations because trapping can be sex selective. Marten furs have been sealed continuously in Southeast Alaska since 1984-85.

In Unit 1B, 149 marten were trapped in 1986-87, compared with 83 in 1985-86 and 185 marten in 1984-85. Forty percent (59) of the marten trapped in 1986-87 were female (Table 1), compared with 42% (35) females in 1985-86.

In Unit 3, 110 marten were taken in 1986-87, compared with 67 in 1985-86 and 250 in 1984-85. In 1986-87 females accounted for 37% (41) of the harvest, while in 1985-86 they accounted for 48% (32) (Table 1). Sealing records indicated a total

harvest of 259 marten in 1986-87 for Unit 3 and Subunit 1B, compared with 150 in 1985-86 and 435 in 1984-85. It is difficult to say whether the variation in catch is the result of fluctuations in trapper effort or the numbers in marten population. Table 1 shows the sex and chronology of the marten harvest. The marten sealing program should be continued to provide baseline data needed to establish trapping pressure and population trends. No regulatory changes are recommended until a clear pattern emerges that indicates a need to change them.

Otter

Otter populations continue to be high in most areas and are one of the species most sought by trappers. Although the sex composition of the catch is recorded, the sex ratio of the catch may not reflect the true sex ratios of the otter population because trapping may be sex selective.

In Unit 1B the 1986-87 harvest, composed of 33% females, was 9 otters, compared with eight in 1985-86 and 15 in 1984-85 (Table 2). In 1986-87 the harvest in Unit 3 was 45 otters, compared with 51 in 1985-86 and 141 in 1984-85. The female composition of the harvest in Unit 3 was 44% (20), compared with 41% (21) in 1985-86 (Table 2). These percentages are similar to those of the 1984-85 season: 57% male, 40% female, and 3% undetermined. The chronology of the harvest is shown by sex in Table 3, while the method of take is shown in Table 2. No regulatory changes are recommended.

Wolverine

Wolverines are present in low numbers throughout most of the area; they are usually caught incidentally in traps set for other furbearers. Sex composition data based on sealing records may not reflect true sex ratios because trapping may be sex selective.

Two female wolverines were taken in Unit 3, compared with 5 wolverines (2 males and 3 females) taken in 1985-86 (Table 4). In Unit 1B the harvest increased from a harvest of 4 wolverines (2 males and 2 females) in 1985-86 to 15 (10 males and 5 females) in 1986-87. No regulatory changes are recommended.

Other Species

No systematic data were collected during the period, other than those obtained through hide sealing. Raccoons are not known to occur in Units 1B or 3.

Lynx and coyotes occasionally occur in major drainages of Unit 1B, but none were trapped or observed during the period. Muskrats are found in low numbers throughout Units 1B and 3, and no information on trapping them is available. Marmots are not trapped, but they are found in all mainland alpine areas and on a few of the larger islands. Squirrels and weasels occur in both units and are harvested incidentally in traps set for mink and marten. Mink are common in Units 1B and 3, but there is no sealing requirement. No regulatory changes are recommended at this time.

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Table 1. Chronology of marten catch for Units 1B and 3, 1986-87.

Month of Kill	Unit 1B				Unit 3			
	Male	Female	Unk	%	Male	Female	Unk	%
December	66	44	0	74	50	31	0	74
January	23	14	0	25	19	9	0	25
February	1	1	0	1	0	1	0	1
Totals	90	59	0	100	69	41	0	100

Table 2. Otter harvest, by method of take, for Units 1B and 3, 1986-87.

Method of Take	No. of males	%	No. of females	%	Total	%
Unit 1B						
Shooting	2	22	0	0	2	22
Trapping	4	44	3	33	7	78
Snaring	0	0	0	0	0	0
Other	0	0	0	0	0	0
Totals	6	67	3	33	9	100
Unit 3						
Shooting	0	0	1	2	1	2
Trapping	24	53	18	40	42	93
Snaring	1	2	1	2	2	4
Other	0	0	0	0	0	0
Totals	25	55	20	44	45	100

Table 3. Chronology and sex composition of otter harvest for Units 1B and 3, 1986-87.

Month of take	No. of males	%	No. of females	%	Total	%
Unit 1B:						
December	3	33	2	22	5	56
January	2	22	1	11	3	33
February	1	11	0	0	1	11
Totals	6	66	3	33	9	100
Unit 3:						
December	12	27	6	13	18	40
January	10	22	11	24	21	47
February	3	7	3	7	6	13
Totals	25	56	20	44	45	100

Table 4. Wolverine harvest, 1978-79 through 1986-87.

Season	Unit 1B				Unit 3			
	Male	Female	Unk	Total	Male	Female	Unk	Total
1978-79	2	4	0	6	1	0	0	1
1979-80	2	1	0	3	0	1	0	1
1980-81	1	0	1	2	0	0	1	1
1981-82	0	4	0	4	0	1	0	1
1982-83	2	2	0	4	1	0	1	2
1983-84	2	1	0	1	0	1	0	1
1984-85	2	2	0	4	1	0	0	3
1985-86	2	2	0	4	2	3	0	5
1986-87	10	5	0	15	0	2	0	2

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1C

GEOGRAPHICAL DESCRIPTION: Southeast mainland from Cape
Fanshaw to Eldred Rock

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit:

See Trapping and Hunting Regulations No. 27.

Beaver

Twelve trappers harvested a total of 107 beavers (8.9 beaver/trapper) with traps (82%), snares (11%), and unknown methods (7%) from December 1986 through May 1987; i.e., 16%, 2%, 12%, 6%, 43%, and 21%, respectively. Trappers used boats (46%), highway vehicles (42%), off-road vehicles (6%), and unknown methods of transportation (6%) for access to trapping locations. Beavers were trapped from drainages adjacent to the Juneau road system between Cowee Creek and Montana Creek (49%), islands northwest of Juneau (19%), St. James Bay (12%), Berners Bay (10%), Taku River (9%), and Hobart Bay (1%).

The harvest of 107 beavers is more than 3 1/2 times greater than the 1980-1986 average harvest of 29.9 (Table 1). While a significant portion of the harvest occurred in highway accessible locations, which may indicate the need for more restrictive seasons and/or bag limits, it is pertinent to note that only 18 of 102 measured pelts (18%) were 52 inches or less (i.e., length plus width). Since forty-three percent of the harvest occurred in April, and 1 trapper accounted for 38% (41 beavers) of the total harvest, the shortening of the season or establishing of a conservative bag limit should effectively reduce the harvest level. The 1987-88 harvest should be monitored closely, but no change in season or bag limit is recommended at this time.

Lynx

No lynx were sealed from Subunit 1C in 1986-87. Only 3 lynx have been documented in sealing records since 1979-80 (Table 1); thus a harvest of zero is not unusual. No changes in season or bag limit are recommended.

Marten

Two hundred forty-one marten were taken by 20 trappers (12.1 marten/trapper). Seventy-five percent of the marten were taken during December (Table 2). The sex ratio of the catch was 213 males:100 females (164 vs. 77). Marten were trapped in old-growth forest along beaches (26%), old-growth forest away from beaches (25%), riparian-deciduous areas (16%), riparian old-growth areas (14%), clearcuts adjacent to roads (9%), unknown habitat types (7%), and leave-strips adjacent to roads (3%). Marten were trapped in the Taku, Speel, and Whiting river area (33%), adjacent to the Juneau road system between Echo Cove and Salmon Creek (16%), the Gustavus area (14%), the Hobart Bay-Endicott Arm area (14%), St. James Bay (13%), Berners Bay (6%), and Sullivan River (4%).

The 1987 harvest of 241 marten is above the 1980-1986 average of 202. Chronology and sex ratio of the harvest indicate that the marten population in Subunit 1C is not being overharvested. No changes are recommended in the season or bag limit.

Otter

Thirty otters were trapped by 9 trappers in 1987 (3.3 otter/trapper). One additional animal was documented as a road-kill (sex unknown, killed in November on the Juneau road system). Sixteen males (54%), 10 females (33%), and 4 otters of unknown sex (13%) were trapped in December (50%), January (37%), and February (13%). Otters were taken with traps (87%), by shooting (10%), and with snares (3%). Trappers used boats (90%) and highway vehicles (10%) to access the following trapping locations: the Juneau road system from Windfall Lake to Auke Bay (30%), Hobart Bay (17%), the Chilkat Peninsula (13%), islands in subunit 1C (17%), Berners Bay (10%), Whiting River (10%), and one unknown location (3%).

The harvest of otters since 1980 has been constant (Table 1). The 1980-1986 average of 33 is close to this year's harvest of 31. No changes are recommended in season or bag limit.

Wolverine

Four trappers took 4 male (44%) and 5 female (66%) wolverine. All animals were taken with traps, and trapping locations were all accessed via boat. Wolverine were taken in December (22%), January (45%), February (22%), and March (11%). Harvest locations included the Speel and Whiting Rivers area (45%), Hobart Bay (33%), and Berners Bay (22%).

The harvest of 9 wolverines is higher than the 1980-86 average of 6.2 but similar to that for 3 of the last 4 years (Table 1). There are no indications wolverines are being overtrapped; therefore, no changes in season or bag limit are recommended.

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Table 1. Furbearer harvests for Subunit 1C, 1980-87.

Year	Beaver	Lynx	Marten	Otter	Wolverine
1979-80	18	0	365	37	3
1980-81	1	0	288	34	5
1981-82	10	0	95	19	6
1982-83	26	2	99	30	8
1983-84	96	1	193	41	5
1984-85	36	1	245	34	9
1985-86	22	0	128	38	8
1986-87	107	0	241	31	9
Means	39.5	0.4	206.8	33	6.6

Table 2. Marten harvest for Subunit 1C by sex and month, 1987.

Month	<u>Males</u>		<u>Females</u>		<u>Unknown</u>	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
December	114	47	66	27	0	0
January	31	13	7	3	0	0
February	19	8	4	2	0	0
Totals	164	68	77	32	0	0

FURBEARERS
SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 1D

GEOGRAPHICAL DESCRIPTION: Upper Lynn Canal

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit:

See Trapping and Hunting Regulations No. 27.

Beaver

Beavers remained scarce in Subunit 1D, and the trapping season remained closed. No changes in season or bag limit are recommended.

Lynx

One male lynx was trapped in December 1986 (Table 1). This animal was harvested in the lower Chilkat drainage adjacent to the Haines Highway. No changes in season or bag limit are recommended.

Marten

Six trappers harvested 25 males (58%), 12 females (27%), and 7 marten of unknown sex (15%) in Subunit 1D in 1986-87 (Tables 2-4). Seventeen (38%), 22 (49%), and 6 (13%) marten were taken in December, January, and February, respectively. The Taiya and Skagway Rivers area accounted for over 50% of the harvest.

The harvest level of marten this year is nearly identical to that of 1985-86 (Table 2). Discussions with trappers indicated that, unlike the trapping effort exhibited during the 1st year of the sealing program (i.e., 1984-85), the effort remained low; however, marten appeared to be present in numbers equal to recent years. No changes in season or bag limit are recommended.

Otter

Five males, 3 females, and 1 otter of unknown sex were trapped in Subunit 1D during the reporting period, marginally higher than the 1980-86 mean harvest of 5 otters (Table 1). Most

otters were taken in the Chilkoot and lower Chilkat drainages. No changes in season or bag limit are recommended.

Wolverine

The harvest was up in Subunit 1D in 1986-87; 5 trappers accounted for 7 males, 1 female, and 1 wolverine of unknown sex. Four, 3, and 2 wolverines were taken in December, January, and February, respectively; most animals came from the upper Chilkat watershed. The harvest of 9 wolverines is identical to the 1980-86 mean. No changes in season or bag limit are recommended at this time.

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Table 1. Furbearer harvests for Subunit 1D, 1980-87.

Year	Lynx	Marten	Otter	Wolverine
1979-80	1	ND	6	11
1980-81	0	ND	8	3
1981-82	0	ND	3	6
1982-83	37	ND	2	9
1983-84	14	ND	10	18
1984-85	1	166	4	14
1985-86	1	49	5	1
1986-87	1	45	9	9
Means	7	87	6	9

Table 2. Marten harvest for Subunit 1D by sex and month, 1984-85.

Month	Males		Females		Unknown	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
December	62	37	51	31	1	1
January	22	13	13	8	0	0
February	10	6	7	4	0	0
Totals	94	56	71	43	1	1

Table 3. Marten harvest for Subunit 1D by sex and month, 1985-86.

Month	Males		Females		Unknown	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
December	19	39	12	25	0	0
January	8	16	8	16	0	0
February	2	4	0	0	0	0
Totals	29	59	20	41	0	0

Table 4. Marten harvest for Subunit 1D by sex and month, 1986-87.

Month	<u>Males</u>		<u>Females</u>		<u>Unknown</u>	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
December	12	27	5	11	0	0
January	11	24	4	9	7	15
February	3	7	3	7	0	0
Totals	26	58	12	27	7	15

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 4

GEOGRAPHIC DISTRIBUTION: Admiralty, Baranof, Chichagof, and adjacent Islands

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 28.

Beaver

The harvest from Unit 4 remained low during the 1986-87 regulatory year; 5 animals were taken from Admiralty Island. The area of Unit 4 west of Chatham Strait, including Baranof and Chichagof Islands, remained closed to the taking of beaver. Timber harvest in valley bottoms on portions of the unit continues to create acceptable beaver habitat. However, scarcity of beavers in most areas is likely to impede or preclude extensive colonization of these sites.

Mink

No harvest data are available. Prices paid for mink remain relatively low, offering little trapper incentive. Most mink are usually incidentally caught in marten traps.

Otter

A total of 161 otters were harvested in Unit 4 during the 1986-87 season (Table 1). The otter harvest in the unit has been stable between 1977 and 1986 ($\bar{x} = 158.2$, $SD \pm 18.7$). The number of trappers contributing to the harvest (29) equalled that of the previous season; catch per trapper ranged from 1 to 31 otters. Seventy-three percent of the harvest was taken by 6 trappers. The sex ratio in the harvest was evenly divided between males (51%) and females (49%). During this reporting period, a substantial increase was noted in the proportion of the harvest taken by shooting (60%) as opposed to trapping (40%). Over the previous 9 years, shooting accounted for an average of 38% of the harvest (Table 1).

Marten

The continued high prices offered for marten probably contributed to the increase in marten trappers afield in

1986-87 (Table 2). This year was the 3rd year that mandatory sealing of marten has been in effect, and the 2nd consecutive year that reported harvests have declined. The 20% decline for this reporting period was nearly twice the magnitude of decline observed between the 1984 and 1985 seasons. The minimal snow fall during trapping season over the past 2 years may have contributed to the decline. A total of 957 marten from Unit 4 were presented for sealing this year. The harvest, as in previous years, was skewed toward males (58.9%). The majority of the animals were taken during the early part of the season, although the date of harvest was not reported for nearly one-third of the animals.

Nonpermanent marking, used this year for the 1st time in sealing of marten, met with approval of trappers. Such marking will allow prices offered for Southeast marten to be representative of fur quality, precluding bias because of geographic area of harvest.

The results of trapper interviews conducted at the time of sealing suggest that a large portion of marten (48%) were taken in old-growth forest habitat accessed from the beach (Table 3). In many cases, trappers bringing in several animals could not identify specific habitat types for each individual. These catches were then recorded as having been taken in a combination of habitat types that made up the area trapped. Considering only those animals for which trap location was known, none were reported to have been harvested in clearcut areas. However, when catch locations reported as a combination of habitat types is considered, a maximum of 5.5% of the harvest could have come from logged areas. For those trapping locations that had been reported, areas accessed by road yielded 27% of the harvest.

The loss of habitat resulting from timber harvests, as well as increased access via logging roads, increased trapping pressure, and continued high fur prices, may lead to localized decreases in marten. There is no indication in the harvest data to suggest that limiting the length of the season would (1) have a substantial impact on total number of marten taken or (2) cause a reduction in percentage of females in the harvest (Table 2). Increased access, a byproduct of logging, allows trappers to more easily pursue the islands' previously unexploited interior populations. These populations may play an important role in repopulating the more heavily trapped stocks accessed from the coast. Should trapper success rates continue to decline, localized closures may need to be considered.

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Table 1. Otter harvest data for Unit 4, 1977-78 through 1986-87 seasons.

Season	Sex			Total	Method of Take				Month of Take					No. of trappers	
	M	F	U		Shot	Trapped	Snared	Unk.	Other	Nov	Dec	Jan	Feb		Unk. date
1977-78	78	77	0	155	37	117	0	1	0	2	30	16	15	92	26
1978-79	85	69	0	154	50	104	0	0	0	1	60	42	5	46	27
1979-80	94	77	1	172	39	133	0	0	0	1	65	87	19	0	34
1980-81	86	73	10	169	55	112	1	1	0	8	60	91	4	6	27
1981-82	82	91	11	184	85	96	1	1	1	4	96	53	24	7	30
1982-83	94	70	0	164	80	77	0	7	0	0	52	36	24	52	24
1983-84	61	55	1	117	65	42	0	10	0	0	27	37	0	53	20
1984-85	89	74	5	168	84	83	0	0	0	0	66	59	31	12	36
1985-86	71	70	0	141	38	102	0	1	0	0	25	11	14	91	29
1986-87	82	79	0	161	97	64	0	0	0	0	41	56	11	53	29

Table 2. Marten catch by sex and month for Unit 4, 1984-85 through 1986-87 seasons.

Season	Dec			Jan			Feb			Unk. date			Overall Totals							
	M	F	U	Total	M	F	U	Total	M	F	U	Total	M	F	U	Total				
1984-85	458	244	0	702	157	79	0	236	28	19	1	49	248	121	0	369	891	463	1	1,355
1985-86	178	177	0	355	40	22	2	64	3	3	0	6	395	279	108	782	616	481	110	1,207
1986-87	287	217	6	510	75	42	0	117	14	8	0	22	161	108	39	308	537	375	45	957
Totals	923	638	6	1,567	272	143	2	417	45	30	1	76	804	508	147	1,459	2,044	1,319	156	3,519

Table 3. Marten harvest by trap locations in Unit 4, 1984-85 through 1986-87 seasons.

Season	Trap Locations ^a										
	1	1,2	1,5	1,6	1,9	2	2,5	2,8	3	4	Totals
1984-85	174	0	0	0	0	102	0	0	232	69	1,355
1985-86	211	103	0	110	0	52	2	1	0	0	1,207
1986-87	414	35	39	0	36	92	0	0	0	31	957
Totals	799	138	39	110	36	246	2	1	232	100	3,519

^a Marten trap location codes:

- 1 = Old growth beach fringe from boat
- 2 = Old growth away from boat
- 3 = Clear cut from boat
- 4 = Clear cut beach fring/leave area from beach
- 5 = Road system - clear cut
- 6 = Road system - leave strip
- 7 = Road system - old growth
- 8 = Unknown
- 9 = Riparian - old growth
- 10 = Riparian - clear cut
- 11 = Riparian - leave strip

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 5

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

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit:

See Trapping and Hunting Regulations No. 27.

