Furbearer
Management Report
of survey-inventory activities
1 July 2003–30 June 2006

Patricia Harper, Editor
Alaska Department of Fish and Game
Division of Wildlife Conservation

Photo by Boyd Porter, ADF&G

Funded through
Federal Aid in Wildlife Restoration
Grants W-33-2, W-33-3 and W-33-4
2007

STATE OF ALASKA

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DEPARTMENT OF FISH AND GAME
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Please note that population and harvest data in this report are estimates and may be refined at a later date.

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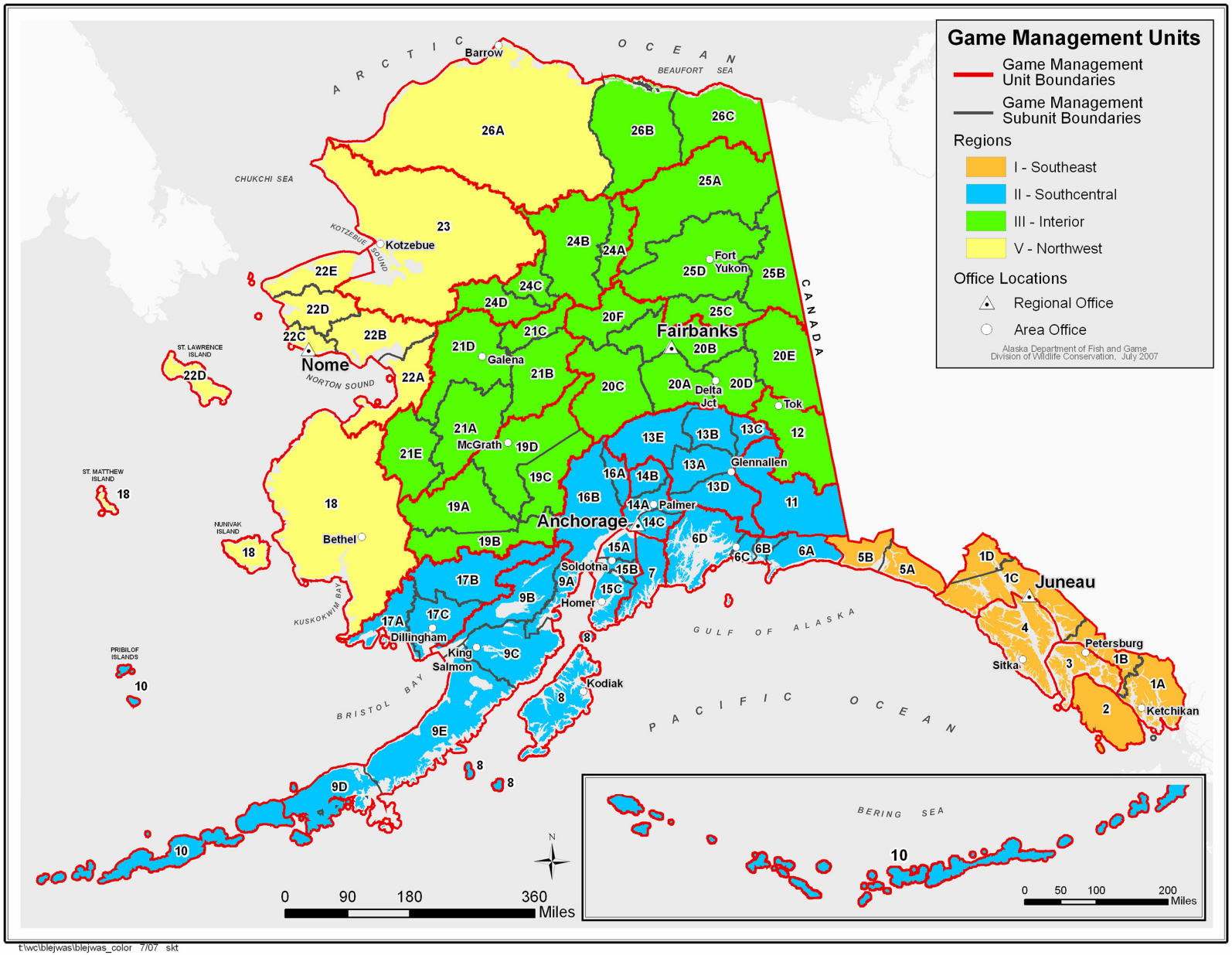
FURBEARER MANAGEMENT REPORT
TABLE OF CONTENTS

From: 1 July 2003
To: 30 June 2006



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WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 1A (5000 mi^2)

GEOGRAPHIC DESCRIPTION: Unit 1 south of Lemesurier Point, including all areas draining into Behm and Portland Canals, and excluding areas draining into Ernest Sound

BACKGROUND

Furbearer populations have remained at moderate to high population levels in Unit 1A during the past decade. Trapping pressure and harvests fluctuate annually, primarily as a function of weather conditions and changes in market fur prices.

More Southeast Alaska trappers are interested in martens than any other furbearer species. Martens (*Martes americana*) are easy to trap, their pelts are easy to care for, and combined income from the pelts is generally greater than for any other furbearer species in southern Southeast Alaska. Marten prices have remained stable at moderate levels throughout the past decade. Discussions with trappers suggest that martens prefer old-growth stands and avoid clearcuts. This observation is also consistent with marten research in southern Southeast Alaska, which shows the importance of old-growth stands for foraging, travel and shelter (Flynn and Schumacher 1997). Schumacher (1999) also found martens preferred the larger diameter timber structures for dens and resting sites. Large old trees and old logs are important as den sites for martens (Hauptman 1979, Simon 1980, Hargis and McCullough 1984, Wynne and Sherburne 1984). Extensive logging in much of Unit 1A continues to remove uneven-aged old-growth habitat required by martens. As a result, we believe the area's capacity to support marten populations will decline over time.

Southeast Alaska provides excellent habitat for river otters (*Lutra canadensis*), and fur buyers consider pelts from this area to be high quality. Some local trappers report selling Southeast otter pelts to taxidermists because of the demand for the exceptional large body sizes and the high-quality fur. Otter pelt prices were high during the late 1970s, declined during the 1980s and early 1990s, and have increased during the past few seasons. Because otters are difficult to trap and pelt preparation is time consuming, prices must be high to substantially influence harvest levels. Most recently the prices and demand for otter pelts have increased, and trappers report recent

market sales of $80–$150 for prime Southeast otters. The top prices paid for land otter in Alaska during this report period was in 2004 when top quality furs reached $158 (Blejwas 2005). The 2007 auction prices were slightly lower and will most likely result in less trapping effort.

Beaver (*Castor canadensis*) prices have remained stable and low for several years. Beaver harvests can fluctuate dramatically from year to year because of the efforts of a few trappers.

For the past decade mink (*Mustela vison*) pelt prices have remained low and stable and resulted in moderate to low interest among trappers. However, some trappers continue to make mink sets while trapping for other furbearers, regardless of their current low value.

Wolverines (*Gulo gulo*) inhabit only the mainland portion of Unit 1A, where very few are taken annually. Trappers do not generally target wolverines, and harvests tend to be incidental to wolf or marten trapping. There are no foxes or coyotes in Unit 1A and lynx are only occasionally taken from the 1A mainland. Mountain lions are occasionally observed along the mainland and on the Cleveland Peninsula, but there is currently no open trapping or hunting season.

We believe that weasel (*M. erminea*) populations fluctuate from year to year, independent of trapping. Harvest tends to be limited to incidental take while targeting other furbearers, primarily marten. Few muskrats inhabit Unit 1A, and harvests are typically very low and incidental to beaver trapping.

Furbearers in Unit 1A by order of their significance to trappers include marten, land otter, beaver, mink, wolverine, lynx (*Lynx canadensis*), weasel, red squirrel (*Tamiasciurus hudsonicus*), and flying squirrel (*Glaucomys sabrinus*). Fox, lynx and coyote are absent in Unit 1A.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

1. Provide information to the Board of Game to further the maintenance of viewable and harvestable populations of furbearers.

2. Seal harvested beaver, marten, otter, and wolverine pelts.

3. Contact reliable observers for general information about the status and trends of furbearer populations, including the use of an annual trapper survey.

METHODS

Furbearer harvest data comes from mandatory sealing of marten, beaver, otter, and wolverine pelts. Mink populations are assessed through staff and trapper observations and information obtained through our annual trapper surveys.

Beaver pelts have been sealed for over 25 years. Wolverines were first sealed in 1971 and river otters have been sealed since 1978. Marten sealing was initiated in 1984.

We do not perform furbearer population surveys in Southeast Alaska to estimate population sizes or follow trends. Some ecological information is available for mink and river otters from short-term research studies completed in Southeast (Harbo 1958, Home 1977, Larsen 1983, Woolington 1984, Johnson 1985). A study of marten ecology was completed on northeast Chichagof Island (Flynn and Schumacher 1997). We also have genetic-based investigations of marten population structure (Mitton and Raphael 1990; McGowan et al. 1999; Kyle *et al.* 2000) which explore dispersal patterns, gene flow and genetic diversity in marten.

RESULTS AND DISCUSSION

POPULATION STATUS AND TRENDS

Marten populations fluctuate annually throughout Southeast Alaska. These dramatic shifts are directly correlated to cyclic or irregular prey fluctuations (Novak *et al*. 1987). The small mammal population is currently high throughout most of Unit 1A and consequently populations of many of the land and avian predators of those small mammals are also high. Unit 1A trappers believe martens have remained at moderate to high levels during this report period (Table 1). We expect the recent peak in marten numbers to decline as small mammals and hence the food available declines. In the long term we anticipate continued reductions in old-growth forest and subsequent modifications to habitat will also contribute to reduced marten numbers.

Otter populations were believed to be low in the late 1970s when prices were high, (Wood 1990) and after that time prices and trapper interest dropped substantially; only recently has effort recovered. We believe that populations have steadily increased in the past decade and are currently at moderate-to-high levels. This is supported by information obtained from trappers (Table 1). Otter fur prices have been the highest in over 10 years, and consequently, more trappers are targeting otter. Top prices advertised by Fur Buyers in Alaska for otter during the past several years were almost double the last 10-year average (Blejwas 2005). However, the otter auction prices during early 2007 saw a drastic decline in otter fur prices mostly from changes in the Japanese markets. This will certainly result in less interest by Unit 1A trappers during the next season. Most otter trapping occurs along shorelines using boats.

Beaver populations have generally remained at moderate levels in Unit 1A (Table 1). Habitat changes can cause large fluctuations in beaver populations (Wood 1990). Although early successional second-growth habitat can support higher populations of beavers than old growth, when the second-growth canopy closes (approximately 20–30 years after cutting), beaver numbers drop to low levels and remain low for many years because deciduous trees are shaded out. Current pelt prices do not seem high enough to foster much trapping pressure except in easily accessible areas.

Mink populations appear to have remained at extremely abundant levels during this report period (Table 1). Given the current limited interest in mink pelts, we do not expect this to change unless pelt prices increase substantially and promote additional trapping effort.

Little is known about southern southeast wolverine populations and abundance. Most wolverine catches are incidental to other trapping efforts along shorelines and the majority of the harvest is typically male. Wolverine research just initiated in Unit 1B to the north will provide the first southern southeast mainland wolverine research information. Biologists are attempting to place satellite transmitters on live captured animals. Hopefully these marked animals will lead researchers to female wolverines which we speculate occupy smaller home ranges at higher elevation, live well away from the beach fringe, and travel less than males. A proposal to extend the wolverine hunting season to include September was rejected by the Board of Game in 2006.