Beaver

Two females and 4 beavers of unknown sex were harvested by 2 trappers in December and May, respectively. The December and May harvests occurred along the Yakutat road system and Tanis Mesa area, respectively. Based on reports from trappers and incidental observations, the beaver population is probably stable or slightly increasing across the Yakutat Forelands. No changes in season or bag limit are recommended.

Lynx

No lynx were trapped during 1986-87. According to comments received from trappers and hunters, hare sightings have increased over the last several years; therefore, zero harvest does not necessarily reflect a decrease in lynx numbers. Because of the open 1986-87 winter, trapping conditions were poor, resulting in lower-than-normal harvests for all species. No changes in season or bag limit are recommended.

Marten

Four trappers took 23 male (61%) and 15 female (39%) marten from Unit 5. The harvest was divided equally between December and January; all were taken adjacent to the local road system. No changes in season or bag limit are recommended.

Otter

Two male land otters were killed during the reporting period; both had become entangled in salmon gillnets at the mouths of the Situk and Alsek Rivers. No changes in season or bag limit are recommended.

Wolverine

During the 1985-86 season, 2 male wolverines were taken by 2 trappers from the lower Situk and Ahrnklin River drainage (Subunit 5A) and Icy Bay (Subunit 5B) in December and May, respectively. No changes in season or bag limit are recommended.

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Table 1. Furbearer harvests for Unit 5, 1972-1987^a.

Year	Beaver	Lynx	Marten	Otter	Wolverine
1971-72	0	-- ^b	--	--	8
1972-73	0	--	9	16	7
1973-74	13	1	40	8	14
1974-75	6	2	9	0	1
1975-76	0	--	--	--	0
1976-77	0	--	--	--	1
1977-78	0	--	--	3	1
1978-79	0	1	--	5	2
1979-80	0	0	13	2	3
1980-81	0	1	200	4	2
1981-82	0	0	200	4	3
1982-83	3	5	30	8	1
1983-84	4	3	75	4	2
1984-85	1	0	63	1	2
1985-86	6	2	0	2	0
1986-87	8	0	38	2	2
Means	3	1	62	6	3

^a Data from sealing certificates, trapper interviews and reports, and Survey-Inventory Reports. Data from non-sealed species should be considered low estimates.

^b No data available.

FURBEARERS

SURVEY-INVENTORY REPORT

GAME MANAGEMENT UNIT: 6

GEOGRAPHICAL DESCRIPTION: Prince William Sound and the
north Gulf Coast

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Conditions Affecting Trapping

Winter weather was characterized by above-average to near-record precipitation that discouraged trapping effort. East of a line from Valdez Arm to Latouche Island, precipitation below an elevation of 1000 feet occurred primarily as rain; west of that line, snow accumulation below an elevation of 1000 feet was well above average.

Small mammal (i.e., microtines, shrews, and snowshoe hare) abundance could have affected many furbearer populations. During this reporting period hares and small mammals appeared to reach the low end of their population cycles on the Copper River Delta (Campbell and Griesse 1987). Fur prices for coastal furs, with the exception of mink and marten, remained unattractive to most trappers.

Beaver

Incidental observations of active beaver lodges during aerial surveys and field activities suggested that beavers were common to abundant in most freshwater habitat below an elevation of 300 feet. The greatest abundance of freshwater habitat with adequate supplies of deciduous trees was in Subunits 6A, 6B, and 6C (Griesse 1988). Beavers were abundant in Subunits 6B and 6C, and incidental observations suggested an increasing population. Beavers appeared locally abundant in Subunit 6A.

During this reporting period, trappers sealed 103 beavers; 26% were juveniles (Table 1) whose hides measured 40-52 inches (i.e., length plus width). From 1982 to 1986, juveniles represented an average of 28.2% of the measured harvest (range, 15-40%).

From 1982 to 1986 85% of the sealed beavers came from Subunit 6C (Table 1); Subunits 6A and 6B produced 11% and 5%, respectively. Beaver harvests in Unit 6 have increased substantially in recent years, but these levels remained below historical potential. Between 1982 and 1986 the harvest increased 186%; the mean harvest for that period was 56.0 beavers (Table 1). The 1971-80 mean harvest was 115.5 (range, 9-244).

The number of beavers harvested by each successful trapper has increased only slightly since 1982. Successful trappers sealed an average of 5.1 beavers in 1982, 5.0 in 1983, 5.0 in 1984, 5.5 in 1985 and 5.4 in 1986. Increased harvests and slightly increased harvest rates suggest increased trapper interest as well as an increasing beaver population.

I recommend a bag limit of 20 beavers be established for Subunit 6C and a 15-day reduction of season (1 February-30 April). These changes would allow a moderate increase in the harvest. I believe that the increasing population in Subunit 6C would support an annual harvest of 100-150.

I recommend implementation of a fall aerial trend count to record density of active beaver lodges (i.e., primarily in Subunit 6C and to monitor the impacts of increased harvest).

Coyote

No data were available on current population status, trend, or harvest; however, coyotes were thought to be common to abundant east of Valdez Arm. Conversations with local trappers and hunters suggested that fewer than 10 coyotes were taken throughout the unit. Trappers further indicated that the coyote population appeared to be declining.

Between 1970 and 1976 trapper questionnaires distributed to a sample of trappers in Unit 6 produced trends in coyote harvesting for that period (Appendix A); the average harvest was 9.3 (range, 1-16). In 1980 another questionnaire distributed to a smaller sample of trappers produced a minimum harvest of 4 coyotes by 1 trapper (Machida 1981). In 1984 informal reports from trappers suggested a minimum harvest of 40 coyotes (ADF&G files).

I recommend removing all seasonal and bag-limit restrictions for coyote hunting in Subunits 6B and 6C and lengthening the trapping season. Liberal seasons were recommended by Campbell and Griese (1987) because coyotes had been causing reductions in dusky Canada goose production.

Land Otter

No data were available on population status or trend, but otters were common to abundant throughout the unit (Griese 1987). Trappers sealed 182 otter skins in 1986, representing a 479% increase from 1982 (Table 2). A nonlocal trapper with specific interest in otters was solely responsible for a 3-fold increase in the number of otters sealed for Subunit 6D (i.e., 100 skins). Based on examination of 175 skins, 57% of the harvest were males.

Trapping pressure increased noticeably in 1986. The number of trappers sealing otter skins between 1982 and 1985 averaged 13.8 (range, 12-16); in 1986, 21 trappers sealed otter skins. The largest percentage of trapping pressure occurred in Subunit 6D where 12 trappers sealed otter skins. The previous 4-year average in Subunit 6D was 9.0 trappers (range, 5-12).

Measured by otter skins sealed per successful trapper, trapping success, excluding the trapper who sealed 100 skins, steadily increased over the last 5 years. The average numbers of otters sealed per trapper from 1982 through 1986 were 2.4, 2.8, 2.8, 4.1, and 4.1, respectively (mean = 3.3). When the 1986 harvest of 100 otters by a single trapper was included in the sealing data, the average number of otters per trapper for 1986 and the overall mean increased to 3.7 and 4.6 otters, respectively.

I recommend retaining the current land otter trapping season. Despite pressure to open the season earlier and to close it later, fur primeness is generally best from December to February in Unit 6 (G. L. Kritchen, pers. commun.) and should be the primary consideration for setting trapping season dates. Trapping pressure and success have increased, but the reported harvest for the last 5 years falls below the 1971-80 average of 99.7 otters (ADF&G files). Additional restrictions for otter trappers are not warranted at this time.

Lynx

Lynx were uncommon in Unit 6, though they have experienced peak densities during the last 2 years. Data were not available on lynx population status, but the number of lynx sealed by trappers during the last 2 years suggests peak densities (Table 3). Lynx were infrequently encountered by trappers.

In the last 5 years, successful trappers sealed an average of 1.4 lynx annually. In 1982 no lynx were caught; in 1983 and 1984, 1 trapper caught 1 lynx. Two and 4 trappers caught lynx in 1985 and 1986, respectively. In 1986 the harvest exceeded 1 lynx per trapper by averaging 1.8.

Of the 7 lynx sealed during 1986, two were juveniles (Table 3): 2 (29%) males, 3 (43%) females, and two (29%) of unknown sex. Five were taken in Subunit 6A and two were taken in Subunit 6C. Over the last 5 years all but 2 lynx were taken in Subunit 6A. On only 1 occasion since 1970 has a lynx been trapped in Subunit 6D; it occurred in 1972 near Valdez. Of the 8 lynx whose sexes had been established during the past 5 years (1982-86), five were males; only 2 juveniles were sealed (Table 3).

The annual harvest of lynx in Unit 6 reached 3 or more lynx in only 6 of the last 17 years. These peaks in harvest occurred in 1970 (7 lynx), 1971 (8), 1975 (4), 1976 (8), 1977 (7), and 1986 (7) (Appendix A). The demand for lynx has not declined substantially, suggesting that peaks in population density occurred during those years. Because very few juveniles were sealed, peaks in Unit 6 lynx populations were probably the result of immigration from GMU's 11 and 13.

I recommend that closures of lynx trapping seasons in Unit 6 coincide with those occurring in Units 11 and 13D. Unit 6 may provide a short-term refuge for low-density Interior lynx populations and should be treated as a potential source for natural restocking.

Marten

No population nor harvest data were collected for marten in Unit 6. Fur prices were favorable this period and probably encouraged more trappers to seek marten (L. Kritchen, pers. commun.). Reports from a few local trappers suggested that frequency of occurrence has increased over the last 5 years.

A summary of fur acquisition reports (FAR) and fur export reports (FER) for Unit 6 indicated a minimum of 49 marten harvested in the unit; however, it did not completely represent the 1986 harvest and was not considered reliable for population trend. Most furs acquired by fur dealers had been harvested during this reporting period, but since some trappers did not sell their furs or had them tanned locally, the FAR's and FER's may have represented only 30-70% of the total harvest in the unit.

Between 1970 and 1976 trappers reported taking an average of 40 marten annually (range 21-78) (Appendix A). In 1980 the responses to a region-wide trapper questionnaire indicated a harvest of 26 marten, or 5 marten per successful trapper (Machida 1981).

I recommend the distribution of an annual Trapper Questionnaire as a minimum effort to assess population trend

and harvest. A sealing program for marten, currently in effect for Units 1 through 5, might also be appropriate for Unit 6, because increasing fur prices may increase effort and harvest. Sealing requirements would substantially improve reporting providing population-trend and trapping-effort information. No regulatory changes are recommended at this time.

Mink

No population nor harvest data were collected for mink in Unit 6; fur prices were favorable (L. Kritchen, pers commun.).

A summary of FAR's and FER's indicated a minimum harvest of 81 mink, which, I believe, represented less than half of the actual harvest. Between 1970 and 1976 trappers reported an annual average harvest of 193 mink (range, 82-234) (Appendix A). Responses to the 1980 Trapper Questionnaire indicated a minimum harvest of 116 mink; the average harvest per successful mink trapper was 15 mink (Machida 1981).

I recommend retaining the current mink trapping season.

Muskrat

Incidental observations in Subunit 6C suggested that, although muskrat distribution and abundance have increased, their abundance must still be classified as "low." No formal population measurements were made.

The summary of FAR's and FER's indicated that no muskrats were purchased from Unit 6 trappers; however, informal contact with trappers during the season suggested that at least six had been harvested incidentally in beaver traps. Between 1970 and 1976 the reported harvest by trappers gradually declined (Appendix A). In 1980 Machida (1981) recorded 5 muskrat harvested by 2 trappers.

Declining populations have been blamed on weather (Griese 1987) and disease (L. Kritchen pers. commun.), but the decline should probably be attributed to a combination of weather, disease, and habitat changes caused by the 1964 earthquake, resulting in increased presence of predators on the Copper River Delta (Campbell and Griese 1987).

I recommend reducing the length of the season until muskrat populations return to moderately abundant levels. The season should run concurrently with the recommended beaver season: 1 February-30 April.

Red Fox

Foxes were scarce in Unit 6; no harvests have been reported in several years. One dead fox was found in May 1987 at the mouth of the Martin River (Subunit 6B) by a bear hunter. According to the Trapper Questionnaire, the last substantial harvest of foxes occurred in Subunit 6C in 1972 when a minimum of six were reported in the Unit 6 Trapper Questionnaire (Appendix A). Trappers reported taking three in that subunit in 1975. The average annual reported harvest by trappers between 1970 and 1976 was 1.8 foxes. No foxes were harvested by sampled trappers in 1980 (Machida 1981).

I recommend retaining a minimal trapping season length. The current season (10 November-31 January, is 5 days longer than the shortest unit season. Maintaining the minimal season would encourage trappers to report incidental harvests. Current trapping pressures on foxes will probably not limit repopulation.

Wolverine

Population data were not available for this or past reporting periods; however, according to various harvest data (i.e., bounty reports [1961-68]), a Cordova Trapper Questionnaire [1970] and fur sealing reports [1971-1986]), the wolverine populations peaked between 1972 and 1978, declining subsequently to a low but stable level (Figure 1). The average annual reported harvest between 1961 and 1971 was 14 wolverines (range, 3-26). Between 1972 and 1978 the average annual harvest was 30 wolverines (range, 13-55). Since 1979 the annual harvest has averaged 11 wolverines (range, 6-16).

Lack of adequate snow accumulation in eastern portions of Unit 6 in recent years reduced trapping effort and harvest levels. During the peak harvest period (winters of 1972-1978) deep to moderate snow accumulation occurred in 1971-1976 and 1978 (Figure 1). During recent years, trapper access has been limited because of the lack of snow (i.e., ski-equipped airplanes not able to land); consequently, wolverine harvest was low and populations appeared to increase (T. Holliday, pers. commun.).

During 1986 trappers sealed 16 wolverines: 9 (56%) males, 6 (38%) females, and one (6%) whose sex was not determined. Distribution of the harvest follows: 4 (25%) in Subunit 6A, 3 (19%) in Subunit 6B, 3 (19%) in Subunit 6C and 6 (38%) in Subunit 6D.

When the 1986 harvest data was combined with those for the previous 4 years (Table 4), the sex composition was 59% male

and 41% female; 8% of the total harvest was not sexed. From 1982 to 1986, 82% of the harvest occurred in Subunit 6D (46%) and Subunit 6A (36%); the remainder occurred in Subunits 6B and 6C. Subunit 6A and 6B were the primary producers of wolverine during the peak years (1972-78) (ADF&G files). Trapper effort from 1982 to 1986 follows: 7.4 successful trappers/year and 1.4 wolverines/successful trapper.

I recommend reducing the current season length by 31 days. The new trapping season would be 10 November to 28 February. Over the past 5 years (1982-1986), roughly 17% of the total harvest and 25% of the female harvest occurred during March (Figure 2). During years of suspected low population levels, the harvest effort should be reduced.

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Appendix A. Summary of furbearer harvest reported through Unit 6 trapper questionnaires, 1970-1976 (ADF&G files).

Reported harvest	Species									
	Muskrat	Beaver	Weasel	Mink	Marten	Land Otter	Wolverine	Lynx	Fox	Coyote Wolf
1970-71	140	40	188	182	21	77	18	8	1	6 0
1971-72	--	--	--	--	--	--	--	--	--	--
1972-73	48	193	58	228	35	72	28	1	6	1 3
1973-74	45	73	141	230	78	48	51	2	0	16 6
1974-75	30	52 ^a	90	234	38	83	20 ^a	0	1	7 4 ^a
1975-76	8	50 ^a	19	82	34	36	30 ^a	4	3	14 7 ^a
1976-77	34	160 ^a	33	203	34	177	13 ^a	8	0	12 4 ^a
Total	305	568	529	1159	240	493	160	23	11	56 24
Mean	50.8	94.7	88.2	193.2	40.0	82.2	26.7	3.8	1.8	9.3 4.0

^a from sealing data.

Table 1. Summary of beaver harvest for Game Management Unit 6, 1982-86.

Regulation Year	Subunit Harvest								Total	% ^a Juveniles
	6A	%	6B	%	6C	%	6D	%		
1982-83	--	--	--	--	--	--	--	--	36	15
1983-84	9	21	0	0	33	79	0	0	42	43
1984-85	4	12	0	0	30	88	0	0	34	33
1985-86	2	3	0	0	59	97	0	0	61	26
1986-87	11	11	11	11	81	78	0	0	103	26
Totals	26		11		203		0		276	
Mean ^b	6.5		2.8		50.8		0		56.0	28.2

^a % of measured skins, where length + width is less than or equal to 52".

^b excludes 1982-83 subunit breakdown, 1982-1986 included in total.

Table 2. Summary of land otter harvest in Game Management Unit 6,
1982-87.

Regulatory Year	Subunit	Sex				Unk	Subtotal
		Male	% ^a	Female	% ^a		
1982-83	6A	4	80	1	20	0	5
	6B	0	--	0	--	0	0
	6C	3	50	3	50	0	6
	6D	19	73	7	27	1	27
	Subtotal	26	70	11	30	1	38
1983-84	6A	1	33	2	67	0	3
	6B	1	100	0	0	0	1
	6C	2	40	3	60	0	5
	6D	15	55	12	45	0	27
	Subtotal	19	52	17	47	0	36
1984-85	6A	1	50	1	50	0	2
	6B	0	--	0	--	0	0
	6C	2	29	5	71	0	7
	6D	17	68	8	32	0	25
	Subtotal	20	59	14	41	0	34
1985-86	6A	1	100	0	0	0	1
	6B	0	--	0	--	0	0
	6C	5	63	3	37	3	11
	6D	29	64	16	36	1	46
	Subtotal	35	65	19	35	4	58
1986-87	6A	7	70	3	30	0	10
	6B	0	--	0	--	0	0
	6C	5	50	5	50	2	12
	6D	88	57	67	43	5	160
	Subtotal	100	57	75	43	7	182
Totals		200	60	136	40	12	348
Mean		40.0		27.2		2.4	69.6

^a % of known sex only.

Table 3. Summary of lynx harvest in Game Management Unit 6, 1982-86.

Regulatory Year	Sex					Subtotal	Juveniles ^b	%
	Male	% ^a	Female	%	Unk			
1982-83	0	--	0	--	0	0	0	--
1983-84	0	--	0	--	1	1	0	0
1984-85	1	100	0	--	0	1	0	0
1985-86	2	100	0	--	0	2	0	0
1986-87	2	40	3	60	2	7	2	28
Total	5	63	3	38	3	11	2	18
Mean	1.0		0.6		0.6	2.2	0.2	

^a % of known sex.

^b % of measured skins ≤ 34 inches in length.

Table 4. Summary of wolverine harvest in Game Management Unit 6.