MORTALITY

Harvest

Seasons and Bag Limits

Unit 1A		
Hunting		
Wolverine	10 Nov–15 Feb	One wolverine
Trapping		
Beaver	1 Dec–15 May	No limit
Lynx, mink, marten, otter, weasel, muskrat	1 Dec–15 Feb	No limit
Wolverine	10 Nov–30 Apr	No limit

Board of Game Actions and Emergency Orders. During the 2006 Board of Game meeting changes were made to require metal locking tags or signage for traps similar to the current snare marking regulation initiated in 2002.

Trapper Harvest. The past 3-year average harvest of 182 martens was similar to the 10-year mean ($\bar{x}$ =189) (Table 2). An average of 12 trappers caught totals of 223, 193 and 130 martens in years 2003, 2004 and 2005, respectively.

During each of the past 3 years (2003–2005) an average of 11 trappers sealed 99, 45, and 64 otters, respectively. The 2004 and 2005 seasons were well below the 10-year average ($\bar{x}$ =95). The 2005 Unit 1A otter harvest composed the lowest male to female ratio since records began in 1984 (Table 2).

An average of 3 trappers caught 2, 6, and 16 beaver during the 2003–05 seasons compared to the 10-year average of 20 beaver. The harvest of only 2 beaver during the 2003 season was the lowest since 1990 and probably reflects low market prices and lack of trapper interest rather than any measure of beaver abundance.

The Unit 1A wolverine harvest has remained low during the past 10 years (range 0–6, $\bar{x}$ =2). During this report period (2003–05) trappers sealed 3, 1, and 1 wolverine, respectively.

Wolverines are typically caught incidental to other trapping efforts and are not abundant enough to be a main target species in Unit 1A. Several trappers have reported making wolverine sets only after losing martens to wolverines along established traplines. Most of the wolverines trapped in Unit 1A historically are caught along the Cleveland Peninsula, but during 2004 one male was harvested near Hyder, Alaska located on the southern mainland. The majority of wolverines caught each year tend to be male, although during this report period the harvest was nearly 60/40 female to male. Males tend to be more vulnerable because they travel greater distance, and they remain as transients (prior to establishing home ranges) for longer periods than females (Novak *et al.* 1987).

Harvest Chronology. For all species of furbearers trapped in Unit 1A the chronology of the harvest is related more to hide quality than availability of the animals during the trapping season. Although long periods of inclement winter weather also deter trappers from using boats to access trapping areas. Southeast trappers spent an average of 7.5 weeks trapping during this report period similar to the past 10 years. This is about half as long as trappers in the northern region, where they average 13 weeks each year in the field (Blejwas 2005).

During this 3-year report period the majority of martens were taken during December (43%), followed by January (29%) and February (28%) (Table 3). The otter harvest followed a different pattern than most years, with a similar harvest during the months of January (38%) and December (38%) and then declined in February (23%). The beaver harvest has been well distributed during this report period: December (25%), January (17%), February (33%), March (21%) and April (4%) (Table 3).

Transport Methods. Due in large part to the limited road system in Unit 1A, trappers typically report using boats as the major mode of transportation. The exception is beaver trapping, where the use of boats and highway vehicles was more evenly split at 34% and 59%, respectively. The majority of these trappers report reaching the isolated road systems with boats, then deploying ATVs. Marten trappers reported using boats more than 85% and highway vehicles just over 10% of the time during 2003–05. Similarly, otter trappers used boats 94% and highway vehicles only 6% of the time. Unit 1A trappers who had their wolverine hides sealed have used boats over 95% of the time during the past 15 years.

Other Mortality

We did not issue any beaver depredation permits to communities or corporations during this report period. Beavers have historically been removed from specified areas in Unit 1A because of flooding and erosion problems.

CONCLUSIONS AND RECOMMENDATIONS

During this report period the 2003 season had the best combined catch of all furbearer species and may indicate a peak in local small mammals and furbearer populations. Since that successful year, trapper harvest slowly declined during the 2004 and 2005 seasons and appears to have stabilized.

We will be monitoring the otter harvest to see if the low male/female sex ratio during the 2005 season was a 1-year event in this unit.

Because furbearer populations in Unit 1A appear to be healthy and thriving, we do not anticipate any regulation changes at this time. Fur prices for otter and marten continue to be attractive and cost effective for trappers, even with high gas and operational costs.

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PREPARED BY:

Boyd Porter
Wildlife Biologist III

SUBMITTED BY:

Dale Rabe
Regional Management Coordinator

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TABLE 1 Unit 1A indices of abundance (I_A)[a] for furbearer species[b], 1995–2005

	SPECIES			
REGULATORY YEAR	***BEAVER***	***MARTEN***	***MINK***	***OTTER***
1995–1996	75	50	90	80
1996–1997	50	60	70	60
1997–1998	60	68	72	82
1998–1999	45	70	74	65
1999–2000	72	36	68	84
2000–2001	58	65	72	82
2001–2002	61	58	70	75
2002–2003	56	62	66	81
2003–2004	60	68	65	76
2004–2005	63	71	67	77
2005–2006	59	70	65	79
$\bar{x}$	60	62	71	76

[a] Species are considered abundant when $I_A \geq 50$; moderate when $20 < I_A < 50$; and scarce when $I_A \leq 20$. From Brand and Keith (1979).

[b] Values derived from responses to trapper questionnaires.

TABLE 2 Unit 1A furbearer reported harvests, 1995–2005

Species/regulatory Year	Total take	Percent male	Method of take (percent)			Transportation used (percent)				
			Shot	Trapped or snared	Unk	Boat	Road	Air	Unknown	Other[b]
Beaver										
1995–1996	46	--	--	100	0	7	93	0	0	0
1996–1997	24	--	--	100	0	33	46	0	0	21
1997–1998	36	--	--	100	0	69	31	0	0	0
1998–1999	14[a]	--	--	57	43	21	36	0	43	0
1999–2000	36	--	--	97	3	42	47	0	3	8
2000–2001	29	--	--	100	0	76	24	0	0	0
2001–2002	12	--	--	100	0	0	100	0	0	0
2002–2003	21	--	--	100	0	71	29	0	0	0
2003–2004	2	--	--	100	0	0	100	0	0	0
2004–2005	6	--	--	100	0	0	100	0	0	0
2005–2006	16	--	--	100	0	56	44	0	0	0
$\bar{x}$	22	--	--	96	4	34	59	0	4	3

TABLE 2 continued

Species/regulatory year	Total take	Percent male	Method of take (percent)			Transportation used (percent)				
			Shot	Trapped or snared	Unk	Boat	Road	Air	Unknown	Other[b]
Marten										
1995–1996	134	64	0	100	0	98	2	0	0	0
1996–1997	220	64	0	100	0	78	13	0	0	9
1997–1998	198	64	0	100	0	84	3	0	0	13
1998–1999	196	65	0	100	0	90	8	0	0	2
1999–2000	222	61	0	100	0	95	5	0	0	0
2000–2001	199	63	0	100	0	99	1	0	0	0
2001–2002	205	88	0	100	0	90	10	0	0	0
2002–2003	107	78	0	100	0	86	14	0	0	0
2003–2004	223	69	0	100	0	94	6	0	0	0
2004–2005	193	67	0	100	0	71	29	0	0	0
2005–2006	130	58	0	100	0	74	26	0	0	0
$\bar{x}$	184	67	0	100	0	87	11	0	0	2
Otter										
1995–1996	65	66	23	75	2	77	11	0	0	12
1996–1997	104	55	20	80	0	90	9	1	0	0
1997–1998	119	59	14	86	0	94	6	0	0	0
1998–1999	68	60	9	91	0	96	3	0	1	0
1999–2000	131	56	27	73	0	89	10	0	0	1
2000–2001	62	63	0	100	0	99	1	0	0	0
2001–2002	185	56	4	96	0	99	1	0	0	0
2002–2003	68	68	13	87	0	100	0	0	0	0
2003–2004	99	53	14	86	0	94	6	0	0	0
2004–2005	45	58	0	100	0	100	0	0	0	0
2005–2006	64	39	14	86	0	97	3	0	0	0
$\bar{x}$	92	58	13	87	0	94	5	0	0	1

TABLE 2 continued

Species/regulatory year	Total take	Percent male	Method of take (percent)			Transportation used (percent)				
			Shot	Trapped or snared	Unk	Boat	Road	Air	Unknown	Other[b]
Wolverine										
1995–1996	0	--	--	--	--	--	--	--	--	--
1996–1997	3	100	0	100	0	100	0	0	0	0
1997–1998	3	67	0	100	0	33	0	0	0	67
1998–1999	0	--	--	--	--	--	--	--	--	--
1999–2000	1	100	0	100	0	100	0	0	0	0
2000–2001	5	100	0	100	0	100	0	0	0	0
2001–2002	0	--	--	--	--	--	--	--	--	--
2002–2003	6	50	0	100	0	100	0	0	0	0
2003–2004	3	67	33	67	0	100	0	0	0	0
2004–2005	1	100	0	100	0	0	100	0	0	0
2005–2006	1	100	0	100	0	100	0	0	0	0
$\bar{x}$	2	86	4	96	0	79	13	0	0	9

[a] One beaver killed by vehicle.
[b] Includes snow machine

TABLE 3 Unit 1A furbearer harvest chronology by month, 1995–2005

Species/regulatory year	Harvest periods							Successful trappers/hunters
	Dec	Jan	Feb	Mar	Apr	May	Unk	
Beaver								
1995–1996	0	0	7	3	16	12	8	8
1996–1997	0	5	4	7	2	6	0	6
1997–1998	7	7	10	4	2	0	6	10
1998–1999	4	5	2	1	0	0	2	4
1999–2000	10	7	6	8	4	0	1	9
2000–2001	1	8	3	11	0	0	0	10
2001–2002	12	0	0	0	0	0	0	2
2002–2003	2	2	2	8	4	0	0	6
2003–2004	1	0	0	1	0	0	0	2
2004–2005	0	0	5	0	1	0	0	2
2005–2006	5	4	3	4	0	0	0	5
$\bar{x}$	4	3	4	4	3	2	2	6
Marten								
1995–1996	15	34	7	0	0	0	78	10
1996–1997	107	69	44	0	0	0	0	11
1997–1998	97	63	34	4	0	0	0	15
1998–1999	90	65	41	0	0	0	0	13
1999–2000	171	42	9	0	0	0	0	15
2000–2001	121	59	10	0	0	0	0	11
2001–2002	101	57	54	0	0	0	0	12
2002–2003	43	50	14	0	0	0	0	9
2003–2004	106	36	65	0	0	0	16	14
2004–2005	63	58	72	0	0	0	0	10
2005–2006	59	58	13	0	0	0	0	11
$\bar{x}$	88	54	33	0	0	0	9	12
Otter								
1995–1996	33	21	11	0	0	0	0	14
1996–1997	35	28	41	0	0	0	0	13
1997–1998	61	40	18	0	0	0	0	16
1998–1999	27	22	19	0	0	0	0	11
1999–2000	61	50	20	0	0	0	0	18
2000–2001	21	38	3	0	0	0	0	12
2001–2002	41	26	32	3	0	0	0	8
2002–2003	31	28	9	0	0	0	0	9
2003–2004	47	41	11	0	0	0	0	10
2004–2005	9	13	23	0	0	0	0	10
2005–2006	23	26	15	0	0	0	0	13
$\bar{x}$	35	30	18	0	0	0	0	12
Wolverine								
1995–1996	--	--	--	--	--	--	--	0
1996–1997	0	0	0	2	1	0	0	2
1997–1998	2	0	0	1	0	0	0	3

Species/regulatory year	Harvest periods							Successful trappers/hunters
	Dec	Jan	Feb	Mar	Apr	May	Unk	
1998–1999	0	0	0	0	0	0	0	0
1999–2000	0	0	1	0	0	0	0	1
2000–2001	2	1	2	0	0	0	0	3
2001–2002	0	0	0	0	0	0	0	0
2002–2003	0	2	2	0	4	0	0	3
2003–2004	2	0	1	0	0	0	0	3
2004–2005	0	1	0	0	0	0	0	1
2005–2006	0	1	0	0	0	0	0	1
$\bar{x}$	1	1	1	0	0	0	0	2

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 1B (3000 mi^2)

GEOGRAPHIC DESCRIPTION: Southeast Alaska mainland from Cape Fanshaw to Lemesurier Point

BACKGROUND

Except for a few isolated homesteads and cabins, no large communities exist on the Unit 1B mainland, so most trapping pressure comes from residents of Petersburg, Wrangell, and Meyers Chuck. Because trappers from these communities must cross open water to access mainland traplines, access is largely restricted to boats, with the exception of Thomas Bay which has some private residences and an established road system. As a result, trapping pressure and harvest fluctuate annually and are greatly influenced by winter weather, fuel prices and changes in fur prices. In the Stikine River drainage snowfall and the timing and duration of freeze-up can greatly influence access, trapping pressure, and harvest.