Regulatory Year	Subunit	Sex				Unk	Subtotal	%
		Male	% ^a	Female	% ^a			
1982-83	6A	2	50	2	50	0	4	40
	6B	0	--	1	100	0	1	10
	6C	1	100	0	--	0	1	10
	6D	1	25	3	75	0	4	40
	Subtotal	4	40	6	60	0	10	
1983-84	6A	1	100	0	--	0	1	17
	6B	0	--	0	--	0	0	0
	6C	2	100	0	--	0	2	33
	6D	2	67	1	33	0	3	50
	Subtotal	5	83	1	17	0	6	
1984-85	6A	1	50	1	50	2	4	33
	6B	0	--	0	--	0	0	0
	6C	0	--	0	--	0	0	0
	6D	4	50	4	50	0	8	67
	Subtotal	5	50	5	50	2	12	
1985-86	6A	1	100	0	--	0	1	17
	6B	1	100	0	--	0	1	17
	6C	1	50	1	50	0	2	33
	6D	1	100	0	--	1	2	33
	Subtotal	4	80	1	20	1	6	
1986-87	6A	2	50	2	50	0	4	25
	6B	2	67	1	33	0	3	19
	6C	2	67	1	33	0	3	10
	6D	3	60	2	40	1	6	38
	Subtotal	9	60	6	40	1	16	
Totals		27	59	19	41	4	50	
Mean		5.4		3.8		0.8	10	

^a % of known sex only.

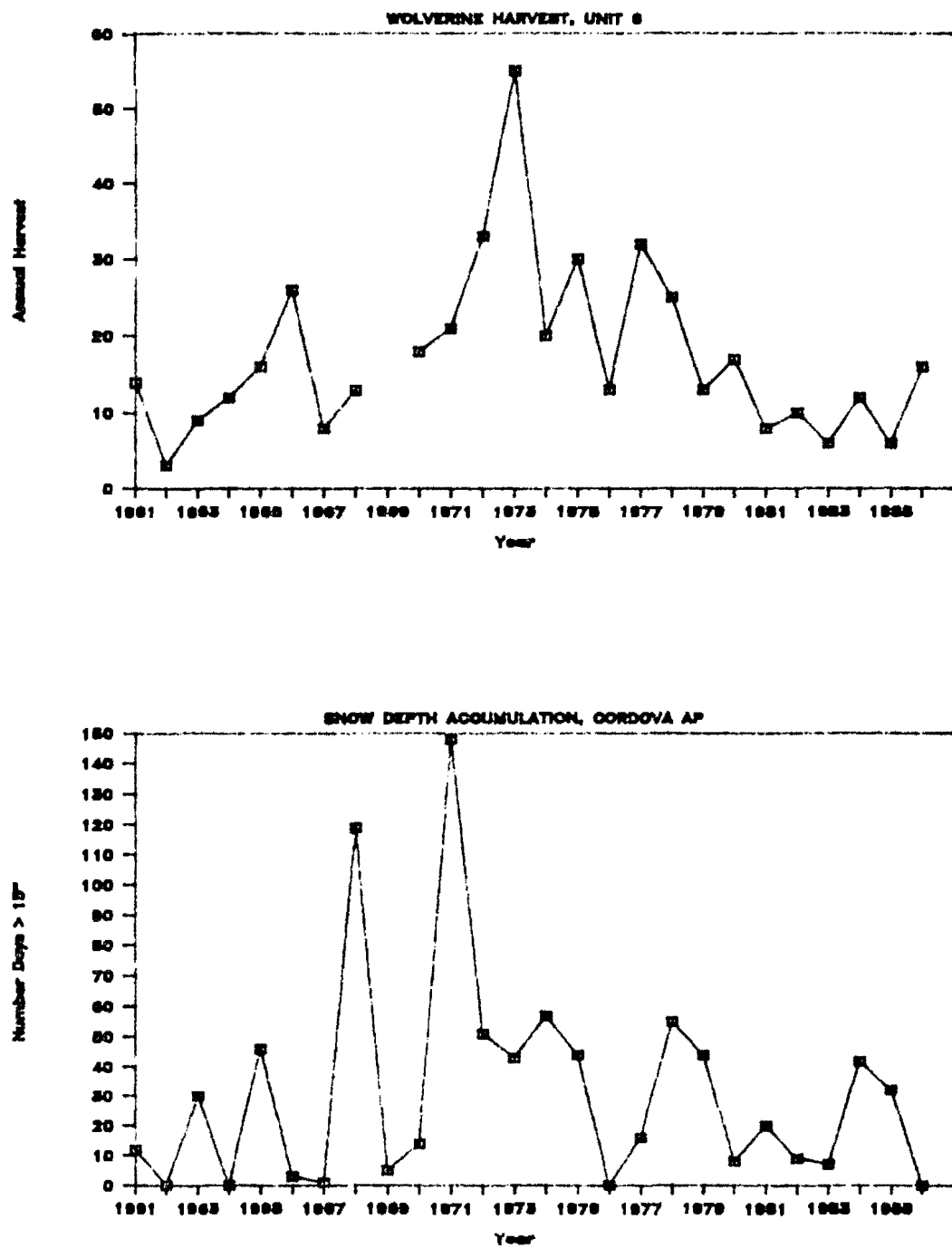


Fig. 1. Comparison of wolverine harvest in Unit 6 and snow depth accumulation at Cordova Airport, Alaska, 1961-86.

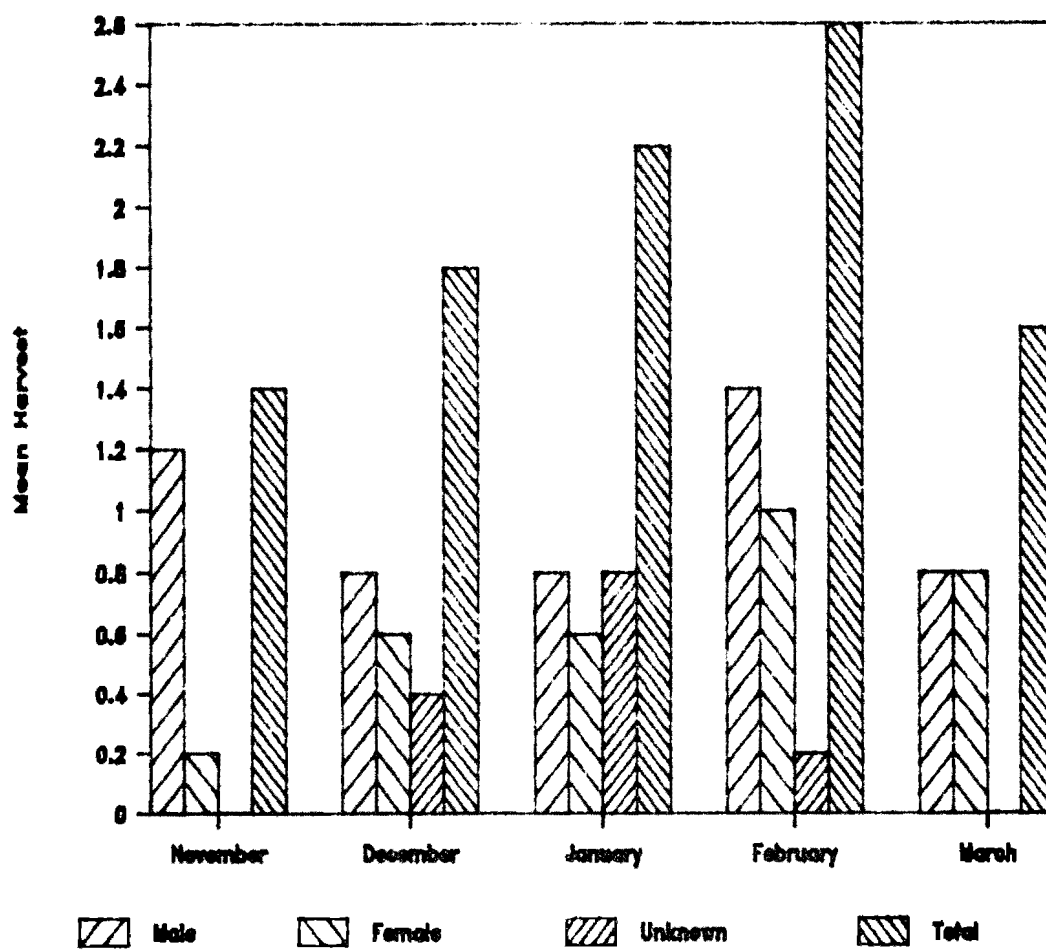


Fig. 2. Wolverine harvest chronology in Unit 6, 1982-86.

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS: 7 & 15

GEOGRAPHICAL DESCRIPTION: Kenai Peninsula

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Beaver

Beavers are common in suitable habitat on the Kenai Peninsula; however, population density and trends have not been measured and are poorly understood in most areas. Incidental observations and the trend in nuisance beaver complaints indicate that beaver populations in Subunit 15C peaked about 1984 and, subsequently, may have declined slightly. Midwinter flooding is common in this subunit and may be a significant source of mortality for beavers.

According to sealing certificates, the annual beaver harvest has exceeded 200 in four of 7 years and averaged 183 (range, 98-240) since 1980 (Table 1). Harvests have remained relatively stable for the past 3 seasons. The relative sizes of the harvests by subunit and unit during the past 4 years follow: 15A > 15C > 7 > 15B.

River Otter

River otters are fairly common in inland waters and sheltered coastal areas of the Kenai Peninsula. Little is known about the population dynamics of this species. Observations of animal sign and harvest information indicate that otters are most abundant in drainages that support large numbers of anadromous fish, large stream-connected lakes, and sheltered coastal waters such as the south shore of Kachemak Bay.

Otter harvests have shown little variation in recent years. The mean annual harvest for 7 years (Table 2) has been 53 otters (range, 42-65). Males have consistently outnumbered females; the mean male:female sex ratio in the 7-year harvest was 1.6:1.0.

Wolverine

Wolverines were most commonly found in the Kenai Mountains, including the southern and eastern peninsula coastal areas, Caribou Hills, and the hilly terrain that forms the headwaters of the Deep Creek and Anchor River drainages. Wolverines were seldom observed in the northern lowlands or the western coastal fringes of the peninsula. The historical distribution of wolverines on the Kenai Peninsula has not been documented; however, historical harvest records suggest a wider distribution during the late 1960's and early 1970's when moose densities were highest.

From 1980 to 1986, the reported wolverine harvest has been relatively stable. The mean annual harvest for these 7 years was 18 wolverines (range, 12-22) (Table 3). Males have consistently predominated in the harvests; the mean, male:female sex ratio was 1.7:1.0.

Lynx

Lynx are cyclically abundant in the forest habitats of the Kenai Peninsula. Early-seral, mixed deciduous-spruce forests in Subunits 15A and 15B appear to have a higher carrying capacity for snowshoe hares; consequently, lynx numbers are usually higher in these areas than in the subclimax spruce forests of Subunit 15C and Unit 7. Lynx populations on the Kenai Peninsula increased noticeably during the early 1980's in response to an increasing abundance of hares. According to harvests and reports from experienced trappers, the peak density in Subunits 15A and 15B occurred in either 1985 or 1986, compared with a 1987 peak in Subunit 15C.

Lynx harvests in Units 7 and 15 have steadily increased since 1980, despite trapping closures in Subunit 15A during 1985, 1986, and 1987 and a reduced season in the remaining areas (Table 4). The reported harvest of 75 lynx (including 5 illegally taken) in 1986-87 was the largest on record since mandatory sealing began in 1977. The proportion of kittens in the harvest remained relatively stable from 1981-82 to 1983-84 and declined sharply in 1985-86, one year after the population crash of snowshoe hares in the northern portion of the Kenai Peninsula lowlands. Since 1980 the sex ratio of lynx harvested has been 1.2 females:1.0 male.

Management Recommendations

Current harvest levels and percentage of kits in the harvest for beavers do not seem excessive. Conversely, beaver populations are probably being underutilized in remote portions of the Kenai Peninsula, particularly Subunit 15C. Establishment

of beaver cache surveys along several representative drainages in Subunit 15C is recommended to monitor population trends and to determine whether additional harvesting is warranted.

River otter and wolverine harvests have been stable over the past 7 years. However, a change in river otter and wolverine seasons are recommended to provide for consistency with the wolf season recommendation: 10 November-28 February.

Lynx management on the Kenai Peninsula, particularly on the Kenai National Wildlife Refuge, has been a controversial issue in recent years. The U. S. Fish and Wildlife Service believes that lynx have been overexploited on the refuge during the last decade, especially in accessible areas (Bailey et al. 1986). The department believes that recent trapping effort there during periods when lynx populations were high has not exceeded sustained yield levels; however, as lynx numbers decline and enter the low population cycle, season reductions and trapping closures would be advisable to maintain optimum lynx numbers prior to entering the population rebuilding phase. Interagency and public discussion of lynx management on the Kenai Peninsula have resulted in a number of decisions by the Department and Board of Game, which have either closed (i.e., Subunit 15A, 1984-85 to 1986-87) or shortened trapping seasons (i.e., Unit 7 and Subunits 15B and 15C).

Brand and Keith (1979) suggested that during a lynx population decline in Alberta trapping mortality was additive to natural mortality. Using computer modeling, they demonstrated that more lynx could be produced and greater long-term harvests achieved if trapping is curtailed for 3-4 years after the 2nd year following the peak in the lynx harvest. This harvest strategy should be implemented on the Kenai Peninsula. Hare and lynx cycles in Subunits 15A and 15C are not synchronous; however to avoid displacement of trappers, closures should be consistent in both Unit 7 and 15. A closure for hunting and trapping is recommended for the 1987-88 season.

Literature Cited

- Bailey, T., E. Bangs, M. Portner, J. Malloy, and R. McAvenchey. 1986. J. Wildl. Manage. 50(2):279-290.
- Brand, C. and L. Keith. 1979. Lynx demography during a snowshoe hare decline in Alberta. J. Wildl. Manage. 43(4):827-849.

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Table 1. Summary of annual beaver harvests on the Kenai Peninsula by game management unit.

Regulatory year	Game Management Unit						GMU 15	Total
	7	(% Kits)	15A	(% Kits)	15B	(%Kits)	15C	(% Kits)
1980-81	52		--		--		--	
1981-82	19		--		--		--	
1982-83	50		--		--		--	
1983-84	31		56		5		16	
1984-85	36		92		16		64	
1985-86	56		111		7		66	
1986-87	79	(11%)	48 ^a	(7%)	12	(10%)	75	(18%)
$\bar{x}$	46		77		10		55	

^a Two nonsport harvest included.

Table 2. Summary of river otter harvests on the Kenai Peninsula by game management unit, 1980-87.

Regulatory year	Sex					Total
	GMU	Male	(%)	Female	Unknown	
1980-81	7	5		3	--	8
	15A	16		14	1	31
	15B	3		--	4	7
	15C	11		2	--	13
	Subtotal	35	(29%)	19	5	59
1981-82	7	5		2	--	7
	15A	14		13	--	27
	15B	1		--	--	1
	15C	7		5	--	12
	Subtotal	27	(57%)	20	--	47
1982-83	7	1		1	--	2
	15A	13		6	1	20
	15B	10		5	--	15
	15C	9		2	--	11
	Subtotal	33	(70%)	14	1	48
1983-84	7	5		2	--	7
	15A	9		5	--	14
	15B	--		2	--	2
	15C	19		9	1	29
	Subtotal	33	(65%)	18	1	52
1984-85	7	9		8	--	17
	15A	10		11	--	21
	15B	2		--	--	2
	15C	11		11	--	22
	Subtotal	32	(52%)	30	--	62
1985-86	7	8		2	1	11
	15A	12		4	--	16
	15B	6		5	--	11
	15C	17		8	2	27
	Subtotal	43	(69%)	19	3	65
1986-87	7	6		1	--	7
	15A	8		7	1	16
	15B	3		1	--	4
	15C	9		5	1	15
	Subtotal	26	(65%)	14	2	42
Totals		229	(61%)	134	12	375
$\bar{x}$	1	33		20	2	54

Table 3. Summary of wolverine harvests on the Kenai Peninsula by game management unit, 1980-87.

Regulatory year	Sex					Total
	GMU	Male	(%)	Female	Unknown	
1980-81	7	8		2	1	11
	15A	--		--	--	--
	15B	2		--	--	2
	15C	4		3	--	7
	Subtotal	14	(74%)	5	1	20
1981-82	7	6		4	--	10
	15A	1		2	--	3
	15B	1		--	--	1
	15C	--		2	--	2
	Subtotal	8	(50%)	8	--	16
1982-83	7	8		2	--	10
	15A	2		--	--	2
	15B	2		--	--	2
	15C	1		1	--	2
	Subtotal	13	(81%)	3	--	16
1983-84	7	7		1	2	10
	15A	1		1	--	2
	15B	--		--	1	1
	15C	3		3	--	6
	Subtotal	1	(69%)	5	3	19
1984-85	7	9		8	--	17
	15A	1		--	1	2
	15B	--		--	--	--
	15C	1		2	--	3
	Subtotal	11	(52%)	10	1	22
1985-86	7	6		1	--	7
	15A	--		--	--	--
	15B	--		1	--	1
	15C	2		2	--	4
	Subtotal	8	(67%)	4	--	12
1986-87	7	9		2	--	11
	15A	--		--	--	--
	15B	3		--	--	3
	15C	4		3	--	7
	Subtotal	16	(76%)	5	--	21
Totals		81	(67%)	40	5	126
$\bar{x}$		12		6	.7	18

Table 4. Summary of lynx harvest on the Kenai Peninsula by game management units, 1980-1986.

Regulatory Year	GMU	Adults			Kittens			%	Unclass	Total
		M	F	Unk	M	F	Unk			
1980-81	7	--	--	--	--	--	--		--	--
	15A	1	2	--	--	--	--		--	3
	15B	--	--	--	--	--	--		--	--
	15C	--	--	--	--	--	--		--	--
	Subtotal	1	2	--	--	--	--		--	3
1981-82	7	1	1	--	1	--	--		--	3
	15A	5	3	--	4	3	--		--	15
	15B	--	4	--	--	--	--		--	4
	15C	--	1	--	1	--	--		--	2
	Subtotal	6	9	--	6	3	--	37.5	--	24
1982-83	7	1	2	--	1	--	--		--	4
	15A	4	11	--	1	3	--		--	19
	15B	5	5	--	5	3	--		--	18
	15C	--	--	--	--	--	--		--	--
	Subtotal	10	18	--	7	6	--	31.7	--	41
1983-84	7	1	1	--	--	--	--		--	2
	15A	6	3	--	1	2	--		--	12 ^a
	15B	3	8	--	4	4	--		2	21
	15C	1	2	--	--	1	--		--	4
	Subtotal	11	14	--	5	7	--	30.7	2	39
1984-85	7	1	1	--	--	--	--		--	2
	15A	--	--	--	--	--	--		--	--
	15B	8	7	--	5	4	--		--	24
	15C	--	3	--	--	--	--		--	3
	Subtotal	9	11	--	5	4	--	31.0	--	29
1985-86	7	6	8	--	2	1	--		1	18
	15A	--	2	--	--	--	--		--	2
	15B	9	6	4	2	2	1		--	24
	15C	5	11	--	1	3	--		--	20
	Subtotal	20	27	4	5	6	1	18.7	1	64
1986-87	7	13	7	--	1	2	--		--	23 ^b
	15A	1	1	--	1	1	--		--	4 ^b
	15B	10	13	--	3	2	--		3	32 ^c
	15C	5	7	--	2	3	--		--	17
	Subtotal	29	28	--	7	8	--	20.6	3	75
Totals		86	109	4	35	34	1		6	275

^a Includes 1 nonsport.

^b Includes 3 nonsport.

^c Includes 2 nonsport.

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 8

GEOGRAPHICAL DESCRIPTION: Kodiak and Adjacent Island

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Population Status and Trend

Trapping effort was relatively light and, except in localized areas near the road system on northeastern Kodiak Island, harvest had little effect on furbearer populations.

Population Composition

No data were collected during this reporting period.

Mortality

Land otter and beaver harvests declined from those recorded in 1986 (Tables 1 and 2). Only 111 otters were sealed in 1987, less than half the previous year's take. One of the most successful otter trappers moved to GMU 6 in 1987, contributing to the decline. The 56% male harvest was closely comparable to that of previous years.

The beaver harvest declined from 241 in 1986 to 147 in 1987. Trapping effort and distribution vary considerably from year to year in Unit 8, and there is little relationship between population trends and harvest. No mortality data were collected for red foxes, ermine, marten, and muskrats.

Management Summary and Recommendations

Trapping effort remained relatively low in Unit 8; only 20 and 21 trappers sealed beavers and land otters in 1986-87, respectively. The otter harvest remained well below the 1980-81 peak of 409 otters. Beaver harvest was relatively low, and few drainages received any trapping pressure. No data were collected on red foxes, which is the most intensively trapped furbearer in Unit 8.

Current harvest levels on furbearers in Unit 8 are well below sustained yield. No changes in seasons or bag limits are recommended.

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Table 1. Beaver harvest statistics for 1984-85, 1985-86, and 1986-87 in GMU 8.

	1984-85 No. beaver	1985-86 No. beaver	1986-87 No. beaver
Afognak, Raspberry, Shuyak Islands	24	7	15
Kodiak and Adjacent Islands	69	234	130
Unknown Location	<u>5</u>	<u>0</u>	<u>2</u>
TOTAL	98	241	147
No. trappers	14	17	20
Mean catch/trapper	7.0	14.2	7.4

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 9

GEOGRAPHICAL DESCRIPTION: Alaska Peninsula

PERIOD COVERED: 1 July 1986-30 June 1987

Seasons and Bag Limits

See Trapping and Hunting Regulations No. 27.

Trapping Conditions

Weather conditions were generally mild throughout most of the trapping season, and lack of snow hampered overland travel in Unit 9.

Beaver

No beaver cache surveys were conducted in 1986. General observations during other survey flights, comments from trappers, and complaints from the public indicate that the beaver population remained high north of Subunit 9D. A total of 604 beavers were sealed in Unit 9 (Table 1), representing the largest harvest since 1980. Subunits 9B and 9C produced 56% and 31% of the total harvest respectively. Most of the increased harvest in these subunits came from the Kvichak and Alagnak Rivers. Kits made up 17.5% of the harvest, which is similar to the average for the previous 4 years.

As in past years, complaints about perceived conflicts between beavers and salmon were voiced by local residents, particularly in Subunit 9B. Extremely low salmon escapements in the Kvichak system during the past several years have fueled public pressure for the removal of dams that block their passage to spawning grounds. Local people have advocated lengthening the beaver season with a fall opening and legalizing shooting as a means of harvesting them. To increase the opportunity to trap beavers and to standardize the beaver season throughout Unit 9, the Board of Game established an opening date of 1 January (effective 1989). Higher beaver pelt prices in 1987, resulting in a much larger beaver harvest, and a large 1987 Kvichak sockeye salmon escapement (i.e., exceeding 6 million fish) should help to reduce conflicts between fishermen and beavers.

Lynx

In Unit 9 lynx occurred in suitable habitat in Subunits 9B, 9C, and 9E (i.e., as far south as Cinder River). Although populations fluctuate with prey abundance, a well defined 10-year cycle evident in Unit 9. Even within the unit there have been independent local variations in lynx densities between years.

In 1983-86 the mean annual lynx harvest was 55; 51 were sealed in 1986-87 (Table 2). The lynx harvest in the lower portion of the Ugashik drainage increased because of a higher local population of lynx and more trapping effort.

Lynx hunting and trapping seasons were shortened or closed in much of interior and southcentral Alaska to speed the recovery phase of the population cycle. The season in Unit 9 was reduced by 1 month; this reduction was less severe than those in other areas because of (1) an unpredictable population cycle and (2) a relatively stable lynx harvest over the past three years. In addition, several refugia exist within national parks and in other inaccessible areas. However, concern over increased trapping pressure caused by very high lynx pelt prices, by higher beaver prices, and by the closure of lynx seasons elsewhere in Southcentral Alaska caused the closure of the lynx trapping season on 28 February 1988 by Emergency Order. During the past 5 years an average of 14% of the harvest occurred during March.

Otter

Along with red foxes and mink, otters showed the greatest decline in population levels after the crash of microtine populations in the fall of 1984. Only 67 otters were sealed during 1985-86, the lowest harvest since sealing began in 1977 (Table 3). The otter population showed signs of recovery in 1986-87; the reported harvest was 162 otters, slightly above the mean of 133 for the previous 9 years. No changes in the otter seasons are recommended.

Wolverine

Wolverine populations appear to be relatively stable at low densities throughout Unit 9. Over the past 10 years harvests have fluctuated primarily because of variable weather conditions, changes in pelt prices and other factors. Seventy wolverines (i.e., 52 males, 16 females, and 2 of unknown sex) were sealed in 1986-87. This harvest is slightly higher than the mean of 60 wolverines for the previous 9 years (Table 4), and it ends the downward harvest trend of the previous 5 years. Nevertheless, because of regional concerns of

declining wolverine numbers, the Board of Game adopted a standardized, shortened wolverine trapping season (10 Nov.-28 Feb.) for 1988-89.

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Table 1. Historical beaver harvest and number of trappers in Unit 9, by subunit, 1974-1986.

Year	9A		9B		9C		9E		Total Unit 9	
	Trapper numbers	Beaver harvest	Trapper numbers	Beaver harvest	Trapper numbers	Beaver harvest	Trapper numbers	Beaver harvest	Trapper numbers	Beaver harvest
1974-75	4	126	20	231	3	15	7	66	35	439
1975-76	1	40	18	173	5	44	8	80	43	451
1976-77	-	-	-	-	-	-	-	-	-	686
1977-78	1	40	34	355	19	196	10	132	40	724
1978-79	1	1	24	191	6	46	8	92	40	332
1979-80	4	47	40	448	10	85	7	68	66	660
1980-81	0	0	23	271	15	119	5	57	53	508
1981-82	2	6	11	76	14	116	6	64	37	286
1982-83	0	0	16	138	17	171	3	7	37	315
1983-84	1	2	9	84	9	79	7	17	26	182
1984-85	2	15	16	107	17	103	4	14	39	239
1985-86	2	27	20	181	13	126	6	34	41	368
1986-87	2	28	28	336	14	189	6	51	52	604

Table 2. Lynx harvest in Unit 9, 1977-87.

Year	Subunit			Total	No. of trappers
	9B	9C	9E		
1977-78	104	57	11	172	36
1978-79	36	48	45	129	30
1979-80	60	61	23	144	25
1980-81	41	25	52	118	26
1981-82	32	18	10	60	24
1982-83	40	12	45	97	27
1983-84	16	0	10	26	10
1984-85	41	3	8	52	17
1985-86	22	2	21	45	16
1986-87	25	1	25	51	20

Table 3. Otter harvest in Unit 9, 1977-87.

Year	Subunit					Total Unit 9
	9A	9B	9C	9D	9E	
1977-78	6	46	17	2	49	120
1978-79	4	48	5	0	46	103
1979-80	6	42	36	8	45	137
1980-81	0	46	23	8	67	144
1981-82	5	35	58	15	38	151
1982-83	0	75	46	23	61	205
1983-84	1	31	16	28	44	120
1984-85	6	36	60	8	36	146
1985-86	7	23	12	9	10	61
1986-87	6	28	40	16	72	162

Table 4. Wolverine harvests in Unit 9, 1977-87.

Year	Males	Females	Sex unknown	Total	Males per female	No. of trappers
1977-78	43	23	20	86	1.9	47
1978-79	46	22	11	79	2.1	35
1979-80	38	25	1	64	1.5	31
1980-81	26	11	2	39	2.4	25
1981-82	42	20	10	72	2.1	37
1982-83	39	28	1	68	1.4	29
1983-84	31	16	4	51	1.9	27
1984-85	26	12	11	49	2.2	26
1985-86	19	13	3	35	1.5	21
1986-87	49	19	2	70	2.6	38

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 11

GEOGRAPHICAL DESCRIPTION: Wrangell Mountains

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Lynx

Trappers sealed 16 lynx from Unit 11 in 1986-87, down 27% from the 1985-86 harvest of 22. Harvests have declined in Unit 11 each year since the peak of the cycle in 1982 and are currently 78% below the 5-year mean (1982-87) of 74 lynx. Only 2 sealed lynx (13%) were kittens, suggesting low kitten production or survival. Seven lynx (44%) were harvested in December, eight (50%) in January, and one (6%) in February. Twelve lynx (75%) were taken by traps, and four (25%) were snared.

Wolverine

There were 9 wolverines sealed from Unit 11 during the 1986-87 season, a substantial decline from the 5-year mean (1981-85) of 20 but similar to the 1985 harvest of 10. Males and females composed 78% (7) and 22% (2) of the harvest, respectively. Trapping and snaring accounted for all wolverines sealed. Harvest chronology was as follows: December, 3 (33%); January, 4 (44%); February, 2 (22%).

The decline in the wolverine harvest over the past 2 years is attributed to both a 31-day reduction in season length and elimination of land-and-shoot method of harvesting wolverines. No further changes in season dates, bag limits, or methods and mean are recommended.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 12

GEOGRAPHICAL DESCRIPTION: Upper Tanana and White River
drainages

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Beaver

Fifty-one beavers were reported harvested in Unit 12 during the 1986-87 season. Most beavers were taken from Scotty, Moose, and Jack Creeks. Low pelt prices have kept beaver harvests low for several years, and most trappers do not actively seek them. Beavers are well distributed throughout Unit 12.

Coyote

While Unit 12 harbors a moderately abundant coyote population, only a few are taken each year; most of these are incidental to red fox and wolf trapping efforts. Coyotes are difficult to catch, and their pelts currently have low market value.

Land Otter

Only 4 otters were reported taken, which is about normal. Two each were taken from the Tok and the Little Tok Rivers. Otters are uncommon in Unit 12, the value of Interior otter pelts was low, and most trappers did not actively seek them.

Lynx

Lynx numbers reached a cyclical low in 1985-86, the reported harvest was 73 lynx. The reported harvest in 1986-87 was 78 lynx. Based upon the proportion of kittens in the harvest over the past few years, lynx numbers are expected to increase. In 1983-84 no kittens were harvested, in 1984-85 9.8% of the harvest were kittens, in 1985-86 7.4% were kittens, and in 1986-87 kittens composed 16% of the harvest. Snowshoe hares, which lynx population cycles follow, became noticeably more abundant during this reporting period.

Additionally, lynx and hares became noticeably more abundant in the Beaver and Snag Creek areas in the Yukon Territory indicating that immigration of lynx into Unit 12 in the future will be likely. Based upon sealing certificates, the 1985-86 cyclical low was comparable to the previous cyclical low in 1976-77, unlike some other areas of Alaska.

Marten

Marten remained relatively abundant in many parts of Unit 12, particularly north of the Tanana River and Alaska Range foothills, with scattered individuals in the Tanana Valley bottoms. In 1986-87 marten were highly sought after by trappers in Unit 12 because of extremely high (\$80-\$200) pelt value. Even though microtine rodent populations increased during the spring of 1987, marten numbers are expected to decrease in the near future as snowshoe hare, lynx, and red fox populations increase. It is unknown why marten harvests decline while harvests of the latter 3 species increase. It may be that mammalian and avian predators of hares exert excessive mortality on marten when they are abundant.

Muskrat

Muskrat numbers peaked throughout the Northway-Tetlin Flats in the fall of 1986 prior to freeze-up. Unfortunately, fall water levels were extremely low, concentrating muskrats into food-poor, deeper water bodies. Push-ups were common in midwinter, but nearly all were frozen out by spring. The harvest of muskrats in the spring of 1987 was exceptionally low. While water levels increased during the spring, it is doubtful that muskrat numbers will rebound rapidly because of probable damage to aquatic food plants during the winter of 1986-87.

Red Fox

In response to increasing numbers of snowshoe hares and high numbers of grouse and ptarmigan, numbers of red foxes increased during this reporting period. Low pelt value probably held the harvest of foxes below what trappers could have taken. Fox sign was abundant in valley bottoms, and foxes were observed reinhabiting hillside areas where they have been largely absent in recent years.

Wolverine

Although wolverine numbers are lower than during the 1960's and their distribution is more restricted, the harvest in 1986-87 increased dramatically over recent ones. Sealing certificates indicate that 32 wolverines were taken; however,

only 2 were taken in lowland areas away from mountains, indicating that the increased harvest was not due to wolverines expanding their ranges. Wolverines were abundant throughout the Northway-Tetlin Flats in the 1960's, but are uncommon there now. The Northway-Tetlin Flats support moderately high numbers of moose and, occasionally, caribou, so it is unlikely that low availability of prey or carrion is responsible for the scarcity of wolverines there; trap vulnerability and trapping pressure are probably the responsible factors. Mountain refugia and dense Dall sheep populations protect wolverines from danger of extirpation in Unit 12, but numbers and range could probably be increased if more conservative trapping seasons were implemented.

Management Summary and Recommendations

During this reporting period, populations of snowshoe hares, grouse, red foxes, and lynx increased. Beavers, coyotes, and otters probably remained nearly stable. Marten appeared to decline slightly and are expected to decline further because of their apparently inverse relationship with numbers of hares, lynx, and foxes. Muskrat numbers crashed because of high fall numbers and extremely low fall water levels.

Interpreting the effects of lynx season reduction from 4-1/2 to 2 months is confounded because of the harvest of lynx out of season. I think these illegal harvests have little effect on the population, and an increase can be expected because of an expanding hare prey base and increasing numbers of kittens in the last 3 harvests.

To promote improved understanding, compliance, and enforcement of trapping regulations, I recommend 1 season be established for all terrestrial furbearers. Lynx harvests would not be affected appreciably, and wolverine harvests would only be moderately reduced.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 13

GEOGRAPHICAL DESCRIPTION: Nelchina Basin

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Lynx

Trappers sealed 9 lynx from Unit 13 in 1986-87, down 61% from the 1985-86 harvest of 23. Lynx harvest has declined in Unit 13 each year since the peak of the cycle in 1982 (i.e., 274 lynx were sealed). Only 1 sealed lynx (11%) was a kitten, suggesting low kitten production or survival. Three (33%) lynx were harvested in December, four (44%) in January, and one each in February and March (22%), which was after the season had closed. Snowshoe hares, the primary prey of lynx, were scarce in Unit 13 during 1986-87; consequently, lynx numbers were low and are not expected to increase substantially in the near future.

Wolverine

There were 42 wolverines sealed in Unit 13 during the 1986-87 season, a 31% increase from the previous year's reported take of 32. Males and females composed 57% (24) and 33% (14) of the harvest, respectively, and the sex of 10% (4) was unknown. Trapping and snaring accounted for 29 (69%) of the wolverines sealed; of the 13 (31%) that were shot, 8 were taken by the land-and-shoot method. Harvest chronology was as follows: September, 1 (2%); October, 2 (5%); November 2 (5%); December, 7 (17%); January, 12 (29%); February, 13 (31%).

The observed decline in the wolverine harvest was partially attributed to the reduction (i.e., 31 days) in season length. This was the 2nd year that wolverines could now be taken legally during the month of March. The season was shortened to reduce the wolverine harvest by 20-40% of the 5-year mean (1980-84) of 60 wolverines. It appears that the reduction has been successful, because the 2-year (1985-86) mean harvest of

36 is 40% below that of the 5-year (1980-84) mean. No further regulatory changes are recommended.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 14A and 14B

GEOGRAPHICAL DESCRIPTION:: Upper Cook Inlet

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Beaver

The beaver populations in Subunits 14A and 14B remain at a moderate-to-high level. Only those beavers living adjacent to the road system received intense trapping pressure. Numerous complaints regarding damage by beavers continue to be received. During this reporting period, 5 permits were issued for the removal of nuisance animals, resulting in the destruction of 13 beavers. Additional complaints were handled in a manner that precluded destruction of the animals.

The total reported beaver harvest for Subunits 14A and 14B for the 1986-87 season was 301; 13% of those with known measurements were kits (i.e., 52 inches or less). This harvest level compares to 475 beavers harvested during the 1985-86 season that included approximately 17% kits.

Interest in beaver trapping remains low because of low pelt value and the difficulty of trapping through thick ice. The latter factor could be alleviated by expanding the trapping season to include the months of November and December. An increased harvest could help reduce nuisance beaver complaints and associated damage. Low proportion of kits in the harvest indicates the population is not being harvested at a maximum sustainable level.

Muskrat

The muskrat population remains at a low density throughout Subunits 14A and 14B; the greatest numbers are found in the Palmer Hayflats State Game Refuge and the Knik River drainages. Population levels in these 2 areas appear to be declining. The cause for this decline is unknown; however, it appears the water level in the marshes is lower than it had been in the early 1980's (i.e., repairs and modifications were

completed to the Alaska Railroad dike along the Matanuska River).

Red Fox

Foxes (i.e., 3 color phases) are found throughout Subunits 14A and 14B. No harvest figures are available; however, they are one of the primary furbearers sought by the trappers, despite the 50% decrease in value during the past year. During the winter of 1986-87 trappers reported harvesting numerous Samson foxes (i.e., lack of guard hairs). During this past season no reports were received of any Samson foxes being harvested. No cause for this condition has been identified and it is believed to still exist within the population.

Otter

Land otters are found in moderate numbers throughout the subalpine regions of Subunits 14A and 14B. There are no known areas of high concentration.

Land otters are not in high demand by trappers. Their hides are only of moderate value, and they are one of the most difficult furbearers to process. During the 1986-87 trapping season, 34 (20 in 14A, 14 in 14B) land otters were harvested. Most of this harvest is believed to have been incidental to beaver trapping. Because of the high incidental harvest by beaver trappers, seasons for both should coincide whenever possible.