The combined income from marten (*Martes americana*) pelts is generally greater than from any other furbearer species in Southeast Alaska. Accordingly, martens are the most important furbearer species in Unit 1B. Marten populations tend to fluctuate widely in response to both prey abundance and trapping pressure. With the exception of 2005–06, pelt prices for martens have remained consistent at moderate levels through the past decade.

While wolverines (*Gulo gulo*) are occasionally harvested on Mitkof Island in Unit 3, the vast majority of wolverines harvested in the central Southeast panhandle are taken on the Unit 1B mainland. The wolverine harvest has remained stable at low to moderate levels during the past decade, except for 1999 when the harvest of 18 animals was over twice the 10-year average.

With the exception of 1996 and 1997, the beaver (*Castor canadensis*) harvest has remained very low for the past decade. Prices remain low and access is limited in Unit 1B, therefore, traditionally just 1–3 trappers per year target beavers.

Land otters (*Lutra canadensis*) are common along the protected coastal areas and inland waters of Unit 1B. Otter populations fluctuate in response to trapping effort, harvest, and fur prices. The otter harvest was above the long-term average in 2003–04 and 2004–05, probably in response to

increased prices for Southeast Alaska otter pelts, but decreased in 2005–06 as a result of reduced fur prices.

Although lynx (*Lynx canadensis*) have been documented in Unit 1B, they are considered extremely rare. No lynx harvest was reported during this report period.

Wolves are classified as both big game animals and furbearers and therefore are discussed in a separate management report.

Past declines in some wild furbearer populations prompted regulations. In 1913 beaver trapping was prohibited for 5 years, and a renewal extended the closure another 5 years. Martens were protected for 5 years starting in 1915.

Most furbearer trapping is used as a winter income supplement and as a form of recreation. Seasons and bag limits have remained unchanged in recent years.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

1. Provide information to the Board of Game to further maintenance of viewable and harvestable populations of furbearers.

2. Seal beaver, marten, otter, lynx, and wolverine pelts as they are presented for sealing.

3. Contact reliable observers for general information about the status and trends of furbearer populations, including the use of an annual trapper survey.

METHODS

Harvest information for beavers, lynx, martens, otters, and wolverines is collected from mandatory sealing. Location, harvest date, trapping and transportation method, and sex of all species except beavers are recorded on sealing certificates. We measure pelt size on beavers and otters, which provides an indication of harvested animals' ages. Additional harvest information on furbearer species is reported on fur export reports and fur acquisition reports.

Methods for estimating furbearer population abundance, trends, and distribution include the Alaska trapper questionnaires that local trappers received during the report period; interviews with trappers and fur buyers; and field observations by Alaska Department of Fish and Game (ADF&G) and U.S. Forest Service personnel.

The video "Alaska Guide to Fur Handling" was made available to local trappers in an effort to maximize the dollar value of their furs through proper skinning and pelt preparation techniques.

We monitored logging operations, road construction, and other developments to assess potential habitat loss and threats to furbearers associated with road construction and improved human access.

RESULTS AND DISCUSSION

POPULATION STATUS AND TRENDS

No formal field surveys were conducted in this unit to determine furbearer population status or trends. Information obtained from the trapper questionnaire and biologists' field observations provides our best indication of status and trends (Table 1). Trappers reported that beavers were common and stable in 2003–04 and 2004–05 throughout available habitat in Unit 1B.

Lynx occur infrequently; perhaps as Gray (1915) and others believed, they are more likely to move into the area when snowshoe hares become scarce in the interior of British Columbia. While lynx may occur in some larger drainages of Unit 1B, no harvest has been reported in recent years.

Trappers reported martens were common and stable in 2003–04 and 2004–05.

Mink populations were reported to be abundant and stable during 2003–04 and 2004–05.

Land otter populations were reported to be common and stable in 2003–04, abundant and stable in 2004–05.

Wolverines were reported to be at a low but stable density during 2003–04 and 2004–05.

Trappers reported on the questionnaire that rodent populations were common and stable in 2003–04, abundant and increasing in 2004–05.

Data from the 2005–06 Trapper Questionnaire was not available at the time of this printing.

MORTALITY

Seasons and Bag Limits

Hunting

Wolverine	10 Nov–30 Apr	1 Wolverine

Trapping

Beaver	1 Dec–15 May	No Limit
Lynx, marten, mink, otter	1 Dec–15 Feb	No Limit
Wolverine	10 Nov–30 Apr	No Limit

Board of Game Actions and Emergency Orders. In fall 2004 the board eliminated the requirement that the left foreleg bone remain naturally attached to hide of any harvested wolf until the hide has been presented for sealing. The board restored the pre-2000 wolf hunting and

trapping season dates in Units 1 and 3–5 by extending the season closure dates from March 31 to April 30. No emergency orders were issued during this report period.

Trapper Harvest. Until the current report period there had been very little beaver trapping effort in Unit 1B, except that 2 trappers took 40 beavers in 1996 and 16 in 1997. (Table 2). During the current report period, however, 2 trappers reported taking 19 beaver in 2003–04, 2 trappers took 23 beavers in 2004–05, and 1 trapper took 1 beaver in 2005–06.

After 3 consecutive years of above average harvest in 1997, 1998, and 1999, followed by several years of below average harvest, the marten harvest began an increasing trend during this report period. Totals of 128, 151, and 200 martens were taken in 2003, 2004, and 2005, respectively, yet remained below the 10-year average of 232 annually (Table 3).

Unit 1B had an otter harvest of 25 during the 2003 season, 22 in 2004, and 14 in 2005. That is slightly above the 10-year average of 19 annually (Table 4). The numbers of wolverines harvested were 3, 7, and 8 in 2003, 2004, and 2005, respectively, down only slightly from the 10-year mean of 7 annually (Table 5). Heavy snowfall during the winter of 2001–02 hampered trapper access and made it difficult to keep traps functioning. A series of relatively mild winters may have enhanced overwinter survival of deer, moose and goats, possibly reducing food availability for martens and wolverines, and negatively impacting survival and reproduction during the report period.

Harvest level is directly related to fur prices and winter weather conditions during the trapping season. Mink and beaver pelt values have been low in recent years. According to fur buyer Dean Wilson, Southeast Alaska martens vary widely in quality and color and bring lower prices than Interior Alaska martens. Nonetheless, marten prices increased substantially in 2005–06. The market favors southeastern Alaska otters, however, because of their larger size, good color, and silky fur. The Oriental market has been particularly interested in land otters in recent years, and prices increased substantially in 2004–05 before decreasing again in 2005–06.

Harvest Chronology. During this report period, most of the beavers harvested in Unit 1B were trapped during April and May. Most of the marten and otter harvest took place in January and December, and most wolverines were trapped during January, February and April (Tables 6–9).

Transport Methods. Most beaver trapping areas in Unit 1B are accessed by boat and ATVs, respectively. Most marten trapping areas are accessed by boat, ATVs and snowmachines, respectively (Tables 10–11).

CONCLUSIONS AND RECOMMENDATIONS

Most furbearer populations appear to be abundant or common and remain stable in suitable habitat. Trapping effort is moderate, reflecting the current low to moderate fur prices and increasing fuel prices. Harvest is below sustained yield potentials in most parts of the unit. Large areas of noncoastal habitat in unroaded portions of the mainland and islands remain untrapped and continue to provide refuge for furbearers.

I recommend no changes to trapping regulations at this time. All land development plans should be reviewed and commented on regarding effects to furbearer populations and trappers. ADF&G can maximize the value of the resource by working with local trappers through hunter and trapper education programs.

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PREPARED BY:

Richard E. Lowell
Wildlife Biologist III

SUBMITTED BY:

Dale Rabe
Regional Management Coordinator

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TABLE 1 Results from trapper's questionnaire, Unit 1B & 3 combined

	2003–04 Petersburg, Wrangell, Kupreanof & vicinity		2004–05 Petersburg, Wrangell, Kupreanof & vicinity		2005–06 Petersburg, Wrangell, Kupreanof & vicinity	
Furbearer species	Relative abundance	Trend	Relative abundance	Trend	Relative abundance	Trend
Beaver	common	same	common	same	N/A	N/A
Ermine	common	more	common	same	N/A	N/A
Lynx	x	x	x	x	x	x
Marten	common	same	common	same	N/A	N/A
Mink	abundant	same	abundant	same	N/A	N/A
Muskrat	x	x	scarce	same	N/A	N/A
Red Squirrel	abundant	same	abundant	same	N/A	N/A
River Otter	common	same	abundant	same	N/A	N/A
Wolf	common	more	abundant	same	N/A	N/A
Wolverine	scarce	same	scarce	same	N/A	N/A
Prey species						
Grouse	common	more	common	same	N/A	N/A
Ptarmigan	scarce	same	common	same	N/A	N/A
Mice/Rodents	common	same	abundant	more	N/A	N/A

TABLE 2 Unit 1B beaver harvest, 1997–2005

		Method of Take		
Regulatory year	Reported harvest	Trap/snare	Unknown	Successful trappers
1996–97	40	40	0	2
1997–98	16	16	0	2
1998–99	0	0	0	0
1999–00	4	4	0	2
2000–01	1	1	0	1
2001–02	4	4	0	2
2002–03	1	1	0	1
2003–04	19	19	0	2
2004–05	23	23	0	2
2005–06	1	1	0	1

TABLE 3 Unit 1B marten harvest, 1997–2005

Regulatory year	Reported harvest						
	M	(%)	F	(%)	Unk.	Total	Successful trappers
1996–97	137	(68)	65	(32)	33	235	7
1997–98	143	(66)	74	(34)	123	340	10
1998–99	176	(68)	84	(32)	105	365	11
1999–2000	209	(60)	137	(40)	7	353	10
2000–01	153	(64)	86	(36)	0	239	8
2001–02	77	(69)	35	(31)	3	115	8
2002–03	119	(62)	73	(38)	3	195	9
2003–04	89	(70)	39	(30)	0	128	9
2004–05	109	(72)	42	(28)	0	151	11
2005–06	125	(67)	62	(33)	13	200	8

TABLE 4 Unit 1B land otter harvest, 1997–2005

Regulatory year	Reported harvest						Method of take					
	M	%	F	%	Unk.	Total	Trap/snare	%	Shot	%	Unk.	Successful trappers
1996–97	8	(33)	16	(67)	0	24	22	(92)	2	(8)	0	4
1997–98	14	(61)	9	(39)	7	30	28	(93)	2	(7)	0	6
1998–99	4	(33)	8	(67)	1	13	8	(62)	5	(38)	0	6
1999–2000	10	(77)	3	(23)	0	13	8	(62)	5	(38)	0	4
2000–01	6	(60)	4	(40)	0	10	10	(100)	0	(0)	0	4
2001–02	12	(71)	5	(29)	0	17	17	(100)	0	(0)	0	4
2002–03	12	(57)	9	(43)	0	21	18	(86)	3	(14)	0	8
2003–04	12	(60)	8	(40)	5	25	25	(100)	0	(0)	0	5
2004–05	16	(73)	6	(27)	0	22	20	(91)	2	(9)	0	8
2005–06	8	(57)	6	(43)	0	14	14	(100)	0	0	0	3