Wolverine

Subunits 14A and 14B wolverine habitat is restricted to the foothills of the Talkeetna and Chugach Mountain ranges. Wolverines are found in low densities within suitable habitat. Seven wolverines were reported harvested from Subunits 14A and 14B during the 1986-87 season, compares with 15 harvested during the 1985-86 season and 10 harvested in 1984-85.

Wolverines are frequently harvested as an alternative species by land-and-shoot trappers seeking wolves. This method of wolf harvest was banned throughout Unit 14 for the 1986-87 season. The reduction in wolverine harvest is believed to be a direct result of the regulatory change eliminating aerial trapping of wolves.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 14C

GEOGRAPHICAL DESCRIPTION: Anchorage Area

PERIOD COVERED: 1 July 1986 - 30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Beaver

Within Subunit 14C beaver trapping is only permitted in the drainages of Glacier, Kern, and Peterson Creeks, and the Twentymile River. Good to excellent habitat exists throughout the drainages; however, since mountainous terrain within Chugach State Park precludes prime beaver habitat, numbers of beaver are low. Remaining lowland areas outside the park are extensively developed, and little beaver habitat remains.

Weather conditions in Subunit 14C have affected access, fur prices, and fluctuations in local beaver populations and harvests. These criteria have caused the harvest to peak every 4 to 6 years. During 1986-87, 9 trappers took 52 beavers; 8 of these were taken under special permits in areas normally closed to beaver trapping. Kits composed 25% of the harvest. All beavers were either trapped (65%) or snared (35%). The most recent comparable harvest occurred in 1980-81 when 45 were taken. During the 1981-86 period the mean annual harvest was 6.4 beavers.

Management Summary and Recommendations

Weather conditions and variable fur prices will continue to cause fluctuations in annual beaver harvests. Because the vast majority of prime habitat is under government ownership, it should remain largely unaltered. A total trapping closure would result in an increased beaver population and related stream blockage, flooding, and timber destruction. These undesirable occurrences, in turn, would lead to removal of the beavers causing them. Beaver populations are better managed through a general open season. Current seasons and bag limits provide ample opportunity for an appropriate level of harvest.

Other Subunit 14C Furbearers

No harvest of river otters, lynx, or wolverines was reported during the 1986-87 season. Lynx and wolverine numbers are thought to be low throughout the subunit. River otters are abundant only within the Twentymile River drainage. Wolverine and otter trapping is prohibited within Chugach State Park.

Information on furbearers which are not sealed is gained from trappers, park rangers and general observations. Coyotes, mink, and weasels are abundant throughout the subunit. Trapping effort is thought to be moderate. Red foxes and muskrats are uncommon and trapping effort is likely very light. Numbers of marten are low and trapping effort is moderate. Marten are more numerous from Bird Creek south to the Twentymile River, and scarce to absent in drainages to the north.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 16

GEOGRAPHICAL DESCRIPTION: West Side of Cook Inlet

PERIOD COVERED: 1 July 1986 - 30 June 1987

Season and Bag Limits

See Trapping and Hunting Regulations No. 27.

Beaver

Beavers are abundant and trapping pressure remains light throughout most of Unit 16. An October 1986 storm caused extensive flooding, with high waters removing the feed caches of many streambank colonies. Colonies that were unable to restock their caches prior to freeze up probably experienced high mortality rates. Loses from these colonies did not impact harvest because the combination of ice, over-flow, and water current made these colonies difficult to trap. Colonies not affected by flooding were preferred by trappers and continued to provide most of the harvest. In spite of flooding losses to the population, the greatest number of beavers were sealed (651) since the 1981-82 trapping season. Although areas readily accessible to trappers may receive heavy pressure, large areas receive no trapping and produce surplus animals that recolonize voids created by trapping or natural losses. Existing harvest levels are not considered excessive to the overall population.

Harvest distribution was 41% from Subunit 16A (269 beavers) and 59% from subunit 16B (382 beavers). Trapping was concentrated near roads and human habitation with 85% of the take from 10 of the 30 harvest code areas. The area in the vicinity of Alexander Creek includes portions of both subunits and is the most heavily harvested area for beavers. It produced 36% (233 beavers) of the unit's harvest and by subunit, 41% of the Subunit 16A harvest (109 beavers) and 32% of Subunit 16B's (124 beavers). Other important areas in Subunit 16A harvest were lower Lake Creek and the Susitna river drainages near the Parks Highway (33% and 24% of the harvest, respectively). In Subunit 16B, trapping was more dispersed with only the area accessible from Skwentna producing a moderate percentage of the harvest (24%).

Unless market prices justify the expense and difficulty of trapping remote areas, the beaver harvest will continue to be concentrated near human habitation and access points. Snow conditions during the 1986-87 winter allowed wider use of snowmachines. The result was an increased harvest due to trappers having access to more houses than during a mild winter. For Subunit 16A snowmachines were the most commonly reported transportation (58%), with automobiles 2nd (30%). Snowmachines were the primary transportation in Subunit 16B (74%) with aircraft a minor second (13%).

Although some local residents utilize trapping to subsidize winter expenses, most trapping is recreational in nature. This situation is not expected to change unless pelt prices raise significantly.

Land Otter

The harvest of 68 otters in 1986-87 was the second highest reported since the sealing otter skins began in 1977. Only the 1979-80 trapping season produced a higher harvest with 72 otters. This unit has extensive otter habitat so the high harvest reflects overall snow conditions allowing better trapping access rather than a change in population status. Except in Redoubt Bay, trapping is concentrated along waterways close to human habitation. Fewer otters were taken from Subunit 16A (12 otters as opposed to 20 in 1985-86), but Subunit 16B increased from 21 to 56 sealed. The Subunit 16B harvest was spread across the subunit with only the Skwentna-Donkey Creek area reporting a substantial increase (8 otters in both 1984-85 and 1985-86 to 14 otters in 1986-87). Sex ratio of the harvest was 29 males, 32 females, and 7 sex unknown. Ninety-three percent of the otters were taken with traps. In Unit 16A, 50% of the otters were taken using snowmachine transportation and 42% by automobile. Snowmachines were most commonly used in subunit 16B also at 68% with aircraft second at 18%.

Lynx

Six lynx were sealed all from Subunit 16B. All were females and half were taken with the aid of aircraft and half with snowmachines. Lynx numbers remain low throughout the unit.

Wolverine

Wolverines are usually taken in mountainous terrain and the species is not common in the lower Susitna-Yentna drainages. The harvest came primarily from Subunit 16B with 33 taken while 3 were reported from Subunit 16A. Increases were noted in two harvest areas: Redoubt Bay from 2 to 11

wolverines; and Skwentna River area from 4 to 10. The remainder of the increase was the result of an increase of small numbers of animals from several areas. The harvest pattern reflects improved snow conditions that allowed trapper access into remote areas, particularly with aircraft, rather than increased abundance of wolverines. Trappers took 22 wolverines with the aid of aircraft transport as opposed to 8 the preceding year. Harvest with the aid of snowmachines increased from 5 to 11. Sixty-seven percent of the harvest was taken in February and March under conditions of increasing daylight and excellent snow cover. Only 8 wolverines were shot including 2 taken by hunters during October. Method of take for the remainder of the harvest was by traps and snares. Males comprised 61% of the harvest.

Management Summary and Recommendations

Unit 16 has few resident trappers and trapping pressure is primarily recreational. This is particularly true in Subunit 16A where residents of other units enter the area by automobile or snowmachine. Near the Alexander Creek and Skwentna areas, residents exert most of the trapping pressure but for other areas, trappers are often nonlocals. Low fur prices have discouraged commercial trapping in this area. Unit residents tend to trap near their homes and nonlocals generally near recreational cabins or on traplines maintained by aircraft.

Harvest levels appear excessive for only 2 furbearers species in Unit 16. Lynx numbers are low and continued take of even a few animals could have long term negative impacts. The season should be closed until lynx increase and expand their distribution again. Protecting the reproductive base during the low should produce higher numbers of lynx during the next population high. The current high price of lynx pelts encourage efforts to trap them in spite of low abundance.

Wolverine harvest reflects snow conditions with high harvest during winters that favor aircraft and snowmachine transportation. Because environmental conditions have had a major impact on harvest, they have tended to mask short term population trends that might otherwise be evident. Since 1977, the number of wolverines in peak harvest years has been declining. This, coupled with observations of trappers, suggests that fewer wolverines are now present. As there has been no identifiable change in habitat that might cause a decline, peak harvest may have been excessive and adversely impacted the population. The greatest number of wolverines are taken in the late winter so season reductions at this time would be most effective. In the past 3 seasons, 37% of the harvest has occurred in February and 21% in March. Initially, the season

should be closed in March and additional closures may be recommended.

No changes in season or bag limits are recommended for other species.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 17

GEOGRAPHICAL DESCRIPTION: Northern Bristol Bay

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Beaver

Although surveys conducted in October 1986 indicated nearly record-high numbers, the beaver population declined slightly during this reporting period. High water prior to freeze-up may have caused significant mortality in lodges along the main channels as many food caches washed away. Surveys conducted along 436 miles of rivers prior to the late fall high water yielded a total cache count of 633 (1.5 caches per mile). The caches per mile index remained at 1.3 from 1982 through 1985.

A total of 2,817 beavers were trapped during the 1986-87 season in Unit 17. Of these, 566 (20.1%) were kits. The harvest breakdown by subunit was: 17A - 160; 17B - 686; and 17C - 1,971. This is the highest recorded harvest since 1967-68 when 3,158 beavers were reported taken.

Land Otter

Otter populations increased steadily during the early 1980's and appear to be stable at high densities throughout most of the unit. The harvest rose steadily from 166 in 1980-81 to 219 in 1984-85, declined to 101 in 1985-86 and increased again during this period to 189. Pelt prices remained low for land otter in 1987. Most otters (75.1 %) were taken in Subunit 17C where beaver trapping pressure was the heaviest. Many otter are incidental catches in beaver snares.

Lynx

Lynx occur sporadically throughout Unit 17 at low densities and are very scarce in Subunit 17A. Reported annual harvests have ranged from eight in 1985-86 to 40 in 1980-81. The harvest during this reporting period was 13, consisting of 11 adults and 2 kittens. The harvests seem to be directly

related to the population composition: kitten production during the past 10 years was highest from 1978-81, peaked in 1981, and has remained relatively low since. As with many other species in Unit 17, most lynx are taken by beaver trappers during beaver season.

Marten

Marten were uncommon in most of Unit 17 prior to 1970. Marten trapping was popular in the northern-most regions of Unit 17 during the 1930's and 1940's. Since then and until the mid-1980's, most marten trapping was incidental to beaver or fox trapping. While marten are rarely seen in Subunit 17A or the lower portion of Subunit 17C, trappers have commented that marten began increasing in the Wood-Tikchik Lake system during the late 1970's. Fur buyer records are incomplete, but during the past 10 years they indicate that marten purchases peaked in 1982-83 and have been declining since.

Muskrat

Long-term residents of the northern Bristol Bay area have stated that muskrats were quite common in the Dillingham area and along the lower Nushagak River drainages prior to 1940. Populations have declined since then to low levels throughout Unit 17. Muskrat have been relatively scarce during the past 10 years. The highest reported take since 1972-73 was 53 muskrats in 1980-81. The mean annual harvest during the same period was 13 muskrats.

Red Fox

In the past decade the red fox population in Unit 17 has fluctuated greatly. Populations peaked in 1979-80 when 1,076 foxes were purchased by fur buyers. Numbers declined severely as a result of a rabies outbreak in 1979-80 and remained low through the mid-1980's, reaching their lowest level during 1985-86. Trapper reports and general observations indicate that the fox population increased substantially during this reporting period.

Wolverine

Wolverines occur throughout Unit 17 but are most common in Subunit 17B. The 1986-87 reported harvest was 40 wolverines, consisting of 41 males and 9 females. Thirty-two were taken in Subunit 17B and 8 were taken in Subunit 17C. Since 1971-72, annual reported harvests have ranged from 14 in 1983-84 to 78 in 1974-75. Harvest levels have remained relatively constant from 1975-76 to the present; the mean

annual harvest during this period was 43 wolverines. Trapping is the most common method of take for wolverines in this unit.

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FURBEARER

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 18

GEOGRAPHICAL DESCRIPTION: Yukon-Kuskokwim Delta

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Summary

Except for wolverines and lynx, furbearers are common in all areas of suitable habitat in Unit 18. Weather was mild and stable in spring and summer 1987, providing favorable breeding and rearing conditions. A record number of beavers were sealed from Unit 18 during this reporting period. Beaver continued to expand their range and utilize habitats that appeared to be less than optimal, including alpine streams and coastal tundra ponds. Muskrat populations are rapidly recovering from previous population lows, and lynx populations are increasing in size. Wolverine harvests have remained relatively low during the last decade, and the population is small but stable in size. Abundant microtine rodents provided food for furbearers such as foxes, lessening predation pressure on depressed snowshoe hare and waterfowl populations. Although fox numbers remained high, an outbreak of rabies did not occur during the reporting period.

Although a record number of furbearers were sealed in Unit 18 during 1986-87, many furs used domestically were not sealed. I believe that the actual harvest of some species, such as wolverine, otter and beaver, is substantially higher than the number sealed.

Beaver

Beavers in Unit 18 are estimated to number over 40,000, and they continue to expand their range throughout the unit, particularly into coastal regions and treeless habitats of the Delta lowland and alpine regions of the Kilbuck Mountains. Populations in better-quality habitats along forested rivers appear stable in size, but the incidence of fighting scars on pelts is increasing, suggesting increased crowding. Beaver houses and caches are abundant on sloughs of major rivers, such as the Yukon, Kuskokwim, and their tributaries. Beavers

have colonized Nelson Island within the last 2 decades, damming many upland tundra streams. Beavers continue to colonize areas close to villages, even when subjected to heavy trapping pressure.

Fur buyers reported a slight increase in the number of kits purchased in 1986-87, but a high proportion of the harvest was composed of large, mature animals. Many trappers targeted mature animals because of the higher prices paid for large pelts.

Staff remain concerned about potential effects a severe winter (i.e., characterized by thick ice) would have on beaver populations in marginal habitats. Some individuals have observed that caches in marginal alpine habitats were smaller than those in better-quality lowland habitats. Some trappers are concerned about the potential for a population decline, but many local residents would like to see beaver numbers reduced, because beaver dams are perceived as major impediments to whitefish and salmon migrations.

Beaver-trapping activity has increased significantly in the last several years. Although the 1986-87 harvest of 3,722 beavers is the highest reported for Unit 18, it is not considered to be excessive. The local rural economy remains cash-poor, and trapping provides needed income during winter. Beaver in Unit 18 are taken throughout the legal trapping season (November-June). Even though beaver are not fully prime during November, the meat and pelts are valuable for domestic use. Beaver are legally taken by shooting during April to June. No changes in beaver seasons and bag limits are recommended.

River Otter

Trappers and fur buyers reported that otters were common and the population was stable. The proportion of small otter pelts in the harvest has remained approximately the same during the past several years, indicating stable recruitment. Because otters are considerably more mobile than beavers, they are less susceptible than beavers and muskrats to winter freeze-outs.

The 1986-1987 reported harvest of 320 otters is higher than last year's harvest of 190 but lower than the 1984-85 harvest of 587. Travel and snow conditions during November and December have strongly influenced the harvest of otters. Conditions were reported to be poor during 1986. Warm weather and low snow cover in the fall of 1986 hampered trapping activity. Because otter prices were low, little economic incentive existed for trapping otters. Many otter skins were used domestically and not sold. An increase in price would

probably be accompanied by an increase in harvest. Fur buyers in Unit 18 sealed proportionately more otters than other appointed sealers during the reporting period, compared with last year; however, this may only reflect their increased travel to villages to buy furs. Some otters were taken incidentally in beaver sets after the close of the otter season (March 31). Because overharvesting of otters is presently not a management concern, I suggest the otter trapping season be extended to coincide with that for beavers.

Wolverine

Annual wolverine harvest has remained relatively stable at low levels (i.e., less than 20 animals) in Unit 18 during the last decade. During the winter of 1986-87, 8 wolverines were sealed. I believe that wolverine numbers are currently low but stable. Wolverines were regularly observed and trapped only in the remote portions of the Kilbuck and Andreafsky Mountains; they were only rarely observed on the vast lowland of the Yukon-Kuskokwim Delta. Many of the wolverines used domestically for parka ruffs probably were not sealed. Wolverines are usually taken opportunistically because they are relatively scarce and wide ranging. Wolverine prices were high, but little trapping effort in Unit 18 was directed specifically towards them. No changes are recommended in wolverine seasons and bag limits.

Lynx

The brushy, boreal habitat favored by lynx is limited to the northern and eastern portion of the unit. During the past 5 years, sizeable numbers of lynx were taken near Kusilvak Mountain and in revegetated mining areas along the upper Tuluksak River. Sixty-seven lynx were sealed from Unit 18 in 1982-83 when snowshoe hare numbers were high. Only 8 lynx were sealed from the Unit in 1986-87. The number of lynx sealed in Unit 18 during 1986-87 is the lowest since sealing was first required in 1977. Because lynx prices were very high, most lynx taken in the unit were sealed and sold.

The increased snowshoe hare population in Unit 18 should provide an expanding prey base for lynx. The availability of microtine rodents, now approaching a population high, may have reduced fox predation on depressed hare stocks. Trappers reported that lynx populations are beginning to recover from a normal cyclic low. No changes are recommended in season and bag limits for lynx.

Fox

Foxes were abundant in Unit 18 during 1986-87 and pelt prices were low. There was concern that the abundance of red foxes in Unit 18 during 1986-87 would lead to a rabies outbreak; however, the breakout did not materialize. One Bethel fur buyer purchased over 700 red foxes; several hundred of these had been taken in the immediate vicinity of town. In the early winter of 1986-87, red foxes were observed denning under school buildings in Bethel, foraging in trash bins, and stealing dog food. The potential for a rabies outbreak concerned municipal officials, and many individuals believed that the disease would cause a fox population decline.

The distribution of white foxes is more coastal than that of red foxes in Unit 18. White fox numbers appeared to be high and stable, but productivity may be low in some areas. White fox prices were low during 1986-87 and many trappers felt the return did not justify the effort required. Most white fox pelts were used domestically. A local fur buyer purchased approximately 100 white foxes, had the pelts tanned, and resold them locally; otherwise, there was little commercial demand for white foxes.

Necropsies conducted on a small sample of white foxes collected from Kigigak Island indicated that productivity in the spring of 1986 may have been very low. Because the sample size was small and the foxes were collected from a small geographic area, the results were not conclusive for the entire unit. White foxes were removed from Kigigak Island by the U.S. Fish and Wildlife Service (USFWS) as part of an experiment to improve goose nesting success. Observations indicated that goose productivity on Kigigak Island in the spring of 1987 may have been higher than that of the recent past. However, little white fox predation on geese was documented in other areas of Unit 18 in the spring and summer of 1987 because of the widespread availability of microtine rodents.