TABLE 5 Unit 1B wolverine harvest, 1997–2005

Regulatory year	Reported harvest						Method of take				Successful trappers
	M	%	F	%	Unk.	Total	Trap/Snare	%	Shot	%	
1996–97	6	(60)	4	(40)	0	10	10	(100)	0	(0)	5
1997–98	5	(63)	3	(37)	0	8	8	(100)	0	(0)	6
1998–99	4	(44)	5	(56)	0	9	9	(100)	0	(0)	2
1999–2000	7	(39)	11	(61)	0	18	18	(100)	0	(0)	7
2000–01	3	(75)	1	(25)	0	4	2	(67)	1	(23)	4
2001–02	1	(50)	1	(50)	0	2	2	(100)	0	(0)	1
2002–03	0	(0)	2	(100)	0	2	2	(100)	0	(0)	2
2003–04	2	(67)	1	(33)	0	3	3	(100)	0	(0)	2
2004–05	3	(43)	4	(57)	0	7	7	(100)	0	(0)	4
2005–06	5	(63)	3	(37)	0	8	8	(100)	0	(0)	4

TABLE 6 Unit 1B beaver harvest, chronology by month, 1997–2005

Regulatory year	Month								
	October[a]	November	December	January	February	March	April	May	n
1996–97	0	0	8	0	8	24	0	0	40
1997–98	0	0	13	0	3	0	0	0	16
1998–99	0	0	0	0	0	0	0	0	0
1999–2000	0	0	4	0	0	0	0	0	4
2000–01	0	0	0	0	0	0	0	1	1
2001–02	0	0	0	4	0	0	0	0	4
2002–03	0	0	0	1	0	0	0	0	1
2003–04	0	0	0	0	0	0	11	8	19
2004–05	0	0	0	0	0	3	20	0	23
2005–06	0	0	0	0	0	0	1	0	1

[a] USFS took 1 beaver that was damming a fish ladder.

TABLE 7 Unit 1B marten harvest, chronology by month, 1997–2005

Regulatory year	Month			
	December	January	February	n
1996–97	128	101	6	235
1997–98	130	187	23	340
1998–99	249	114	2	365
1999–2000	51	295	7	353
2000–01	192	46	1	239
2001–02	9	98	8	115
2002–03	53	116	26	195
2003–04	49	63	16	128
2004–05	82	69	0	151
2005–06	71	94	35	200

TABLE 8 Unit 1B otter harvest, chronology by month, 1997–2005

Regulatory year	Month				Nr
	December	January	February	Unk.	
1996–97	12	2	10	0	24
1997–98	10	19	1	0	30
1998–99	3	9	1	0	13
1999–2000	7	6	0	0	13
2000–01	0	10	0	0	10
2001–02	4	8	5	0	17
2002–03	8	4	9	0	21
2003–04	15	7	3	0	25
2004–05	5	17	0	0	22
2005–06	5	8	1	0	14

TABLE 9 Unit 1B wolverine harvest, chronology by month, 1997–2005

Regulatory year	Month						
	November	December	January	February	March	April	Nr
1996–97	0	3	5	0	1	1	10
1997–98	0	1	5	2	0	0	8
1998–99	6	2	0	0	1	0	9
1999–2000	0	0	14	2	1	1	18
2000–01	0	3	1	0	0	0	4
2001–02	0	0	1	1	0	0	2
2002–03	0	0	2	0	0	0	2
2003–04	0	0	3	0	0	0	3
2004–05	0	1	3	2	0	1	7
2005–06	0	1	1	2	1	3	8

TABLE 10 Unit 1B beaver harvest, method of transportation, 1997–2005

Regulatory year	Boat	3-wheeler	Highway	Skis/snowshoes	Snowmachine	Unknown	Total
1996–97	40	0	0	0	0	0	40
1997–98	8	0	0	0	8	0	16
1998–99	0	0	0	0	0	0	0
1999–2000	3	0	0	1	0	0	4
2000–01	1	0	0	0	0	0	1
2001–02	12	0	0	0	0	0	12
2002–03	1	0	0	0	0	0	1
2003–04	19	0	0	0	0	0	19
2004–05	10	0	23	0	0	0	33
2005–06	0	0	1	0	0	0	1

TABLE 11 Unit 1B marten harvest, method of transportation, 1997–2005

Regulatory year	Boat	3-wheeler	Snowmachine	Highway	Off Road Vehicle	Skis/snowshoes	Total
1996–97	69	17	112	37	0	0	235
1997–98	239	0	97	4	0	0	340
1998–99	210	60	89	6	0	0	365
1999–2000	262	0	0	0	0	91	353
2000–01	217	0	22	0	0	0	239
2001–02	115	0	0	0	0	0	115
2002–03	139	16	0	0	0	40	195
2003–04	88	40	0	0	0	0	128
2004–05	130	4	11	0	2	4	151
2005–06	135	15	26	24	0	0	200

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 1C (7600 mi^2)

GEOGRAPHICAL DESCRIPTION: That portion of the Southeast Alaska mainland from Cape Fanshaw to the latitude of Eldred Rock, including Sullivan Island and the drainages of Berners Bay

BACKGROUND

Martens (*Martes americana*), mink (*Mustela vison*), otters (*Lutra canadensis*), and beavers (*Castor canadensis*) make up the majority of the Unit 1C furbearer harvest. Smaller numbers of wolverines (*Gulo gulo*), weasels (*Mustela erminea*), and an occasional fisher (*Martes pennanti*) are taken each year. Wolves are discussed in a separate management report.

Beavers exist at moderate levels in most drainages along the coastal mainland where habitat is suitable, as well as on some of the larger islands. There is limited natural or human-caused disturbance affecting beaver habitat in this subunit. Berners Bay, Taku River, Herbert/Eagle River system, Cowee Creek, St. James Bay, Shelter Island, and Lincoln Island contribute to the total harvest. Few beavers have been sighted on Douglas Island. Although the beaver harvest varies annually, this variation seems related more to trapper effort than to the abundance of beavers.

River otters are fairly common along the mainland coast and most large islands in the unit. While little is known about otter populations, they are thought to be most abundant in sheltered waters provided by bays and inlets.

Martens are common throughout Unit 1C mainland drainages, but are not found on most islands. The exception is Douglas Island, which has an occasional marten present.

Wolverines occur in small numbers; sealing information provides little insight into population status or distribution. While wolverines are one of the least common species in the subunit, the high pelt price encourages trappers to target them. Most wolverines are captured in Berners Bay or on the west side of Lynn Canal. Both of these areas are remote from the Juneau road system.

The first fisher ever recorded in the Juneau area was captured in 1996, and it appears that there may now be a small population in the area. During this report period Alaska Department of Fish

and Game (ADF&G) received several reports of fisher (*Martes pennanti*) sightings by cabin owners in the upper Taku River, as well as ADF&G Commercial Fisheries personnel stationed at Canyon Island on the Taku River. However, no fishers were turned into the department during this report period.

Coyotes (*Canis latrans*), though once scarce to nonexistent in this subunit, are now common near Gustavus and in the foothills of the Chilkat Mountains. Residents of Gustavus routinely hear coyotes, and trappers have begun catching them in areas where there seemed to be few to none just a decade ago. Along the Juneau road system, there have been several reported sightings near the Mendenhall Glacier Visitor Center and on Thane Road during this report period.

Little information exists for mink (*Mustela vison*), since trappers are not required to seal them. However, most trappers who stop by ADF&G to seal other furs are fairly open with their trapping success stories, which suggests that mink are fairly abundant in most areas. Most trappers we interact with do not target mink because of the effort required to handle the pelts, and the relatively low price they bring.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

1. Regulate seasons and bag limits to maintain viewable and harvestable populations of furbearers.

2. Seal harvested beaver, marten, otter, lynx, and wolverine pelts as they are presented for sealing.

3. Contact reliable observers for general information about the status and trends of furbearer populations, including the use of an annual trapper survey.

METHODS

Mandatory sealing of martens, beavers, otters, wolverines, and lynx was the chief source of furbearer harvest data. For each species we recorded method and month of take, transportation means, and harvest location. Sex and pelt size was recorded for each otter, pelt size was recorded for each beaver, and sex was recorded for wolverines and martens. We also began collecting a canine tooth, when the trapper was agreeable, for aging wolverines, and a tissue sample for DNA analysis in our efforts to better understand wolverine population dynamics and distribution. Trapper interviews and a mail-out trapper survey provided additional insight into perceived population status and trapping pressure.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

We do not conduct any formal furbearer research to document or monitor population status or trends; rather, we depend on trapper questionnaires and trapper effort for furbearer information. Unit 1C furbearer populations appear stable, based on trapper interviews, mail-out trapper surveys, and harvest data. Lynx remain uncommon and probably always will be given the low density of hares in this area, while otters, mink, and martens are common or abundant. Weasels are fairly common and most trappers catch one or two inadvertently each year in their marten traps. Wolverines are present in low densities and found throughout the remote portions of the unit. Coyotes are present in moderate numbers on the west side of Lynn Canal including Gustavus, and at lower densities throughout the remainder of the unit. Fishers may be gaining a foothold in the area, but we have only the occasional errant capture or sighting to provide us with information about this species' presence.

Mortality

Harvest

Seasons and Bag Limits

Hunting	Season	Bag Limit
Marten, otter, mink, beaver, lynx	No Open Season	
Wolverine	10 Nov–15 Feb	1
Trapping		
Marten, otter, mink, lynx	1 Dec–15 Feb	No limit
Beaver	1 Dec–15 May	No limit
Wolverine	10 Nov–30 Apr	No limit

Board of Game Actions and Emergency Orders. No Board of Game actions occurred that changed the trapping regulations for this unit, and no emergency orders were issued during this report period.

Trapper Harvest: Table 1 shows the furbearer harvest since RY 1996.

The number of beavers harvested steadily increased throughout the report period. Eighteen were taken in 2003, 23 were taken in 2004, and in 2005 thirty were harvested. The mean harvest of 23.6 beavers per season is very close to the mean of 23 for the previous 10 years. Given the low value of their fur, and the amount of effort required to trap and handle beaver and their pelts, trappers often ignore them. Beavers are at times considered a nuisance because of their propensity for causing flooding in some residential areas, as well as plugging culverts, resulting in road problems for the Department of Transportation. During each of the past 3 years we issued

2–3 permits per year under 5 AAC 92.041 (permit to take beavers to control damage to property), accounting for 30 beavers during the report period. These permits are generally for those areas that are closed by state regulation or city ordinance to the setting of traps, or because the beavers need to be removed outside the trapping season due to property damage.

The river otter harvest increased substantially over the previous two report periods, with 140 otters brought in for sealing, compared to 36 during 2000–2002, and 39 during 1997–1999. An increase in the price paid for otter pelts during the report period (> $150.00 in some cases) led to an increase in effort and the resulting harvest. Many of the otters were taken with firearms by trappers enroute to their traplines.

The mean annual harvest of wolverines during this report period was 3.7, somewhat lower than the last two report period means of 4.7 (2000–2002) and 5.0 (1997–1999). Although 6 were taken in 2003 and 5 in 2004, none were harvested in 2005. Based on information provided by trappers, wolverines are present throughout the unit, even in the upper reaches of the drainages crossed by the Juneau road system. During the report period, 4 of 11 wolverines harvested came off the Juneau road system, while the remaining 7 were taken from various remote locations, with 3 of them being from 1 site. As often happens with trapping harvest, 1 or 2 ambitious trappers can account for large portion of the catch. Two trappers accounted for 6 of the 11 animals taken during this report period, and these were all taken at just 2 sites.

The marten harvest increased from a mean annual take of 78 during the previous report period to 171 during this report period. Although this is a considerable increase, it falls short of the mean annual harvest of 235, 248, and 201 martens taken during 3 of the previous 5 report periods. The annual harvest varied year to year, with 148, 204, and 162 taken during 2003, 2004, and 2005 respectively. The percent males in the harvest also undulated with 66%, 57%, and 64% taken during these same three years.

Harvest Chronology. Most furbearers, with the exception of beavers, were caught during December and January. Beavers were caught throughout the trapping season, with the majority caught in March and April when the days are longer and the weather is better. There were also 20 beavers caught outside the trapping season under 5 AAC 92.041 (permit to take beavers to control damage to property).

Table 2 shows the chronology of the marten harvest during this report period. Fifty-eight percent of the marten harvest occurred in December, 33% in January, and only 9% in February. This catch distribution is common for martens. Trappers generally saturate an area with traps and catch most available animals during the early part of the season.

Transport Method. Most Unit 1C trapping takes place adjacent to the Juneau road system, thereby allowing trappers access to areas with highway vehicles. However, a CBJ ordinance forbids setting of traps within ½ mile of a road within the city or borough limits, forcing trappers to hike or snowshoe the necessary distance away from the road before setting traps. Most trappers use well established hiking trails to gain access to legal trapping areas. In some cases, such as in Gustavus, trappers begin hiking from their homesteads. Also, during most winters at least one trapper takes a boat to Berners Bay, Pt. Couverdon, or St. James Bay and drops off a snowmobile or 4-wheeler for locomotion.

CONCLUSIONS AND RECOMMENDATIONS

Unit 1C furbearer populations appear to be healthy and capable of withstanding the present level of trapping pressure. Fur price value often drives furbearer harvest, and during this report period, river otters and marten rose in value and subsequently the harvest also increased. River otters in particular increased in value to where most every trapper was targeting them in spite of the time investment it takes to prepare an otter pelt for sale. The resulting increase in harvest of otters raises some concern as to whether this is sustainable. However, a plummeting of otter prices by February 2006 will likely lead to decreased pressure and harvest during the next trapping season. Beavers continue to be abundant and thrive in many areas in the unit especially along the Juneau road system, which is closed to trapping. Nuisance permits issued by the department are used routinely to address beaver flooding issues, thereby allowing a few trappers to take advantage of this additional opportunity. Wolverines, though relatively scarce when compared to other furbearers, seem to be present at low densities throughout the unit and available to those trappers that put in the effort to target them. Mink are probably one of the most abundant furbearers in this unit, but are not highly sought after. They require a fair bit of effort to prepare for selling, and bring a low price compared to otter and marten.

Overall the furbearer populations seem to be healthy; therefore, we do not recommend any regulatory changes to the present seasons and bag limits.

PREPARED BY:
Neil Barten
Wildlife Biologist III

SUBMITTED BY:
Dale Rabe
Regional Management Coordinator

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TABLE 1 Unit 1C furbearer harvest, 1996–2005

Regulatory year	Beavers	Lynx	Martens	Otters	Wolverines
1996–1997	17	0	293	19	3
1997–1998	62	0	181	21	5
1998–1999	7	0	267	12	6
1999–2000	36	0	155	6	4
2000–2001	27	1	76	8	1
2001–2002	2	1	90	11	9
2002–2003	12	0	67	17	4
2003-2004	18	0	148	42	6
2004-2005	23	0	204	67	5
2005-2006	30	0	162	31	0

TABLE 2 Unit 1C marten harvest chronology by sex, 1997–2005

	1997–1998			1998–1999			1999–2000		
Month	Males	Females	Unknown	Males	Females	Unknown	Males	Females	Unknown
November	0	0	0	0	0	0	0	0	0
December	67	28	0	95	60	0	35	22	0
January	58	27	0	47	39	0	40	25	0
February	1	0	0	10	16	0	13	20	0
Unknown	0	0	0	0	0	0	0	0	0
Total	126	55	0	152	115	0	88	67	0

	2000–2001			2001–2002			2002–2003		
Month	Males	Females	Unknown	Males	Females	Unknown	Males	Females	Unknown
November	0	0	0	0	0	0	0	0	0
December	30	23	0	20	11	19	22	20	0
January	14	7	0	21	11	0	9	6	0
February	2	0	0	7	1	0	6	4	0
Unknown	0	0	0	0	0	0	0	0	0
Total	46	30	0	48	23	19	37	30	0

TABLE 2 continued

	2003-2004			2004-2005			2005-2006		
Month	Males	Females	Unknown	Males	Females	Unknown	Males	Females	Unknown
November	0	0	0	0	0	0	0	0	0
December	54	26	0	69	50	2	63	31	2
January	33	20	0	42	32	1	20	13	7
February	11	4	0	3	4	1	13	9	4
Unknown	0	0	0	0	0	0	0	0	0
Total	98	50	0	114	86	4	96	53	13

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 1D (2700 mi^2)

GEOGRAPHIC DESCRIPTION: That portion of the Southeast Alaska mainland lying north of the latitude of Eldred Rock, excluding Sullivan Island and the drainages of Berners Bay

BACKGROUND

The majority of the Unit 1D fur harvest comes from areas in the vicinity of Haines, Alaska. Very few furbearers are taken in other unit locations such as Skagway. Trapping in Unit 1D may be limited by the difficult access to many areas prior to river freeze-up. The Chilkat River provides a transportation corridor once it freezes, but solid ice and enough snow for traveling by snowmachine often aren't present until December. With limited marine shoreline compared to other Southeast Alaska units, river otter *(Lutra canadensis)* and mink *(Mustela vison)* habitat is not as prevalent or as productive as in other areas. In spite of this, the Chilkat River and its tributaries support a fair number of these species. Beavers *(Castor canadensis)*, though once scarce, are now quite common throughout the unit. The lynx *(Lynx canadensis)* population varies from almost no animals to abundance, depending on the number of snowshoe hares. Extensive mountainous terrain in the subunit provides wolverine (*Gulo gulo*) habitat, and the scavenging opportunities on wolf-killed moose (*Alces alces*) and mountain goats (*Oreamnos americanus*) probably provide ample foraging opportunities. Late season salmon runs provide food for many furbearers throughout the winter.

Wolves are discussed in a separate management report.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

1. Provide information to the Board of Game to further maintenance of viewable and harvestable populations of furbearers.

2. Seal harvested beaver, marten, otter, lynx, and wolverine pelts as they are presented for sealing.

3. Contact reliable observers for general information about the status and trends of furbearer populations, including the use of an annual trapper survey.

Alaska Statute classifies furbearers into three groups; big game, fur animals and furbearers. Species listed as big game are wolf and wolverine. Fur animals include beaver, coyote, arctic fox, red fox, lynx and squirrels. Furbearers incorporate all those species previously listed as well as marten, mink, weasel, muskrat, river otter and marmot. This classification scheme allows species listed as big game and fur animals to be taken under hunting and trapping regulations. Those species classified strictly as furbearers may only be taken under trapping regulations.

METHODS

Mandatory sealing of marten, otter, wolverine, beaver and lynx has provided the best source of data on furbearer harvests. For each species, the method and month of take and type of transportation were recorded. Sex composition of the marten harvest was noted. Sex and pelt size (used to differentiate adults and young) were recorded for otters and beavers. Trapper questionnaires provided additional insight into perceived population status and trapping pressure.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

We do not conduct any formal furbearer research to document or monitor furbearer population status or trends in this unit; rather, we depend on trapper questionnaires and trapper effort for furbearer information. Indications are that most furbearer populations are stable in Unit 1D. Marten continue to attract the most attention by trappers, and, if the harvest is a reflection of abundance, the population appears to be healthy. The high proportion of males in the harvest throughout this reporting period supports this assessment. Lynx numbers seem to fluctuate drastically due to the immigration of animals from Canada, or lack thereof, and catch rates fluctuate along with these movements. The population of land otters appears to be healthy and widespread based on the abundance of otter tracks seen while flying winter moose surveys. Wolverine will probably always be found at low densities, but because of extensive suitable habitat (much of which is nearly inaccessible), the wolverine population is probably stable and should remain so. Little is known about wolverines in Unit 1D. Future wolverine research in both Thomas and Berners bays on the Southeast Alaska mainland should provide biological information applicable to Unit 1D wolverines. Beavers have increased in number over the past 20 years. This increase prompted the Alaska Department of Fish and Game to submit a proposal to the Board of Game (BOG) in fall 2000 to open a beaver trapping season with a 5 beaver bag limit. The board adopted the proposal, providing for a trapping season beginning in the fall of 2001. Until 2001, there had not been a beaver season in Unit 1D since 1976. Beaver trapping in Unit 1D was closed in 1976 due to the historically low number of beavers in the area. During March of 2005, wildlife staff went afield with the Upper Lynn Canal Advisory Committee (AC) chairperson to investigate concerns regarding an overabundance of beavers near the junction of the Kelsall and Chilkat rivers. The concern by the AC was that beavers were blocking upstream migration by adult salmon, and downstream migration by smolt. Snowmachines were used to access the site, and staff, along with the AC chairperson, observed some beaver activity in the area and discussed options. This discussion carried over to an evening AC meeting in Haines.

Both Sport Fish and Commercial Fish division staff accompanied wildlife staff on this excursion as well as to the evening meeting and stated that the salmon abundance did not appear to be negatively affected by the beavers. Wildlife staff suggested the AC encourage local trappers to target beavers, and also that they approach the BOG with a proposal to liberalize the beaver season. In early 2006 the AC drafted a BOG proposal changing the beaver trapping season to 1 November–31 May and eliminating the bag limit in Unit 1D. The department discussed the proposal with area trappers and with fisheries managers who are in positions to see beaver numbers and activity. All the information provided to wildlife managers indicates an increasing number of beavers in the unit.

MORTALITY

Harvest

Seasons and Bag Limits.

Hunting	Season	Bag Limit
Marten, otter, mink, lynx, beaver	No open season	
Wolverine	10 Nov–15 Feb	1 per season

Trapping	Season	Bag Limit
Beaver	1 Dec–15 May	5 per season
Marten, otter, lynx	1 Dec–15 Feb	No limit
Mink, wolverine	10 Nov–30 Apr	No limit

Board of Game Actions and Emergency Orders. No Board of Game actions concerning furbearers were taken during the reporting period. No emergency orders were issued in relation to fur animal hunting or furbearer trapping seasons.

Trapper Harvest. Table 1 lists Unit 1D trapper harvest since RY 1989.

The mean annual harvest of 107 marten during this report period is higher than the 10-year mean of 81 marten per year. The percentage of males (62%) in the harvest is still relatively high, indicating a healthy marten population.

No lynx were taken during the reporting period. This is an obvious decrease from the 18 animals harvested during the 2000–2003 report period. The 10-year mean harvest for lynx is 2 per year. Given the vulnerability of lynx to trapping, it is likely that few, if any, lynx were present during the previous reporting period. It is apparent when looking at the lynx harvest year to year (Table 1), that lynx in Unit 1D are either present in catchable numbers or absent altogether, probably due to influxes from Canada. Anecdotal information from trappers and hunters in the Chilkat

River Valley indicates that hare numbers are high and are probably near the population peak. An increase in lynx harvest is anticipated due to the availability of hares in the area.