Muskrat

Muskrat populations in Unit 18 are still recovering from a previous low. Trappers and other local residents reported observing many more muskrats than they had observed a few years ago. Muskrat numbers are regulated primarily by water levels, winter ice conditions, and disease outbreaks and not by trapping activity. A resident fur buyer in Bethel purchased less than 50 muskrat skins in 1984-85, nearly 500 in 1985-86, and over 2,200 in 1986-87. Because prices have risen in the last year, the increased harvest may be a function of increased economic incentive as well as increased availability. In contrast to other furbearers, muskrats are taken predominantly in the spring in Unit 18.

Mink

Mink historically have been an economically important species for residents of the Yukon-Kuskokwim River Delta. Trapping is normally limited to November and December; it is influenced by weather and snow conditions. The magnitude of harvest reflects trapping and travel conditions during November and December more than abundance. Mink trapping in the fall of 1986 was hampered by poor travel conditions, lack of snow, and warm weather that lasted into December. Trappers were unable to trap mink beyond a limited radius around villages; therefore, very heavy pressure was applied. Mink numbers away from villages were reported to be good, but the harvest was very low. Only several thousand Delta mink reached the commercial market. In the recent past, the annual mink harvest has reached 16,000.

Marten

Marten in Unit 18 primarily occupy forested areas along the Yukon and Kuskokwim Rivers and their tributaries. Trappers reported that marten numbers may be increasing. Marten were trapped along the Kuskokwim and Gweek Rivers just above Bethel and along the Yukon at least as far downriver as Marshall. Marten densities were not high in Unit 18 but the population is considered stable.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 19

GEOGRAPHICAL DESCRIPTION: Upper and middle Kuskokwim River drainages

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Beaver

Beaver populations appear to be high and expanding throughout Unit 19, particularly where optimum habitat exists. In Subunits 19B and 19C where habitat is generally marginal and restricted, beaver populations appear to be stable. In Subunits 19A and 19D where beaver habitat is more favorable, populations appear to be high and healthy.

Beaver harvest during the 1986-87 season totaled 1,674 animals, substantially higher than the previous 10-year-annual average of 1,151. Subunits 19A and 19D provided the majority (91%) of the harvest (Table 1) as reflected by the available habitat and access. The noticeable increase in the harvest during this reporting period was probably due to expanding beaver populations as well as an increase in pelt prices, providing an additional incentive for trappers.

One hundred forty-five trappers reported taking beavers for an average of 11.5 beavers per trapper. The number of trappers was almost double the number that sealed beavers during the 1984-85 season, i.e., when 75 trappers took 700 beavers (mean number of beavers per trapper = 9.3). Ninety-seven percent ($n = 1,624$) of the beaver harvest during the 1986-87 season was taken by residents of the unit; the remaining 3% was harvested by other Alaska residents. Snow machines were the most common mode of transportation (75%), and snaring was the most common method of capture (81%). Of 1,641 beaver pelt measurements recorded on sealing documents, 143 (8.7%) were judged to be kits (≤ 52 inches) and 757 (46.1%) were large adults (≥ 65 inches). Harvest dates were also available for 1,613 beavers; the chronology of the harvest follows: November, 37 (2.3%); December, 75 (4.7%); January, 119 (7.4%);

February, 405 (25.1%); March, 726 (45.0%); and April, 250 (15.5%).

No beaver cache counts were conducted during the 1986-87 reporting period. However, survey routes for food cache surveys were established during the fall of 1987. Results of cache counts (i.e., an index of abundance) will be available in the 1987-88 annual survey and inventory report.

Land Otter

The harvest of land otters in Unit 19 continued to be incidental to beaver and other animal trapping. The average pelt price remained relatively low, providing little incentive for trappers to specifically target otters. The 1986-87 harvest of 73 otters was not statistically different from the 9-year mean of 71 (range, 55-105). Harvest chronology duplicated the chronology of beaver harvests in the unit. Nearly half the annual harvest occurred in March; the remainder of the harvest occurred throughout the open season. Consistent with most previous years, Subunit 19A provided one-half of the unitwide harvest (36 of 73, or 49%). Eight of the 73 otters harvested (15%) were considered to be pups (combination of length and width <39 inches). Mean pelt size for all harvested otters was 44.8 inches. Thirty-nine trappers harvested otters, yielding an average take of 1.9 otters per successful trapper. Almost 90% of the harvest was by residents of the unit; the remainder was taken by other Alaskan residents.

Lynx

Sixteen trappers took a total of 26 lynx from Unit 19 during the 1986-87 season (1.6 lynx/trapper). This is the lowest harvest that has occurred in the last 10 years. The highest harvest during 1977 through 1985 was 283 animals during the 1981-82 season. Incidental observations of snowshoe hares in scattered locations throughout the unit indicated a rebound in the hare populations, and I suspect that lynx catches will increase.

The lynx catch in the various subunits was distributed as follows: 19A, 9; 19B, 2; 19C, 7; 19D, 8. Residents of Unit 19 harvested 19 of the 26 harvested; the remaining seven were taken by other Alaskan residents. Based on 25 lynx measurements recorded on sealing documents, only two (8%) were judged to be kittens (<40 inches, combination of length and width). Of 25 sealed pelts where date of harvest was known, 10 (40%) were taken in March, eight (32%) in February, five (20%) in January, and one each (4%) in November and December.

Wolverine

As with most other furbearer species in Alaska, few data are available concerning population status and trends of wolverines. However, mandatory sealing of skins has provided an account of harvests since 1971-72. These data, in the absence of other, more quantifiable information, probably provide some indication of population trend. Although numerous other factors undoubtedly affect the harvest (i.e., access conditions due to weather and land ownership, pelt prices, abundance, and value of alternate species, etc.), trends in the harvest may provide some insights into population trends.

In Unit 19 wolverine harvests have remained relatively stable since mandatory sealing was initiated. The 1986-87 harvest of 52 is slightly below the previous 9-year mean of 60. Wolverine harvest locations are evenly distributed throughout Unit 19: Subunit 19A, 10; 19B, 15; 19C, 13; 19D, 14. Thirty-three trappers were responsible for the harvest of the 52 animals, yielding a mean catch of 1.6 wolverines per trapper. Nineteen unit residents reported taking wolverines, and an additional 14 trappers from other Alaskan locations constituted the remainder of successful trappers. Consistent with previous years, the harvest was weighted toward a preponderance of males (65%). Traps and snares were the primary method recorded for capturing wolverines (35 of 45, 78%); land-and-shoot trapping accounted for the remainder (10 of 45, 22%). Most wolverines (63%) were harvested in February and March (12 and 20, respectively). No wolverines were reported to be incidentally taken by big game hunters during the fall.

Although the average price for wolverine pelts or the number of trappers sealing them has not declined significantly, there has been a noticeable decrease in numbers of wolverines harvested from Unit 19 since the 1977-78 season. However, when data are analyzed over a longer period of time (1971-72 through 1986-87), the 1986-87 annual harvest of 52 wolverines is not significantly different (i.e., $\bar{x}$ over 16-year period = 55 wolverines).

Trapper Questionnaire

In addition to the annual distribution of Trapper Questionnaires through the Fairbanks furbearer program, 51 questionnaires were mailed in January to trappers whose names had been obtained from sealing documents; 23 were returned. Trappers were asked to indicate the numbers of animals harvested from each furbearer species that had not been sealed as well as complete a check-mark section regarding population trend (i.e., increasing, decreasing, stable) for each of these

unsealed species. Populations listed as increasing were assigned a value of 9, stable populations were assigned a value of 5, and decreasing populations were assigned a value of 1. All responses were lumped, and a mean index was calculated. The overall results of the trapper questionnaires follows.

Coyote:

Viable coyote populations in Unit 19 are presently restricted to areas in or near the Alaska Range. Apparently, coyotes have been invading Unit 19 from areas south of the range, where they are well established. In addition, trappers along the Yukon River (Subunit 21E) reported increases in coyote populations, and I suspect that those expansions will eventually be reflected in future harvests in Unit 19. Although only 2 coyotes were reported harvested by questionnaire respondents, the mean population index was 6.60, indicating a general increase in the population.

Marten:

High prices paid for marten pelts (almost \$100 per pelt) have resulted in increased trapper interest in the species. Twenty of 23 trappers who responded to the questionnaire reported taking 1,072 marten, for a mean of 53.6 marten per trapper. Twenty-one trappers who responded to the Unit 19 questionnaire rated the population status of marten in their respective trapping areas. The mean population index value of 3.86 indicates that marten populations have decreased slightly since the previous year. Efforts and success rates of area trappers should continue in order to document population status. If pelt prices remain high and results of the questionnaire continue to indicate a decline, management changes may be necessary to arrest the decline.

Mink:

Low market demand for mink has resulted in poor pelt prices, which have led to little trapper effort. Nine mink were reported taken by 5 trappers, for a mean of 1.8 mink per trapper (Tables 2 and 3). This low reported harvest and low number of mink per trapper probably reflect a lack of trapping effort rather than population status. My incidental observations in suitable mink habitat suggest reasonably high populations. Results of the questionnaire tend to substantiate this observation, because the 15 respondents who rated mink populations in their respective areas gave a population index of 4.47 (stable population).

Muskrat:

Muskrat populations are quite low and apparently continuing to decline in most of Unit 19. Only 5 muskrats were reported harvested by 3 of the 11 trappers who provided a rating for the index (1.7 muskrats per trapper). Muskrat pelt prices were low so little trapper effort was exerted, but I believe populations are quite low. Overall, muskrats had the lowest population index (2.82) of the 6 species listed on the questionnaire, indicating further declines relative to previous years.

Red Fox:

Although red fox populations appeared to be well established in all areas of Unit 19, there was little trapper effort to harvest them. Seventy-five foxes were reported taken by 19 trappers (3.9 foxes per trapper). Twenty-two of 23 questionnaire respondents provided a population index. Those indices were highly variable among areas, but the mean unitwide index was 4.45, depicting a relatively stable fox population.

Weasels:

Short-tailed weasels are often caught incidentally to other species. Little or no trapper effort is directly targeted toward weasels because of low demand in the fur market. Nineteen weasels were reported harvested by 8 trappers (2.4 weasels per trapper), and populations were rated as stable (population index = 5.62).

Summary

Beaver populations unitwide are apparently high and increasing, and an increase in the harvest is expected. An increase in opportunities to harvest beavers should be investigated. Land otter harvest is incidental to the beaver harvest, and little effort is directed specifically toward that species. No changes in seasons or bag limits are recommended. The lynx harvest was low; however, with the apparent increase in hare populations lynx populations should increase. A shortened season or methods and means restrictions should be considered if lynx populations (as reflected in the harvest) do not rebound. Wolverine populations appear to be stable throughout Unit 19. At this time, no changes in season length, bag limits, or methods and means are recommended. Mink populations are apparently stable and relatively high, but harvests are low because of low market demand; no changes are recommended. With the high prices being offered for marten pelts, leading to high trapper effort for this species, reporting efforts should continue in order to document

population trends. At this time, no changes are recommended, but if declines in the population are documented, restrictions may be warranted. Weasels and red foxes are other furbearer species that appear widespread and stable. Coyote populations will probably continue to expand, and trapping regulations should remain liberal to allow harvest. Because of low market value, muskrat populations are presently affected little by current seasons and harvest levels, so no changes are recommended.

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Table 1. Harvest results of furbearers sealed during the 1986-87 regulatory year in Unit 19, Alaska.

Species	19A	19B	19C	19D	Totals
Beaver	912	96	61	605	1,674
Land otter	36	22	1	14	73
Lynx	9	2	7	8	26
Wolverine	10	15	13	14	52

Table 2. Population trend indices of 6 furbearer species in Unit 19, Alaska, as gathered from 1987 trapper questionnaires.^a

Area	Mink	Marten	Weasel	Red fox	Coyote	Muskrat
Downriver ^b	3.0	3.4	7.0	4.4	--	3.7
Mid- and upriver ^b	5.0	4.6	5.6	4.6	--	2.6
High elevation (Alaska Range)	4.0	2.3	5.0	5.0	6.6	1.0
Overall Unit 19 index	4.47	3.86	5.62	4.45	6.60	2.82

^a Results are in reference to the 1986-87 trapping seasons. Respondents listed individual species as either increasing (index = 9), stable (index = 5), or decreasing (index = 1).

^b Downriver areas are drainages into the Kuskokwim River downstream of the Swift River. Mid- and upriver areas are drainages into the Kuskokwim River upstream of and including the Swift River.

Table 3. Number of furbearers harvested per trapper as reported by questionnaire respondents for the 1986-87 trapping seasons in Unit 19.

Area	Mink	Marten	Weasel	Red fox	Coyote	Muskrat
Downriver ^a	1.0	23.4	--	1.8	--	2.0
Mid- and upriver ^a	2.3	75.7	2.5	3.0	--	1.0
High elevation (Alaska Range)	1.0	39.2	2.0	7.0	2.0	2.0
Overall Unit 19 harvest	9	1,072	19	75	2	5
Catch/trapper	1.8	53.6	2.4	7.0	2.0	1.7

^a Downriver areas are drainages into the Kuskokwim River downstream of the Swift River. Mid- and upriver areas are drainages into the Kuskokwim River upstream of and including the Swift River.

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 20

GEOGRAPHICAL DESCRIPTION: Central Tanana Valley

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Beaver

During the 1986-87 reporting period, 175 successful trappers reported harvesting 1,860 beavers in Unit 20. Kits (i.e., pelts ≤ 53 inches) made up only 8% of the harvest. Adults (i.e., pelts ≥ 59 inches) made up 78% of the harvest, and 14% of the harvest were of intermediate size. In general, when kits compose less than 20% of the overall harvest, it is not considered to be detrimental to beaver populations. The 1986-87 harvest was similar to the 1985-86 harvest of 1,830 beavers.

Distribution of the harvest by subunit is given in Table 1. Harvests along major river systems were as follows: Tozitna River, 49; Nenana River, 64; Wood River, 71; Chatanika River, 118; Tolovana River, 157; Chena River, 240; and Kantishna River, 241.

The trapping season is closed to the taking of beavers in the lower Chena River drainage of Subunit 20B, which includes the city of Fairbanks. As a result, beaver populations are high and a considerable number of human-beaver conflicts exist. Beaver cache surveys conducted in October 1986 and 1987 resulted in documentation of 25 active lodges in the Chena River below the confluence of the Little Chena during both years (Table 2). Colony density was 0.63 colonies/km in the survey area. Boyce (1974) estimated the saturation point for beavers in most interior Alaska habitats at 0.4 colonies/km. Based on an average of 5 beavers/colony (Hill 1982), an estimated 200-250 beavers resided in the closed area during fall 1987. That estimate includes beavers on Noyes Slough, Badger Slough, Deadman Slough, the Chena River, various gravel pits, and other water bodies within the closed area.

During summer 1987, 11 permits were issued by the Department to local residents for removal of nuisance beavers (Table 3). A minimum of 21 beavers was taken under the authority of those permits. Regulation proposals were submitted to the Board of Game in November 1987 to open the beaver trapping season in the lower Chena River drainage. The Board approved a limited registration permit system for beaver trapping that will be implemented in fall 1988.

River Otter

Seventy-one river otters were reported taken in Unit 20 by 30 successful trappers in 1986-87. Subunits 20B and 20C provided most of the otter harvest (Table 1). Otter harvests from 1983-84 through 1985-86 were 47, 20, and 52, respectively. General observations of otter tracks made during moose surveys in November 1986 and 1987 indicate otters continue to be moderately abundant in Subunits 20A, 20B, and 20C.

Lynx

Sealing records indicate 214 lynx were taken in Unit 20 by 90 successful trappers in 1986-87. Harvests in 1984-85 and 1985-86 were 222 and 251 lynx, respectively. As in previous years, Subunit 20B supported the greatest harvest (Table 1).

Lynx populations in Interior Alaska are currently near the low point of their population cycle. The percentage of kittens in the harvest serves as an indication of lynx reproductive success and, therefore, as an indicator of pending increases in population size; it was highest in Subunit 20B (32%) and 20C (30%), suggesting lynx numbers may soon exhibit an upward trend in these areas.

Overall, the Unit 20 harvest consisted of 24 kittens (pelt length ≤ 35 inches).

The Board of Game adopted lynx trapping regulations that implement a "harvest tracking strategy" for lynx management in areas where trapping pressure may affect lows and highs in the lynx abundance cycle. Under this strategy shorter trapping seasons will occur during low and recovering cycles in lynx populations. Longer seasons will be implemented when lynx are approaching the high point of their cycle. I recommend the current conservative trapping seasons be maintained in Unit 20 until harvest and survey data indicate a definite increase in lynx abundance.

Wolverine

Fifty-one wolverines (27 males, 19 females, and 5 of undetermined sex) were reported taken in Unit 20 by 40

successful trappers in 1986-87 (Table 1). Although it is difficult to calculate acceptable harvests of wolverines, the preponderance of males in the harvest (60%) may indicate the harvest was not excessive. This interpretation rests on the documented fact that male wolverines have larger home ranges than females. Hence, it seems reasonable that their susceptibility to trapping is greater. If this is so, a high proportion of females in the harvest could be an indication of high trapping pressure. In Subunits 20B and 20C males made up only 42% and 25%, respectively, of the harvest. However, sample sizes are too small (20B, $n = 12$; 20C $n = 6$) to allow discussion of overharvesting in these subunits. Actions taken by the Board of Game in November 1987 prohibited land and shoot taking of wolverines and shortened the trapping season by 1 month. Those regulations will become effective for the 1988-89 trapping season and will probably reduce the wolverine harvest.

Literature Cited

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- Hill, E. P. 1982. Beaver. Wild Mammals of North America. Pages 256-282 in Chapman, J. A. and G. A. Feldhammer, eds. John Hopkins Univ. Press, Baltimore.

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SUBMITTED BY:

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Table 1. Reported harvests of sealed furbearers in GMU 20, 1986-87.

Species	Subunit						Total
	20A	20B	20C	20D	20E	20F	
Beaver	153 (13) ^a	823 (9)	697 (4)	69 (19)	5 (20)	113 (4)	1,860 (8)
Lynx	25 (4)	65 (32)	50 (30)	20 (25)	11 (0)	43 (19)	214 (23)
Otter	9	25	31	6	0	0	71
Wolverine	7	13	6	6	10	9	51

^a (Percent young of the year in the harvest), beaver pelts <53 inches, lynx pelts <36 inches.

Table 2. Results of beaver cache surveys 1986-87 on Chena River below its confluence with Little Chena and Noyes Slough, Unit 20.

Year	Lodges on Chena River		Lodges on Noyes Slough		Linear stream distance	Colony density
	Live	Dead	Live	Dead		
1986	25	15	8	7	49 km	0.67/km
1987	25	11	--	--	40 km	0.63/km

Table 3. Nuisance beaver permits issued in Fairbanks area, 1984-87.