The land otter mean harvest during the reporting period was 5 otter per year. This harvest is slightly higher than the 10-year mean harvest of 4 otters. An anticipated increase in otter harvest due to high pelt prices did not materialize, though the 2004–2005 harvest of 9 otters was the highest number of animals taken since the 1980s.

The wolverine harvest decreased from a mean of 7 during the previous reporting period to 4 during 2003–2005. The mean harvest for the reporting period is nearly the same as the 10-year mean harvest of 5 wolverines.

The mean beaver harvest since the Board of Game reopened the trapping season in 2001 has been 8 beavers. During this reporting period trappers harvested a mean of 4 beavers. Division of Wildlife Conservation staff received fewer complaints of beavers blocking culverts and flooding roads. Because beavers can now be taken without a permit in the Haines area during the trapping season, we anticipate nuisance beaver permit requests will continue to decline.

Harvest Chronology. The chronology of the marten harvest for the 3 years during the reporting period is shown in Table 2. December and January continue to be the dominant months for harvesting marten. The wolverine and otter harvest was also concentrated into these months.

Transport Method. Trapper access relies much less on boats than in other parts of the region. Access by vehicle along the highway and logging road system is most common and is used to support other types of access, such as snowmobiles and snowshoes. Transport methods are dictated by weather and snow conditions in Unit 1D. When there is adequate snow cover, and the rivers are frozen, trappers are able to access much more of the furbearer habitat in the unit.

Habitat Assessment. Some marten habitat will be lost as old-growth forests, particularly riparian areas, are converted to clearcuts. Many of the areas currently scheduled for harvesting, such as those along the upper Chilkat and Klehini Rivers, fall into this category. At present, all operable timberlands within the Haines State Forest are scheduled for cutting during the next 120 years, with several hundred acres being leased each year. Most of this land supports martens. Although impacts to wildlife populations are considered in timber harvest plans, mitigation measures or habitat enhancement opportunities for marten are limited due to their need for climax forests.

CONCLUSIONS AND RECOMMENDATIONS

Marten harvests during this reporting period increased from the previous report period. It is not clear how much this movement is due to a change in marten numbers or trapper effort. Males continue to dominate the harvest, which is an indication of a healthy population. Monitoring sex ratios in the marten harvest should be continued.

During the reporting period land otter furs were in high demand with an average price over $100.00 per pelt. Due to the high price of otter fur a significant increase in the number of otter furs sealed occurred in Southeast Alaska during the 2004–2005 trapping season. Managers anticipated an increase in otter harvest in Unit 1D. However, only a slight increase in harvest

occurred (Table 1). As stated above, the weather and accessibility to otter habitat are likely important factors limiting otter trapping effort.

The newly established beaver trapping season appears to have alleviated some of the problems associated with beaver flooding and lessen the workload of ADF&G to issue permits for beaver removal. The concerns by many Haines residents about the extinction of beavers in Unit 1D with the adoption of a trapping season were not realized. If anything, the harvest is much lower than most people would have thought. Based on this information, the department will support the Upper Lynn Canal Advisory Committee proposal, amended to retain the existing season (1 December–15 May), to change the bag limit to "No Limit" at the fall 2006 Board of Game meeting.

There are no plans by ADF&G to change the seasons or bag limits on other furbearers in Unit 1D at this time.

PREPARED BY:

Ryan Scott
Wildlife Biologist II

SUBMITTED BY:

Dale Rabe
Regional Management Coordinator

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TABLE 1 Unit 1D furbearer harvest, 1989–2006

Regulatory Year	Beaver	Lynx	Marten	Otter	Wolverine
1989–1990	N/A	0	114	1	2
1990–1991	N/A	0	104	1	3
1991–1992	N/A	11	51	6	1
1992–1993	N/A	27	2	2	8
1993–1994	N/A	8	17	3	10
1994–1995	N/A	0	0	2	4
1995–1996	N/A	0	99	2	7
1996–1997	N/A	4	108	2	9
1997–1998	N/A	0	86	3	3
1998–1999	N/A	0	48	0	0
1999–2000	N/A	0	61	1	2
2000–2001	11	12	31	3	3
2001–2002	2	4	57	7	9
2002–2003	22	2	95	3	8
2003-2004	5	0	172	2	9
2004-2005	1	0	75	9	2
2005-2006	7	0	73	5	2

TABLE 2 Unit 1D marten harvest chronology by sex, 1994–2006

	1994–1995				1995–1996				1996–1997			
Month	Males	%	Females	%	Males	%	Females	%	Males	%	Females	%
November	0	0	0	0	10	83	2	17	0	0	0	0
December	0	0	0	0	36	92	3	8	12	60	8	40
January	0	0	0	0	24	73	9	27	68	77	20	23
February	0	0	0	0	3	20	12	80	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	---	0	---	73	74	2	26	80	74	28	26

	1997–1998				1998–1999[1]				1999–2000			
Month	Males	%	Females	%	Males	%	Females	%	Males	%	Females	%
November	0	0	0	0	0	0	0	0	0	0	0	0
December	13	72	5	28	10	83	2	17	27	61	17	39
January	32	67	16	33	4	67	2	33	7	78	2	22
February	10	67	5	33	17	81	4	19	7	88	1	12
Unknown	0	0	0	0	1	100	0	0	0	0	0	0
Total	55	68	26	32	32	80	8	20	41	67	20	33

[1] Does not include 8 martens of unknown sex, trapped in December.

TABLE 2 (continued) Unit 1D marten harvest chronology by sex, 1994–2006

	2000–2001[1]				2001–2002[2]				2002–2003[3]			
Month	Males	%	Females	%	Males	%	Females	%	Males	%	Females	%
November	0	0	0	0	0	0	0	0	0	0	0	0
December	22	73	8	27	16	73	6	27	28	55	23	45
January	0	0	0	0	19	66	10	34	11	79	3	21
February	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	1	100	0	0	0	0	0	0
Total	22	73	8	27	36	69	16	31	39	60	26	40

[1]Does not include 1 marten of unknown sex, trapped in January.

[2]Does not include 6 martens of unknown sex, trapped in December and January.

[3]Does not include 30 martens of unknown sex, trapped in December and January.

	2003–2004				2004–2005[1]				2005–2006[2]			
Month	Males	%	Females	%	Males	%	Females	%	Males	%	Females	%
November	0	0	0	0	0	0	0	0	0	0	0	0
December	46	70	20	30	20	54	17	46	14	64	8	36
January	56	62	34	38	20	65	11	35	25	66	13	34
February	9	56	7	44	1	17	5	83	5	63	3	37
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Total	111	65	61	35	41	55	33	45	44	65	24	35

[1]Does not include 1 marten of unknown sex, trapped in November.

[2]Does not include 2 marten of unknown sex, trapped in December; 2 marten of unknown sex, trapped in January; and 1 marten of unknown sex trapped in February.

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 2 (3900 mi^2)

GEOGRAPHIC DESCRIPTION: Prince of Wales and all adjacent islands bounded by a line drawn from Dixon Entrance in the center of Clarence Strait, Kashevarof Passage, and Sumner Strait to and including Warren Island

BACKGROUND

Unit 2 includes Prince of Wales Island (POW) and a complex of smaller islands with their associated bays and estuaries. The combined archipelago consists of a large amount of sheltered waters that provide relatively safe boat access along many miles of shoreline. POW and many other islands have thousands of miles of logging roads (2500–3000) accessible by motor vehicle. Thus, access to a large amount of furbearer habitat is exceptional and trappers can operate long traplines with relative ease. However, by comparison to other areas in the state, Southeast Alaska traplines are some of the shortest, averaging only 20 miles in length, while the statewide average trapline length is 35 miles. Clearcut logging has fragmented the landscape and in many cases, especially for marten (*Martes americana*), has reduced suitable habitat to narrow wildlife travel corridors. By using these concentrated travel corridors, trappers may increase their success.

Furbearer populations have remained at moderate and stable levels during the past decade. Trapping pressure and harvests fluctuate annually, primarily as a function of changes in weather and fur prices. Trappers use boats and road vehicles to access traplines in Unit 2 and both rely on favorable weather patterns. Only a few of the main roads in this unit are maintained and plowed during the winter and consequently the vast majority of roads area become impassable. Boat access is also weather dependent and trappers often find themselves waiting for long periods for safe boating conditions to reach traplines.

More trappers in Southeast Alaska allowed young people to accompany them on traplines during this report period than in other areas of the state. Slightly over 50% of Southeast trappers allowed young trappers to go into the field with them to learn trapping skills. With the average age of trappers in the state at 47, we need to make an extra effort and to encourage all trappers to consider taking a young person along to share experiences on their traplines.

Southeast Alaska provides excellent habitat for land otters (*Lutra canadensis*), and fur buyers consider Southeast pelts to be high quality. Pelt prices were high during the late 1970s, declined during the 1980s and early 1990s, and have significantly increased during the past few seasons. Because otters are difficult to trap and pelt preparation is time consuming, prices must be high to substantially influence harvest levels. Because most otter trappers use boats for transportation in Unit 2, weather often determines the amount of effort.

Beaver (*Castor canadensis*) prices have remained stable and low for several years. Beaver harvests can fluctuate dramatically from year to year because of the efforts of only a few trappers.

Southeast Alaska trappers are more interested in martens than any other furbearer species. Martens are easy to trap, their pelts are easy to care for, and combined income from the pelts is generally greater than for any other furbearer species in southern Southeast. Marten populations fluctuate annually throughout Southeast Alaska. These dramatic shifts are directly correlated to cyclic or irregular prey fluctuations (Novak *et al*. 1987). The small mammal population is currently high throughout most of Unit 2 and consequently many of the land and avian predators of those small mammals are also high. Marten fur market prices reached a 10-year high during this report period and resulted in more trapping effort. Extensive logging continues to remove uneven-aged, old-growth habitat required by martens, and as a result, we believe the area's capacity to support marten populations will decline over time (Flynn and Schumacher 1997).

For at least the past decade mink (*Mustela vison*) pelt prices have remained low and stable. This has resulted in moderate-to-low interest among trappers.

Weasel (*Mustela erminea*) populations fluctuate from year to year, independent of trapping. Harvest tends to be limited to incidental take while targeting other furbearers, primarily martens. Muskrats are absent from Unit 2.

Furbearers by order of importance to Unit 2 trappers include martens, land otters, beavers, mink, and flying squirrels (*Glaucomys sabrinus*). Wolverines (*Gulo gulo*), foxes (*Vulpes spp.*), coyotes (*Canis latrans*), lynx (*Lynx Canadensis*) and red squirrels (*Tamiasciurus hudsonicus*) are absent in Unit 2.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

1. Provide information to the Board of Game to further maintenance of viewable and harvestable populations of furbearers.

2. Seal harvested beaver, marten, otter, lynx, and wolverine pelts.

3. Contact reliable observers for general information about the status and trends of furbearer populations, including the use of an annual trapper survey.

METHODS

Our harvest data comes from mandatory sealing of marten, beaver, and otter pelts. We have discontinued the collection of mink harvest data; therefore, the status of mink populations is assessed through staff observations and information obtained through annual trapper surveys.

Beaver pelts have been sealed for more than 20 years. Wolverines were first sealed in 1971 and land otters have been sealed since 1978. Marten sealing was initiated in 1984.

We do not perform furbearer population surveys in Southeast Alaska. Some ecological information is available for mink and land otters from short-term research studies completed in Southeast (Harbo 1958, Home 1977, Larsen 1983, Woolington 1984, Johnson 1985). A study of marten ecology was recently completed on northeast Chichagof Island (Flynn and Schumacher 1997).

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Unit 2 beaver populations have generally remained at moderate levels (Table 1). Habitat changes can cause large fluctuations in beaver populations. Current pelt prices are not high enough to foster much trapping pressure except in easily accessed areas, such as along the road system.