Year	Within Chena drainage closed area	Total sites in or near Fairbanks for which permits were issued ^a	Total permits issued in or adjacent to closed area ^a	Reported nuisance beaver harvest
1984	3	4	4	--
1985	8	13	17	--
1986	5	8	16	7
1987	7	9	11 ^b	21

^a Includes Eielson, Laurance Road, North Pole, and other sites outside closed area.

^b Known public contacts regarding nuisance beaver total 27.

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 21

GEOGRAPHICAL DESCRIPTION: Middle Yukon River drainages

PERIOD COVERED: 1 July 1986-30 June 1987

Seasons and Bag Limits

See Trapping and Hunting Regulations No. 27.

Trapping Conditions

The weather was mild for most of the trapping seasons, and the snowfall was higher than average for the area. Hare populations are still low throughout the unit, except in a few isolated refugia in willow communities along the major rivers; however, based on an increase in the number of tracks observed, the population is increasing. In black spruce and cottonwood habitats, rodent densities were lower than in previous years in the Yukon and Koyukuk River lowlands. In a grass meadow habitat, rodent densities were higher than 1984 and 1985 levels.

Beaver

During the reporting period 1,838 beavers were sealed in the unit. Subunit 21D had the highest harvest (992); only 291 animals were harvested in the Kaiyuh Flats. In spite of a longer season, the harvest in Subunit 21E was down slightly (402 animals). The overall harvest continues to be lower than the estimated harvestable population.

Lynx

Harvest data indicate that lynx populations throughout the unit may have reached the low point of their 10-year cycle (Table 1). I expect them to remain stable for the next 3 years. Extremely high fur prices caused trappers to increase their effort, and some expanded their efforts into untrapped, willow-birch areas. Although the upper drainages of the Nulato, Gisasa, and Kateel Rivers are not normally trapped, they were subject to increased pressure from Unit 21 and 22 trappers.

Wolverine

Harvest of wolverines was below normal (Table 1) in spite of the good aerial trapping conditions. Numerous wolverine tracks were seen during aerial wolf surveys in late March, indicating normal-to-high population levels.

Otter

Otters continue to be very abundant in the unit, but low prices and trapper interest kept reported harvests low (Table 1). Otters are usually taken incidentally in beaver traps, and more otter were probably taken than sealing records indicate because the beaver harvest was high.

Coyote

Coyotes are still common in the immediate Galena area, and a few are caught each year. There is a resident pack just north of the Galena airfield; however, with wolves generally abundant, coyotes are scarce elsewhere within the unit.

Fox

Fox populations were high along the major rivers in the unit, but harvests were low because of low fur prices.

Marten

Marten prices remained high, leading to increased trapping effort. Trappers reported good catches at the start of the season, but then cold weather (-40°F) decreased success. Around mid-December the weather moderated and catches increased. However, harvests were about average despite the higher prices.

Mink

Mink continue to be furbearers of minor importance in the unit; few trappers actively attempt to catch them. The price for wild-caught Interior mink is low.

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Table 1. Furbearer harvests in Unit 21, 1982-87.

Species	1982-83	1983-84	1984-85	1985-86	1986-87
Beaver	882	984	700	1,802	1,838
Lynx	364	121	123	162	62
Otter	32	103	68	52	62
Wolverine	78	32	57	55	30

Table 2. Lynx harvest by subunit in Unit 21, 1982-87.

Subunit	1982-83 ^a	1983-84 ^a	1984-85	1985-86	1986-87
21A	16	2	2	20	6
21B	49	5	13	31	4
21C	13	0	1	4	4
21D	236	86	82	86	41
21E	43	21	25	21	7

^a Hand count of certificates in Galena.

FURBEARER

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 22

GEOGRAPHICAL DESCRIPTION: Seward Peninsula

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Summary

Research studies designed specifically to evaluate the population status of furbearer species in Unit 22 have never been conducted. Limited information on furbearer distribution and densities continued to be gathered annually from biologists' observations in the field, conversation with unit residents and an annual Trapper Questionnaire. Harvest information is obtained annually from sealing records, the Trapper Questionnaire, and fur acquisition records submitted by fur buyers (Tables 1-5).

The Trapper Questionnaire was sent to 21 individuals who had sealed furs in the unit during the past year; of these, nine (43%) responded to a request for information. As in past years, no reminder letters were sent. A summary of questionnaire results was sent back to all respondents. Because this questionnaire is only sent to individuals who have sealed furs, a method of expanding its distribution is needed.

Furbearers continue to be most abundant in Subunits 22A and 22B where spruce and riparian willow vegetation are common. Records indicate that furbearer densities and harvests in the unit have fluctuated in past years. However, because data are lacking or are imprecise, I do not know with certainty whether these fluctuations were caused by hunting mortality or natural factors. Hunting and trapping pressures have noticeably reduced furbearer and other small game numbers in areas adjacent to some villages in Unit 22. However, I believe these reductions are localized and most fluctuations in furbearer numbers are caused by natural factors.

The accuracy of furbearer harvest data remains one of the more pressing management problems in Unit 22. Although fur sealing agents are available in all Unit 22 villages, a significant

portion of the furbearer harvest is not sealed or sold; rather, it remains unsealed and is made into garments and handicrafts. It is presently unclear to many village residents why furs need to be sealed, particularly if they are utilized immediately. Continued public contact by biologists and enforcement personnel is needed to explain the importance of sealing requirements.

Fur acquisition data submitted by fur buyers needs to be forwarded to biologists in a more timely manner. These data provide minimum harvest figures for those species not sealed (i.e., mink, muskrat, fox, etc.) and often are used for assessing harvest trends.

Beaver

Highest beaver densities are found in Subunits 22A and 22B; however, beaver numbers are increasing significantly in Subunits 22C and 22D as they continue to expand westward onto the Seward Peninsula. New lodges and beaver sign are now commonly observed in many of the major drainages of these subunits.

Sealing records and results of the Trapper Questionnaire indicate that 9 beavers were taken from the unit during the reporting period. All animals were reportedly taken from Subunit 22A by individuals using snowmachines. Eight were snared, and one was trapped. Not all beavers harvested are sealed, nor are they taken during the current season using legal methods and means. Beaver pelts are especially prized by local skin sewers, and most beavers are used locally for clothing. I estimate the actual harvest in Unit 22 was 40-50 beavers.

During the past 3 years, conversation with local residents and results of the Trapper Questionnaire indicate that numerous residents of Subunits 22A and 22B take beaver in the spring using firearms. Some individuals have requested regulatory changes that would legalize this practice and also provide more uniform beaver regulations throughout northwestern Alaska. Currently, the practice is legal in neighboring Units 18 and 23. Prompted by this request, I propose the following changes in beaver regulations for Subunits 22A and 22B: (1) extend the existing season closing date of April 15th to June 10th and (2) allow the use of firearms for taking beavers in those Subunits.

Lynx

Lynx densities unit-wide continued to decline during the past year because of extremely low densities of hares. The current

reported harvest of 18 lynx is the lowest on record for Unit 22 since sealing of lynx was first required in 1977 (Table 1). Sex composition of the reported harvest is as follows: 59% males and 41% females. A breakdown of the harvest by Subunit is as follows: 22A, 9 lynx; 22B, 8 lynx; and 22D, 1 lynx. Harvest chronology indicates that lynx were taken from November through April; the highest number (6) was taken in February. Nine trappers using snowmachines accounted for the reported harvest. Seventeen of the lynx were trapped, and the remaining one was snared.

Conversation with unit residents and results of the Trapper Questionnaire indicate that a combination of low lynx densities, poor winter travel conditions, and reduced trapper efforts were responsible for the low lynx harvest. Information obtained from the Trapper Questionnaire indicate that 9 lynx were taken by five of the respondents. The fur acquisition data submitted by fur buyers indicate that 5 lynx were sold by 4 individuals during the reporting period. I believe the actual harvest of lynx in Unit 22 during the reporting period did not exceed 25 animals.

River Otter

Trapping effort on otters was low during the reporting period. Local populations showed signs of increasing in portions of Subunits 22A, 22B, 22C and 22D.

Sealing records indicate that 5 otters (2 females and 3 of unknown sex) were harvested during the reporting period (Table 2). Subunit 22A accounted for 80% (4 otters) of the harvest; the remaining one was harvested from Subunit 22B. Two otters were taken in November, 1 in February, and 2 in March. Results of the Trapper Questionnaire indicate that 4 otters were taken by 2 respondents. As with other pelts, many otters were not sealed because they are often used locally for the making of handicrafts. I estimate the annual otter harvest in the unit did not exceed 10 animals.

Wolverine

The current reported harvest of wolverines in Unit 22 is 27 animals (Table 3). Sex composition of the harvest is 16 males and 10 females; 1 sex was not determined. The harvest by subunit follows: Subunit 22A, 19; 22B, 6; 22C, 1; and 22E, 1. Harvest chronology indicates that wolverines were taken from November through April; the highest harvest (i.e., 9 animals) occurred during February. Most of the reported harvest was trapped (70%), and the remainder was ground shot. The reported harvest was taken by 13 individuals. Snowmachines were the most common type of transportation used:

25 were taken with snowmachines, one was taken using a dog team, and the remaining one was taken using a highway vehicle. Results of the Trapper Questionnaire indicate that 5 individuals took 12 wolverines during the past year. Information gathered from the fur acquisition reports show that 1 individual residing in Unit 22 sold 1 wolverine during the reporting period. Because wolverine skins are probably the most highly valued pelt sought by local skin sewers, many wolverines taken in the unit are not sealed. I estimate that the annual harvest of wolverines in Unit 22 is less than 40 animals annually.

Muskrat

Muskrat densities have been low throughout the unit during the past 6 years. Conversation with local residents, however, indicate that small groups of muskrats were once again being observed on a limited basis in portions of Subunits 22A and 22B. Fur acquisition data and the Trapper Questionnaire show no muskrats were taken or sold from the Unit during the past year.

Mink

Although not abundant, I believe mink numbers continue to remain stable in the unit. Results of the Trapper Questionnaire and fur acquisition data indicate that no mink were taken or sold during the reporting period.

Marten

Marten densities appear to be increasing slightly in those areas with suitable habitat. Results of the Trapper Questionnaire indicate that 11 marten were taken by 3 individuals during the reporting period. Fur acquisition data indicate that 43 marten taken from the unit were sold by 9 individuals during the reporting period. I estimate that the annual marten harvest in Unit 22 was 50-60 animals.

White Fox

The white fox population as well as the harvest remained low throughout the unit. Fur acquisition data indicate that 3 white foxes were sold by 2 individuals during the reporting period.

Red/Cross Fox

Red/cross foxes were abundant throughout Unit 22 because the densities of major prey species remained high. Data obtained from the Trapper Questionnaire indicate that 6 individuals

harvested 72 foxes during the reporting period. Data obtained from fur acquisition reports submitted by fur buyers indicate that 26 individuals sold 91 red/cross foxes during the past year. I estimate the harvest of red/cross foxes at 100-125 animals annually.

Weasel

Weasel numbers remain low throughout Unit 22 and no weasels were reportedly taken or sold during the reporting period.

PREPARED BY

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SUBMITTED BY

Steven Machida
Survey-Inventory Coordinator

Table 1. Historical reported lynx harvest in Unit 22, 1977-78 through 1986-87.

Year	Sex			Harvest chronology												Subunit				
	M	F	U	Total	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unk	A	B	C	D	E	Unk		
1977-78	70	70	28	168										9	144	0	4	0	11	
1978-79	100	100	38	238										39	199	0	0	0	0	
1979-80	110	114	36	260										29	220	0	0	0	11	
1980-81	43	28	15	86										2	78	0	0	0	6	
1981-82	245	215	19	479										168	311	0	0	0	0	
1982-83	426	323	71	820										377	442	0	0	1	0	
1983-84	255	134	54	443										311	132	0	0	0	0	
1984-85	62	70	24	156										101	47	0	2	0	0	
1985-86	9	12	2	23										12	7	0	4	0	0	
1986-87	10	7	1	18										9	8	0	1	0	0	

Table 2. Historical reported river otter harvest in Unit 22, 1971-1987.

Year	Sex			Total	Harvest Chronology								Subunit					Method of take ^a				
	M	F	Unk		Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unk	A	B	C	D	E	1	2	3	4	5
1977-78	8	4	4	16	0	3	5	3	2	3	0	0	7	7	2	0	0	2	13	0	0	1
1978-79	2	1	3	6	0	0	2	2	0	2	0	0	6	0	0	0	0	0	6	0	0	0
1979-80	9	2	2	13	0	3	1	1	2	6	0	0	6	7	0	0	0	2	10	0	0	1
1980-81	5	0	0	5	0	0	3	0	0	2	0	0	2	3	0	0	0	1	4	0	0	0
1981-82	5	1	2	8	0	5	1	1	1	0	0	0	8	0	0	0	0	1	7	0	0	0
1982-83	1	1	0	2	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0
1983-84	5	1	2	8	0	0	1	1	1	1	4	0	8	0	0	0	0	0	7	1	0	0
1984-85	3	3	0	6	0	2	4	0	0	0	0	0	2	3	1	0	0	1	2	0	0	3
1985-86	6	4	0	10	0	0	0	4	1	5	0	0	2	5	0	3	0	2	3	5	0	0
1986-87	0	2	3	5	0	2	0	0	1	2	0	0	4	1	0	0	0	0	5	0	0	0

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

Table 3. Historical reported wolverine harvest in Unit 22, 1971-1987.

Year	Sex			Total	Harvest Chronology								Subunit					Method of take ^a					
	M	F	Unk		Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unk	A	B	C	D	E	1	2	3	4	5	Unk
1978-79	10	6	2	18	0	0	2	7	3	6	0	0	5	11	1	1	0	6	12	0	0	0	0
1979-80	9	8	1	18	0	0	2	7	4	4	1	0	10	7	1	0	0	2	14	1	0	1	0
1980-81	11	2	1	14	0	3	1	1	2	6	1	0	2	6	2	4	0	7	6	0	0	1	0
1981-82	6	4	0	10	0	2	1	2	1	4	0	0	1	7	1	1	0	2	7	1	0	0	0
1982-83	11	3	0	14	1	1	2	1	2	7	0	0	3	7	2	2	0	4	9	0	0	1	0
1983-84	19	12	4	35	2	0	7	6	7	6	7	0	16	16	1	2	0	4	31	0	0	0	0
1984-85	11	9	1	21	1	4	4	2	5	3	2	0	8	8	3	1	1	8	12	0	1	0	0
1985-86	20	16	4	40	1	3	6	13	10	7	0	0	11	14	11	4	0	6	27	4	0	3	0
1986-87	16	10	1	27	0	1	3	3	9	6	5	0	19	6	1	0	1	8	19	0	0	0	0

^a 1=Ground shot
2=Trapped
3=Snared
4=Shot from Aircraft
5=Unknown

Table 4. Unit 22 furbearer harvest, 1986-87 Fur Acquisition reports.

Species	Number sold	Number of sellers
Beaver	0	0
White fox	3	2
Cross/Red fox	91	26
Lynx	5	4
Marten	43	9
Mink	0	0
Muskrat	0	0
Otter	0	0
Weasel	0	0
Wolverine	1	1

Table 5. Unit 22 harvest of furbearers, 1986-87 Trapper Questionnaire.

Species	Number caught	Number of trappers
Beaver	9	1
White fox	0	0
Cross/Red fox	72	6
Lynx	9	5
Marten	11	3
Mink	0	0
Muskrat	0	0
Otter	4	2
Weasel	0	0
Wolverine	12	5

FURBEARER

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 23

GEOGRAPHICAL DESCRIPTION: Kotzebue Sound

PERIOD COVERED: 1 July 1986-30 June 1987

Seasons and Bag Limits

See Trapping and Hunting Regulations No. 26.

Summary

In our previous report, we were concerned about the low numbers of lynx and wolverines observed in Unit 23 because of comments from local trappers, results of our annual Trapper Questionnaire, and our own field observations. To address these concerns, we initiated 2 additional data-gathering projects during 1986-87. In addition to our annual Trapper Survey, which was conducted by mail, phone, or personal contact, we travelled to every village in the unit and talked with trappers about the status of various furbearers, particularly lynx and wolverines. The second project involved 107 hours of aerial survey to map animal and track locations in different parts of Unit 23 during March and April.

Information obtained from trapper contacts indicated that few individuals were concerned about the status of wolverines. Wolverine populations were thought to be healthy and doing well. This was corroborated by results of our surveys and harvest data. Although most trappers felt that lynx numbers were low, they pointed out that similar lows were observed in the past and that the lynx population would again rebound when snowshoe hare numbers increased. Results of our aerial surveys corroborated the perception that lynx were present at low numbers. The surveys also suggested that lynx are widely distributed throughout the unit, albeit at low densities.

In several parts of the unit, hare numbers appear to be increasing; however, we do not know whether lynx numbers are also increasing. We will continue to monitor the status of lynx during the coming winter and spring, using a survey technique developed by Golden (1987).

Beaver

Responses to our 1986-87 Trapper Questionnaire indicated that, with few exceptions, trappers believe that beaver numbers are

moderate to high throughout Unit 23. Most trappers believe that the beaver population is increasing in size, and residents of the village of Selawik want the bag limit for beavers eliminated.

Aerial cache surveys conducted during October 1986 indicated increasing beaver numbers in the Selawik Flats (Table 1). We propose the bag limit in this area be increased from 30 to 50 beavers for the 1987-88 season.

Fifty-six beavers were sealed in Unit 23 during the 1986-87 trapping season, a harvest substantially higher than the 28 reported for 1985-86. Of the 56 beavers harvested, 28, 22, and 6 were from the Pah, Kobuk, and Buckland River drainages, respectively. Although these data provide information concerning the distribution and the relative magnitude of the annual harvest compared with other years, they are not representative of the actual harvest size. Some beavers are used domestically for clothing and food and are therefore not sealed. We believe that the actual number of beavers taken in Unit 23 is substantially higher than reported.

Fox

Information concerning the population status of white foxes in Unit 23 is limited to that reported by trappers in our annual Trapper Questionnaire. For the 3rd consecutive year, trappers reported low numbers of white foxes throughout the unit. We suspect it reflects a continuation of the cyclic low of this species. Only 2 white foxes were reportedly purchased by fur buyers from Unit 23 trappers.

Trappers responding to our Trapper Questionnaire expressed varying opinions concerning the status of red foxes in Unit 23. Low densities of red foxes were reported for the Noatak and Wulik River drainages, and moderate and increasing numbers were reported for the Kobuk and Selawik River drainages and the northern Seward Peninsula. We believe that red fox numbers are currently increasing. The number of red foxes observed during our fall and spring moose surveys increased slightly from 0.26 fox/hour in 1985-86 to 0.33 fox/hour in 1986-87 (Table 2). Eight cross foxes and 136 red foxes were sold to fur buyers by Unit 23 trappers during the reporting period.

Lynx

The reported harvest of 16 lynx from Unit 23 is the lowest on record since the sealing requirement was instituted in 1977 (Table 3). Although this continued decline in the reported harvest is cause for concern, we anticipate the harvest will increase as the population size increases. Because snowshoe

hare densities have been extremely low during the past several years, it is not surprising that the density of lynx is extremely low as well; however, observations made during 107 hours of aerial track surveys conducted in the spring of 1987 and comments received from trappers in the unit indicate hare numbers are beginning to increase. We plan to implement additional aerial track surveys using the technique developed by Golden (1987) during the winter and spring of 1988. We should be able to determine whether the perceived increase in hare numbers is accompanied by a cyclic increase in lynx numbers.

Marten

A majority of the trappers responding to our Trapper Questionnaire believed the Unit 23 marten population was low to moderate in density and stable in size. Fifty-six marten were sold to fur buyers by Unit 23 trappers during 1986-87.

Mink

Trappers responding to our Trapper Questionnaire reported that the status of mink in Unit 23 is similar to marten; present at low-to-moderate densities and stable in number. Only 3 mink were sold to fur buyers by Unit 23 trappers during 1986-87.

Muskrat

Although opinions regarding the status of muskrats varied greatly among individuals responding to our Trapper Questionnaire, most thought the muskrat population had increased from that of the previous season. Our observations of extensive numbers of muskrat push-ups in the Selawik River drainage, as well as comments from successful trappers in that area, suggest that muskrat numbers in the Selawik drainage are increasing. Surprisingly, no muskrats were sold to fur buyers by Unit 23 trappers during the reporting period.

River Otter

Responses to our Trapper Questionnaire indicated otter numbers were low to moderate throughout the Unit; only a few trappers reported high numbers. Observations made by staff during aerial survey flights indicated otter numbers were at moderate-to-high levels throughout the unit. The Noatak and Selawik River drainages particularly were believed to support large numbers of otters. Twelve river otters were sealed in Unit 23 during the 1986-87 trapping season (Table 3). Although this represents the largest reported harvest since 1980-81, it does not represent the size of the actual harvest,

since some otters were used locally for clothing and handicrafts and were not sealed.

Wolverine

Sixty-four wolverines were sealed in Unit 23 during the 1986-87 trapping season (Table 3). This represents the highest reported harvest in the past 9 years and is precisely what was predicted last winter by many Unit 23 trappers. As with the other furbearing species, we plan to implement Golden's (1987) survey technique during the winter and spring of 1988 to better evaluate the status and distribution of the Unit 23 wolverine population.

Literature Cited

Golden, H. N. 1987. Survey of furbearer populations on the Yukon flats National Wildlife Refuge. Alaska Dept. Fish and Game and U. S. Fish and Wildl. Serv. Coop. Agreement Proj. 14-16-007-84-7416. 86pp.

Prepared By:

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Table 1. Results from aerial beaver cache surveys in a 139-mi² trend-count area, Selawik River drainage, 1981-1987.

Year	Survey time (min)	Active caches	Inactive caches	Density of active caches (cache/mi ²)
1981	--	52	25	0.37
1982	75	37	41	0.27
1985	195	73	42	0.53
1986	238	72	41	0.52
1987	239	84	72	0.60

Table 2. Red fox observations during Unit 23 fall and spring moose surveys and recorded cases of fox rabies, 1976-87.

Report period	Survey time (hrs)	Foxes observed	Foxes/hr	Reported cases of rabies in red foxes
1976-77	32.9	14	0.4	3
1977-78	28.7	12	0.4	1
1978-79	26.7	34	1.3	0
1979-80	37.0	29	0.8	11
1980-81	21.7	22	1.0	0
1981-82	40.8	61	1.5	2
1982-83	47.1	4	0.1	0
1983-84	62.5	19	0.3	1
1984-85	62.5	42	0.7	0
1985-86	46.5	12	0.3	0
1986-87	39.7	13	0.3	0

Table 3. Reported harvest of lynx, otter, and wolverine from Unit 23, 1977-87.

Species	Total harvest	% Male	Method of take			Chronology								Area ^a				
			Shot	Trapped	Unk.	Nov	Dec	Jan	Feb	Mar	Apr	1	2	3	4	5		
<u>Lynx</u>																		
1977-78	230	55	0	223	5	2	11	28	60	67	61	0	0	31	166	27	6	
1978-79	385	53	2	341	3	39	12	48	81	117	127	0	0	117	147	120	1	
1979-80	407	54	14	378	3	12	19	53	96	110	110	13	1	128	139	136	3	
1980-81	306	60	3	254	1	41	30	45	62	72	80	17	1	17	128	143	14	
1981-82	483	54	7	444	0	32	23	68	77	145	148	19	1	77	133	238	34	
1982-83	277	--	6	265	1	5	24	36	39	69	70	34	4	5	34	149	83	
1983-84	98	--	3	93	0	2	9	23	25	25	10	5	0	10	14	27	42	
1984-85	26	61	3	23	0	0	3	8	2	4	7	2	1	8	8	4	5	
1985-86	45	51	7	37	0	1	4	5	12	12	9	3	2	4	18	12	9	
1986-87	16	62	2	13	1	0	0	7	3	2	4	0	0	2	4	7	3	
<u>Otter</u>																		
1977-78	12	--	1	11	0	0	0	4	5	1	2	0	0	1	4	3	4	
1978-79	15	--	2	13	0	0	0	12	2	0	1	0	0	5	1	8	1	
1979-80	19	--	10	9	0	0	5	9	2	1	2	0	0	4	2	13	0	
1980-81	29	--	0	27	2	0	21	4	2	0	0	2	0	3	6	20	0	
1981-82	9	--	0	9	0	0	5	0	1	3	0	0	0	0	4	4	1	
1982-83	7	--	1	5	0	1	4	1	1	0	1	0	0	2	2	2	0	
1983-84	8	--	1	7	0	0	3	3	2	0	0	0	0	1	5	1	0	
1984-85	5	--	0	5	0	0	2	2	1	0	0	0	1	1	1	1	1	
1985-86	5	--	1	4	0	0	1	1	1	2	0	0	0	0	3	0	2	
1986-87	12	--	0	12	0	0	4	2	2	0	2	2	0	1	9	0	2	

Table 3. (Continued).

Species	Total harvest	% Male	Method of take			Unk.	Chronology				Area ^a						
			Shot	Trapped	Snared		Nov	Dec	Jan	Feb	Mar	Apr	1	2	3	4	5
<u>Wolverine</u>																	
1977-78	75	67	26	49	0	0	9	8	29	17	12	0	4	10	40	15	6
1978-79	45	73	9	34	0	0	4	4	13	7	17	0	2	8	18	2	6
1979-80	26	63	12	14	0	0	2	4	4	6	9	1	2	8	10	4	2
1980-81	18	76	11	7	0	0	3	6	1	1	5	2	0	10	5	3	0
1981-82	48	75	13	35	0	0	2	3	8	7	23	5	1	28	14	5	0
1982-83	37	67	16	20	1	0	3	2	3	13	12	4	2	21	6	3	5
1983-84	46	59	17	27	1	1	2	8	17	7	5	3	0	23	9	6	7
1984-85	37	61	19	15	2	2	1	5	7	3	13	7	0	15	11	5	6
1985-86	35	77	7	27	1	0	0	4	10	5	12	4	0	15	14	1	5
1986-87	64	56	28	28	1	7	4	8	4	9	28	8	8	35	16	3	2

^a 1 = Pt. Hope-Kivalina (drainages west of Noatak R. drainage), 2 = Noatak R. drainages,

3 = Kobuk R. drainages, 4 = Selawik R. drainages, 5 = Buckland R. drainages and northern Seward Peninsula drainages.

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 24

GEOGRAPHICAL DESCRIPTION: Koyukuk River drainage above Dulbi
River

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Trapping Conditions

The weather was mild for most of the 1986-87 trapping season. The vole populations in the southern part of the unit were higher than in the previous 2 years. Hare populations are still low throughout the unit, except in a few isolated refugia in willow communities along the major rivers; however, based upon an increase in the number of tracks, the population is increasing.

Beaver

Nine hundred four beavers were sealed from the unit (Table 1), the highest harvest on record; 559 beavers were taken in the southern part of the unit around Huslia. Only 91 beavers were taken in the Koyukuk River drainage above the confluence of the Alatna River.

Lynx

Harvest data indicate that lynx populations throughout the unit may have reached the low point in their 10-year cycle (Table 1). I expect them to remain stable for the next 3 years. Even with increased trapping effort resulting from high prices, trappers in the Brooks Range did not detect migrations of lynx into the area as in past years.

Otter

Although otters are abundant in the unit, almost all were taken incidentally in beaver traps. Prices and trapping effort were low for Interior otters.

Wolverine

The reported wolverine harvest was low (Table 1), but the harvest is probably higher because furs used for subsistence purposes are seldom sealed.

Other Fur

Fox populations continue to exist at high ranges but there was little trapper interest. Marten numbers were moderate in the southern part of the unit, continuing to be the mainstay for trappers in the area.

PREPARED BY:

SUBMITTED BY:

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Wayne E. Heimer
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Table 1. Furbearer harvest Unit 24, 1982-87.

Species	1982-83	1983-84	1984-85	1985-86	1986-87
Beaver	383	508	236	595	904
Lynx	698	430	162	203	127
Otter	13	28	19	13	22
Wolverine	45	36	19	38	20

FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 25

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

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Trapping Conditions

Trappers in Unit 25 exerted extra effort to harvest beavers, lynx, and marten because of unusually high prices for their pelts. Weather limited trapping success during the 1st month of the season. Snow depth was insufficient for good operation of snow machines, and the temperature was unusually cold; however, as the season progressed both factors reached normal levels.

Beaver

Sealing records indicate that 528 beavers were harvested (Table 1). Most were taken in Subunits 25D (63%) and 25B (32%). Only 24 beavers were taken in Subunit 25A; none were harvested in Subunit 25C. Most of them were adults (61%) (Table 2). Seventy percent of the harvest occurred during February and March (Table 3). Snaring was the most common method of harvesting (87%), and snow machines provided most of the transportation (90%) (Table 4).

The trend in harvest is definitely upward. It has risen by 164% over the past 5 years (Table 5). Improved pelt price, which has stimulated increased trapper effort, is probably the major factor influencing take. I think the beaver population in Unit 25 is large enough to support the increasing harvest because beaver kits, or juveniles, composed 15% of the harvest and the take of kits over the past 4 years have shown no definite downward trend (Table 5). Also, food cache surveys by U.S. Fish and Wildlife Service personnel and incidental observations by local residents indicate density is relatively high in Subunit 25D where most beavers are taken. No season or bag limit changes are recommended.

Land Otter

The harvest of 13 land otters was reported; 6 were taken in Subunit 25D. Six otters were harvested in December and the remaining seven in other months. Snow machines were the most common method of transportation.

Incidental observations by local residents indicate otter density is low in most of Unit 25. The exception is Subunit 25D, where density is moderate, reflecting higher quality habitat. The harvest was probably not excessive in any portion of the unit, and it has shown no definite trend over the past 6 years. I recommend retention of the existing seasons and bag limits.

Lynx

A harvest of 487 lynx was reported on sealing forms; most (58%) were taken in Subunit 25D; 56% and 40% were taken during December and January, respectively, the only 2 months the season was open. Trapping and snaring were the most common methods of harvesting (49% and 50%, respectively), and snow machines were the most popular means of transportation (87%).

Compared with the 1984-85 season, the lynx harvest decreased by 26. This continues a downward trend that began in 1983-84; the harvest had peaked during the previous season at 1,564 lynx, suggesting the lynx population had also peaked. Currently, it is near the low portion of its cycle. This appears to be confirmed by recent aerial track counts indicating a relatively low population density (Golden 1987); however, the population may have already started to recover. The decline in harvest this year was relatively small, the proportion of kits in the harvest has increased during the last 2 years, and observations and reports indicated the snowshoe hare population is increasing.

The lynx trapping season was shortened from 4.5 to 2 months in 1985-86 to reduce harvest and thereby protect the population from excessive trapping pressure while densities are low. I think this action was unnecessary because trapping pressure in most of Unit 25 is not excessive. The density of trappers was relatively low, compared with other units that are accessible from the road system or contain human population centers. I therefore recommend that the lynx season be lengthened to 4 months: opening on 1 November and closing on 28 February. This change will provide additional trapping opportunity without adverse impacts on the lynx population.

Wolverine

A harvest of 58 wolverines was reported. Most wolverines were harvested from Subunits 25A (28%), 25B (33%), and 25D (33%). Thirty-four percent of the harvest occurred in January. Trapping was the most common method of take (55%), and most individuals (69%) used snow machines for transportation.

Harvest reports and incidental observations by local residents indicated a stable wolverine population; however, densities are low in all subunits. No season or bag limit changes are recommended.

Literature Cited

Golden, H. M. 1987. Survey of furbearer populations on the Yukon Flats National Wildlife Refuge. Final Rep. 14-16-007-84-7416. Alaska Dep. of Fish and Game and U.S. Fish and Wildlife Service, Yukon Flats National Wildlife Refuge. 86pp.

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Table 1. Furbearer harvest in Unit 25, 1986-87.

Species	Subunit				Unk	Total
	25A	25B	25C	25D		
Beaver	24	171	0	333	0	528
Land otter	3	1	0	6	3	13
Lynx	77	124	3	282	1	487
Wolverine	16	19	4	19	0	58

Table 2. Unit 25 beaver harvest by pelt size category, 1986-87.

Subunit	Pelt size in inches (length and width)				Unk
	0-52 ^a	53-59	60-64 ^b	≥65 ^b	
25A	3	4	9	5	3
25B	29	21	51	69	1
25C	0	0	0	0	0
25D	47	64	63	123	37
Total	79	89	123	197	41

^a Kits.

^b Adults.

Table 3. Chronology of furbearer harvest from Unit 25, 1986-87.

Species	Month						Unk
	Nov	Dec	Jan	Feb	Mar	Apr	
Beaver	44	37	51	84	286	13	13
Land otter	0	6	3	1	1	0	2
Lynx	1	273	196	2	1	0	14
Wolverine	4	16	20	5	9	0	4

Table 4. Method of take and transportation used to harvest furbearers from Unit 25, 1986-87.

Species	Method of take				Method of transportation			
	Ground shooting	Trapping	Snaring	Unk	Airplane	Dog sled	Snow machine	Unk
Beaver	0	59	461	8	3	40	475	10
Land otter	0	10	2	1	0	1	10	2
Lynx	1	241	243	2	14	38	423	12
Wolverine	1	32	20	5	7	9	40	2

Table 5. Furbearer harvests in Unit 25, 1981-87.

Season	Beaver		Land otter	Lynx		Wolverine Harvest
	Harvest	Percent kits ^a		Harvest	Percent kits ^b	
1981-82	383	--	10	1,452	17	55
1982-83	200	--	3	1,564	10	81
1983-84	235	18	7	1,092	4	59
1984-85	334	20	11	618	3	62
1985-86	479	18	15	513	8	45
1986-87	528	15	13	487	12	58

^a Combined length plus width of 52 inches or less.

^b Combined length plus width of 42 inches or less.

FURBEARER

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 26A

GEOGRAPHICAL DESCRIPTION: Western Arctic Slope

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Fox

No harvest data are available for Arctic fox. Harvest of this species remains relatively low. No changes in seasons or bag limits are recommended.

No harvest information is available for red foxes during this reporting period. No changes in seasons or bag limits are recommended.

Lynx

No lynx were reported taken during 1986-87. During the previous 2 reporting periods, 5 lynx were reported harvested each year. There is no known resident lynx population in Subunit 26A. The lynx that are occasionally taken are thought to be emigrants from south of the Brooks Range. No changes in seasons or bag limits are recommended.

Wolverine

Sealing records indicate that 3 wolverines were killed by hunters during 1985-86. The actual harvest is certainly much larger. Magoun (1985) estimated that the sealed harvest may represent less than 10% of the wolverines taken in Subunit 26A in some years and rarely represents more than 50% of the actual harvest. I believe that the actual harvest was approximately 100 wolverines, assuming an average annual harvest of 15-20 for each of the 6 communities located in Subunit 26A.

Magoun (1985) estimated a minimum fall population of 821 wolverines in Subunit 26A. This estimate is based on a wolverine density of $1/48 \text{ km}^2$ ($1/19 \text{ mi}^2$) in the foothills and $1/139 \text{ km}^2$ ($1/54 \text{ mi}^2$) for the entire Subunit. Modeling by Magoun suggests that an annual harvest of 100 wolverines is within sustained-yield limits, given certain assumptions. The

reproductive rate of 0.60 kits/female/year observed in the Driftwood study area was assumed to be applicable unitwide and less than 60 adult females would be included in the annual harvest of 100 wolverines. These data suggest that overharvesting probably did not occur in Subunit 26A; however, the potential for overharvesting is real. Local demand was high, and prices often exceeded \$400 for raw skins. Wolverines can be vulnerable to skilled hunters and trappers using snow-machines, some of whom commonly range more than 100 miles from their home communities in search of them.

Problems and proposed solutions for dealing with shortcomings in furbearer harvest reporting have been documented in earlier reports (Trent 1984, 1985). The best solutions would include assigning an assistant area biologist and/or part-time departmental representatives who live in each community the task of improving furbearer harvest reporting. These remain long-term management goals for Subunit 26A.

An investigation of the subsistence use of all species by residents of Barrow and Wainwright was begun recently by the U. S. Mineral Management Service. Next year we should know whether this study will allow us to estimate wolverine harvest for these 2 communities. Integrating the results of this and other subsistence research might provide an independent estimate of current harvest on the western North Slope.

A skull-buying program for wolverines would probably increase harvest reporting in the subunit. Such a program would provide data on sex and age composition needed for management as well as an independent gross estimate of harvest. Magoun (1985) determined that the annual collection of harvest data (i.e., age and sex composition) would allow managers to detect changes in harvest pressure. Public acceptance of these activities would be relatively easy to achieve. Manpower limitations have prevented implementation of this program. However, if wolverine management is assigned a higher priority relative to other programs in the subunit, a skull buying program would be a logical 1st step in upgrading the quality of wolverine harvest reporting.

No changes in seasons or bag limits are recommended.

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FURBEARERS

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT: 26B and 26C

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

PERIOD COVERED: 1 July 1986-30 June 1987

Season and Bag Limit

See Trapping and Hunting Regulations No. 27.

Arctic Fox, Red Fox, Lynx

No data are available on arctic or red fox populations or harvest for the current regulatory year; however, furbearer numbers or trapping success have not changed from previous years. Lynx are scarce or nonexistent on the eastern Arctic Slope.

Wolverine

One wolverine was taken in defense of life or property from the Kuparuk Oilfield in December 1986. It is likely that a few more wolverines were taken by trappers.

Management Summary and Recommendations

No changes in seasons or bag limits are recommended. Illegal and/or unreported harvest of wolverines may be occurring in the area. Better education efforts are necessary in Kaktovik and Nuiqsut to explain the requirement for sealing wolverines.

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