Unit 2 trappers believe martens have remained at moderate to high levels during this report period (Table 1). Marten populations tend to fluctuate annually throughout Southeast Alaska, probably because of changes in prey abundance. During this report period small mammal populations appear to be at the high end of the cycle and consequently furbearer numbers seem to also be abundant. The extreme marten cycles in other Southeast locations seem to be more dramatic than in Unit 2, suggesting there may be alternative food sources to buffer martens in this area when small mammal numbers decline. One untested hypothesis is that martens may also benefit from deer carcass remains left by wolves. This reliable food source is not available in areas such as Unit 4, where wolves are absent. Discussions with trappers suggest that martens prefer old-growth stands and avoid clearcuts. This is also consistent with findings of Flynn and Schumacher (1997), who found that martens avoid clearcuts and spend the majority of their time feeding and resting in older forest stands. Schumacher (1999) also found marten preferred the larger diameter timber structures for dens and resting sites. Large old trees and old logs are important as den sites for martens (Hauptman 1979, Simon 1980, Hargis and McCullough 1984, Wynne and Sherburne 1984). We anticipate that reductions in old-growth habitat, increasing road construction, increased traffic along fragmented habitat, and refugia loss will eventually result in fewer martens in the unit.

Marten fur prices reached a 5-year high during 2004 with top quality furs in Alaska reaching $110. That is up significantly from the 2000 Alaska sale prices of $35.

Trappers believe mink populations remained at high levels (range I_A= 86–90) in Unit 2 during this report period (Table 1). Given the current limited interest in mink pelts, we do not expect this to change unless pelt prices increase substantially.

Otter populations were believed to be low in the late 1970s when prices were high (Wood 1990). We believe that populations have steadily increased during the past decade and are currently at moderate-to-high levels. This is supported by information obtained from trappers. During this 3-year report period trappers reported otter abundance was high ($\bar{x}$ =53), matching the 10-year average of 53 (Table 1). A higher percentage of otters in Unit 2 are taken by ground shooting (20%) than in the remainder of the state. Statewide only 13% are shot, while across all of Southeast 30% are taken using this method (Blejwas 2005).

Fur prices for otter pelts sold in Alaska reached an all-time high during the 2003 season with top quality otter fetching as much as $200. The market price for top quality furs was down during the 2004 auctions to around $112 (Blejwas 2005).

MORTALITY

HARVEST

Seasons and Bag Limits.

Hunting		
Wolverine	10 Nov–15 Feb	1 wolverine
Trapping		
Beaver	1 Dec–15 May	No limit
Lynx, mink, marten,		
Otter, weasel, muskrat	1 Dec–15 Feb	No limit
Wolverine	10 Nov–30 Apr	No limit

Board of Game Actions and Emergency Orders. Starting fall of 2007 trappers will be required to have the same signage or metal tags previously required for snares also attached to traps.

Trapper Harvest. Unit 2 marten harvests are typically high compared to elsewhere in Southeast, and during average years are second only to Unit 4, the highest Region I marten producer (Table 2). The 3-year average during the previous reporting period (2000–2003) was 764 (range 323–1083). Annual marten harvest during 2003–2005 was 567, 1067, and 826, respectively (Table 2).

The annual river otter harvest during 2003–2005 was 336, 393, and 341 with a 3-year mean of 357. Trapping, rather than shooting, remained the predominant method of take, and most successful otter trappers relied on boats for transportation (Table 2). During this report period an average of 20% of the otters sealed were shot, rather than trapped, slightly above the 10-year average of 14%. Old-growth forest is preferred otter habitat and little use is made of cutover areas. Otters are most commonly found close to saltwater and prefer adjacent old-growth habitat for resting and denning. Hopefully, timber sales close to saltwater will include beach buffers which will protect some of this important habitat. Trappers report higher than average prices

paid for Southeast Alaska otters, and this high price may have contributed to the increased effort and harvest. Pelt prices of $158 for top hides during the 2004 season were over twice the normal going market rate and provided incentive for trappers to concentrate on otters (Blejwas 2005).

The Unit 2 beaver harvest has fluctuated during the past 10 years, from104 in 1998 to a high of 310 in both the 1999 and 2000 seasons. The average harvest during the past 3-year report period was 201 (range 153–237).

Harvest Chronology. During the past 11 years about 24% of the beaver harvest occurred during December, followed by January (17%), April (16%), February (24%), March (12%), May (2%), and (3%) unknown. During this report period an average of 18 trappers participated in the harvest, similar to the 10-year trend (Table 3).

December is also the preferred month for marten trappers. Over the past 10 years about 68% of all martens taken were caught in December, followed by January (26%) and February (6%). The average number of active marten trappers (30) during this 3-year report period was slightly lower than the 10-year average ($\bar{x}$ =35).

During the past 10 years the land otter harvest has typically been split between December (38%), January (40%), February (19%) and 2% unknown. The number of successful otter trappers during this 3-year report period ($\bar{x}$ =23) was similar to the long-term average ($\bar{x}$ =22).

Transport Methods. The Unit 2 road system consists of more than 2500 miles of drivable surface and provides trappers and hunters with more road access than in any other unit in Alaska. Some of this road system is disconnected from the main road and is only accessible by boat. This requires trappers to transport ATVs by boat to some of the more remote areas.

Two of the past 3 seasons have been mild winters and the road system has remained open much of the year, allowing trappers to reach a large portion of the unit. Beaver and marten trappers continue to use road vehicles 80% and 60% respectively, while otter trappers prefer boats (77%) as the major modes of transportation to areas in Unit 2 (Table 2).

OTHER MORTALITY

Beavers were removed from specific areas because of flooding and erosion problems created by their cutting and damming activities. We issued 2 beaver depredation permits to communities and corporations during this report period.

CONCLUSIONS AND RECOMMENDATIONS

Unit 2 furbearer populations appear stable at this time. We are observing increased effort because of high market prices for some furbearers; especially river otter and marten. However, even with the increased effort and success, the furbearer harvest has been spread across the entire unit and appears to be sustainable.

An extensive highway paving project was recently completed on POW along with a new state ferry that started making regular visits to Coffman Cove in summer 2006. This will provide more

access for trapping, hunting and other outdoor activities, all of which will place more demand on Unit 2 furbearers.

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PREPARED BY:

Boyd Porter
Wildlife Biologist III

SUBMITTED BY:

Dale Rabe
Regional Management Coordinator

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TABLE 1 Unit 2 indices of abundance (I_A)[a] for furbearers[b], 1995–2005

	SPECIES			
REGULATORY YEAR	***BEAVER***	***MARTEN***	***MINK***	***OTTER***
1995–1996	33	83	100	83
1996–1997	37	50	75	50
1997–1998	42	82	80	72
1998–1999	48	62	90	85
1999–2000	72	68	85	68
2000–2001	68	72	82	71
2001–2002	48	76	86	68
2002–2003	54	69	91	82
2003–2004	55	72	89	81
2004–2005	52	74	86	83
2005–2006	51	76	90	79
$\bar{x}$	51	71	87	75

[a] Species are considered abundant when $I_A \geq 50$; moderate when $20 < I_A < 50$; and scarce when $I_A \leq 20$. From Brand and Keith (1979).

[b] Values derived from responses to trapper questionnaires

TABLE 2 Unit 2 furbearer reported harvests, 1995–2005

Species/regulatory year	Total take	Percent male	Method of take (percent)			Transportation used (percent)				
			Shot	Trapped or snared	Unk	Boat	Road	Air	Unknown	Other
Beaver										
1995–1996	281	--	0	100	0	9	89	0	0	2
1996–1997	291	--	0	100	0	19	76	0	0	5
1997–1998	249	--	0	100	0	17	81	0	0	2
1998–1999	104	--	0	100	0	26	70	0	0	4
1999–2000	310	--	0	100	0	5	88	7	0	0
2000–2001	310	--	0	100	0	8	90	2	0	0
2001–2002	210	--	0	100	0	0	100	0	0	0
2002–2003	189	--	0	100	0	36	64	0	0	0
2003–2004	153	--	0	100	0	25	75	0	0	0
2004–2005	213	--	0	100	0	15	85	0	0	0
2005–2006	237	--	0	100	0	38	62	0	0	0
$\bar{x}$	232	--	0	100	0	18	80	1	0	1
Marten										
1995–1996	1126	58	0	100	0	59	34	0	1	6
1996–1997	1052	56	0	100	0	26	69	0	0	5

TABLE 2 continued

Species/regulatory year	Total take	Percent male	Shot	Trapped or snared	Unk	Boat	Road	Air	Unknown	Other
1997–1998	1076	58	0	100	0	54	45	0	0	1
1998–1999	614	66	0	100	0	55	43	0	2	0
1999–2000	778	58	0	99	1	33	67	0	0	0
2000–2001	885	59	0	100	0	31	59	0	0	0
2001–2002	323	53	0	100	0	16	84	0	0	0
2002–2003	1083	60	0	100	0	27	63	0	0	0
2003–2004	567	63	0	100	0	43	57	0	0	0
2004–2005	1067	57	0	100	0	28	72	0	0	0
2005–2006	826	57	0	100	0	34	66	0	0	0
$\bar{x}$	854	59	0	100	0	37	60	0	0	1
Otter										
1995–1996	198	63	5	95	0	76	20	0	0	4
1996–1997	94	47	1	99	0	52	37	0	0	11
1997–1998	186	52	17	83	0	82	18	0	0	0
1998–1999	288	59	10	82	8	79	13	0	8	0
1999–2000	193[c]	36	15	85	0	78	22	0	0	0
2000–2001	142	56	26	74	0	65	35	0	0	0
2001–2002	326	47	0	100	0	80	21	0	0	0
2002–2003	486	62	15	84	8	76	24	0	0	0
2003–2004	336	57	13	87	0	86	14	0	0	0
2004–2005	393	54	12	78	0	86	14	0	0	0
2005–2006	341	41	35	63	2	83	15	0	2	0
$\bar{x}$	271	52	14	85	2	77	21	0	1	1

[a] One beaver was hit and killed by a car.

[b] One beaver was shot.

[c] One otter was an illegal kill.

TABLE 3 Unit 2 furbearer harvest chronology by month, 1995–2005

Species/regulatory Year	Harvest periods							Successful trappers/hunters
	Dec	Jan	Feb	Mar	Apr	May	Unk	
Beaver								
1995–1996	55	31	37	67	25	6	60	18
1996–1997	114	58	43	57	13	0	6	22
1997–1998	48	39	59	76	12	0	15	21
1998–1999	31	12	16	7	10	10	18	13
1999–2000	53	39	60	138	18	2	0	22
2000–2001	48	50	29	60	75	26	14	27
2001–2002	20	11	13	0	0	0	0	5
2002–2003	53	42	49	26	14	3	0	21
2003–2004	18	30	17	25	9	0	0	19
2004–2005	23	10	11	33	24	0	0	20
2005–2006	30	26	4	3	37	0	0	14
$\bar{x}$	45	32	31	45	22	4	10	18
Marten								
1995–1996	692	163	26	0	0	0	245	35
1996–1997	846	189	17	0	0	0	0	35
1997–1998	687	349	32	8	0	0	0	39
1998–1999	516	90	0	0	0	0	8	28
1999–2000	519	204	55	0	0	0	0	30
2000–2001	607	257	0	0	0	0	0	24
2001–2002	182	111	13	0	0	0	0	14
2002–2003	598	356	129	0	0	0	0	27
2003–2004	378	212	43	0	0	0	0	26
2004–2005	604	271	145	0	0	0	0	35
2005–2006	584	170	99	0	0	0	0	30
$\bar{x}$	565	216	51	1	0	0	0	29
Otter								
1995–1996	61	72	21	0	0	0	44	23
1996–1996	53	38	3	0	0	0	0	18
1997–1998	78	76	27	0	0	0	5	23
1998–1999	145	116	27	0	0	0	0	30
1999–2000	95	79	16	1	0	0	1	25
2000–2001	33	72	30	0	0	0	0	15
2001–2002	26	38	0	0	0	0	0	7
2002–2003	181	284	139	12	0	0	0	28
2003–2004	114	120	97	3	0	0	0	23
2004–2005	159	139	93	0	0	0	0	24
2005–2006	144	109	88	0	0	0	0	23
$\bar{x}$	99	104	49	1	0	0	5	22

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 3 (3000 mi^2)

GEOGRAPHIC DESCRIPTION: Islands of Petersburg, Wrangell, and Kake areas

BACKGROUND

Furs, particularly those of the sea otter (*Enhydra lutris*), attracted Russians to colonize southeastern Alaska in the late 1700s and early 1800s. Ships from many nations came to the area to trade with Alaska Natives for fur. In the early part of the 20th century fur farming was one of the biggest industries in Southeast Alaska. Blue and silver fox and mink (*Mustela vison*) were the primary species raised, but attempts were also made to raise raccoons, skunks, beavers (*Castor canadensis*), muskrats (*Ondatra zibethicus*), and red fox (*Vulpes vulpes*) (Burris and McKnight 1973).

At one time there were 200 fur farms in operation, according to U.S. Forest Service (USFS) archaeologist Larry Roberts. From the 1930s to the 1950s, 5 to 9 fur farms operated on Kupreanof Island. Petersburg was the regional center for the blue fox industry, supporting 60 fur farms located on a nearby island in the mid 1930s (Roppel 1983). The University of Alaska experimental fur farm on Mitkof Island, where researchers studied captive mink, fox, and marten populations, operated from 1936 to 1972. Several small islands contained introduced populations of free-roaming fox, a system unique to Alaska.

Past declines in some wild furbearer populations prompted regulations. In 1913 beaver trapping was prohibited for 5 years, and a renewal of the prohibition extended the closure another 5 years. Martens were protected for 5 years starting in 1915.

Today most furbearer trapping is used as a winter income supplement and as a form of recreation. Seasons and bag limits have remained unchanged in recent years. However, increasing road densities and improved trapper access on several Unit 3 islands may necessitate future restrictions on seasons and/or bag limits for species such as marten and wolves to ensure harvests remain within sustainable limits.

Wolves are classified as both big game and furbearers and are discussed in a separate management report.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

1. Provide information to the Alaska Board of Game to further maintenance of viewable and harvestable populations of furbearers.

2. Seal harvested beaver, marten, otter, lynx, and wolverine pelts as they are presented for sealing.

3. Contact reliable observers for general information about the status and trends of furbearer populations, including the use of an annual trapper survey.

METHODS

Harvest information for beavers, lynx, martens, otters, and wolverines is collected from mandatory sealing. Location, harvest date, trapping and transportation method, and sex of all species are recorded on sealing certificates (except for the sex of beavers). We measure pelt size on beavers and otters, which provides an indication of harvested animals' ages. Additional harvest information on furbearer species is reported on fur export and fur acquisition reports.

Methods for estimating furbearer population abundance, trends, and distribution include mail-out questionnaires which local trappers received during the report period; interviews with trappers and fur buyers; and field observations by Alaska Department of Fish and Game (ADF&G) and USFS personnel.

The video "Alaska Guide to Fur Handling" is available to local trappers to help them maximize the dollar value of their furs through proper skinning and pelt preparation techniques.

We monitored forest management, road construction, and other development activities to assess habitat loss and other potential impacts to furbearer populations.

RESULTS AND DISCUSSION

POPULATION STATUS AND TRENDS

No formal field surveys were conducted in this unit to determine furbearer population status or trends. Information obtained from the trapper questionnaire and biologists' field observations provides our best indication of status and trends (Table 1). Trappers reported that beavers were common and stable in 2003–04 and 2004–05 throughout available habitat in Unit 3.

Despite unverified reports of lynx sightings, the presence of lynx in Unit 3 has yet to be confirmed and no harvest has been reported.

Trappers reported martens were common and stable in 2003–04 and 2004–05.

Mink populations were reported to be abundant and stable in 2003–04 and 2004–05.

Land otter populations were reported to be common and stable in 2003–04, abundant and stable in 2004–05.

Wolverines were reported to be at a low but stable density during 2003–04 and 2004–05.

Trappers reported on the questionnaire that rodent populations were common and stable in 2003–04, abundant and increasing in 2004–05.

Wolverines are considered scarce in Unit 3. Although there have been a few incidental sightings of wolverines reported on Kupreanof and Kuiu Islands, harvest of this species has been restricted to Mitkof Island, adjacent to the Unit 1B mainland. Two wolverines were harvested on Mitkof Island during the report, one in 2004–05 and another in 2005–06.

Trappers reported on the questionnaire that rodent populations were common and stable in 2003–04, abundant and increasing in 2004–05.

Data were not available from the 2005–06 Trapper Questionnaire at the time of this printing.

MORTALITY

Season and Bag Limit.

Hunting

Wolverine	10 Nov–30 Apr	One wolverine

Trapping

Beaver (except Mitkof Island)	1 Dec–15 May	No Limit
Beaver (Mitkof Island)	1 Dec–15 Apr	No limit
Lynx, marten, mink, otter	1 Dec–15 Feb	No limit
Wolverine	10 Nov–30 Apr	No limit

Board of Game Actions and Emergency Orders. In fall 2004 the board eliminated the requirement that the left foreleg bone remain naturally attached to hide of any harvested wolf until the hide has been presented for sealing. The board restored the pre-2000 wolf hunting and trapping season dates in Units 1 and 3–5 by extending the season closure dates from March 31 to April 30. No emergency orders were issued during this report period.

Trapper Harvest. During the report period, the number of trappers targeting beaver decreased slightly, as did the harvest. For all 3 years the beaver harvest was below the 10-year average of 68 beaver annually. Nine to 13 successful trappers harvested 43, 61, and 43 beavers in 2003, 2004, and 2005, respectively. The total harvest of 147 beavers during the current report period was less than half that harvested during the preceding report period (Table 2).

The average annual harvest of 161 during the report period was lower than the 10-year average. Trappers harvested 153 martens in 2003–04, 209 in 2004–05, and 120 in 2005–06. Fluctuations in the number of marten taken annually during the report period may be related to variations in the number of successful trappers, which included 13 in 2003, 16 in 2004, and 15 in 2005 (Table 3).

Unit 3 had otter harvests of 61, 73, and 140 during the 2003, 2004, and 2005 seasons, respectively; the annual average harvest of 91 was up significantly from the 1993–2002 average of 48 (Table 4). The wolverine harvest remained low during this report period, with none reported taken in 2003, and 1 taken in each of 2004 and 2005 (Table 5). The wolverine harvest during this report period was consistent with the 1993–2002 average of 1 annually in Unit 3.

Harvest level is directly related to fur prices and winter weather conditions during the trapping season. Mink and beaver pelt values have been low in recent years. According to fur buyer Dean Wilson, Southeast Alaska martens vary widely in quality and color and bring lower prices than Interior Alaska martens. However, the market favors southeastern land otters because of their larger size, good color, and silky fur. The Oriental market has been particularly interested in land otters in recent years, and prices have increased.

Harvest Chronology. Traditionally most of the Unit 3 furbearer harvest takes place in December and January, although a substantial portion of the beaver harvest can occur during February, March, and April. During this report period the majority of Unit 3 beavers were harvested during December, January, and March, respectively (Tables 6–9). The majority of the marten harvest in the unit occurred during December, January and February, respectively.

Transport Methods. During the report period, most beaver and marten trapping areas in Unit 3 were accessed by highway vehicles and boats, respectively. (Tables 10 & 11).

CONCLUSIONS AND RECOMMENDATIONS

Most furbearer populations appear to be abundant or common and remain stable in suitable habitat. Trapping effort is moderate, reflecting the current low-to-moderate fur prices and increasing fuel prices. Harvest is likely below sustained yield potentials in much of the unit. Large areas of noncoastal habitat in unroaded portions of the Unit 3 islands remain untrapped, and provide refuge for furbearer populations. Increasing road densities associated with timber harvest activities have and will continue to improve trapper access, thereby reducing refugia for furbearers and making them increasingly vulnerable to overharvest.

The apparent low population density and issues related to sub-speciation and endemism have given rise to concerns about marten populations, loss of habitat and increasing road densities on

Kuiu Island. Additional research is needed to evaluate the population status of marten on the island. Future regulatory changes to trapping regulations may be necessary to ensure that the marten harvest on Kuiu Island remains within sustainable limits.

Although we recommend no changes to trapping regulations at this time, increasing road densities and improved human access are giving rise to concerns about the potential for excessive marten and wolf mortality on several Unit 3 islands. All land development plans should be reviewed and commented on regarding effects on furbearer populations and trappers. ADF&G can maximize the value of the resource by working with local trappers through the Hunter and Trapper Education Programs.

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PREPARED BY:

Richard E. Lowell
Wildlife Biologist III

SUBMITTED BY:

Dale Rabe
Regional Management Coordinator

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TABLE 1 Results from trappers questionnaire, Unit 1B & 3 combined

	2003–04 Petersburg, Wrangell, Kupreanof and vicinity		2004–05 Petersburg, Wrangell, Kupreanof and vicinity		2005–06 Petersburg, Wrangell, Kupreanof and vicinity	
Furbearers species	Relative abundance	Trend	Relative abundance	Trend	Relative abundance	Trend
Beaver	common	same	common	same	N/A	N/A
Ermine	common	more	common	same	N/A	N/A
Lynx	x	x	x	x	x	x
Marten	common	same	common	same	N/A	N/A
Mink	abundant	same	abundant	same	N/A	N/A
Muskrat	x	x	scarce	same	N/A	N/A
Red Squirrel	abundant	same	abundant	same	N/A	N/A
Land Otter	common	same	abundant	same	N/A	N/A
Wolf	common	more	abundant	same	N/A	N/A
Wolverine	scarce	same	scarce	same	N/A	N/A
Prey species						
Grouse	common	more	common	same	N/A	N/A
Ptarmigan	scarce	same	common	same	N/A	N/A
Mice/rodents	common	same	abundant	more	N/A	N/A

TABLE 2 Unit 3 beaver harvest, 1996–2005

		Method of Take			
Regulatory year	Reported harvest	Trap/snare	Shot	Unknown	Successful trappers
1996–97	44	44	0	0	6
1997–98	56	56	0	0	11
1998–99	54	53	0	1	11
1999–2000	43	43	0	0	10
2000–01	139	139	0	0	16
2001–02	110	110	0	0	14
2002–03	86	86	0	0	13
2003–04	43	43	0	0	11
2004–05	61	61	0	0	13
2005–06	43	43	0	0	9

TABLE 3 Unit 3 marten harvest, 1996–2005

Regulatory year	Reported harvest						Successful trappers
	M	(%)	F	(%)	Unk.	Total	
1996–97	98	(64)	55	(36)	109	262	23
1997–98	69	(59)	47	(41)	158	274	19
1998–99	59	(63)	35	(37)	127	221	16
1999–2000	108	(68)	52	(32)	0	160	15
2000–01	146	(61)	92	(39)	52	290	27
2001–02	54	(59)	37	(41)	88	179	17
2002–03	55	(63)	32	(37)	63	150	13
2003–04	62	(60)	41	(40)	50	153	13
2004–05	106	(65)	58	(35)	45	209	16
2005–06	81	(68)	39	(33)	0	120	15

TABLE 4 Unit 3 land otter harvest, 1996–2005

Regulatory year	Reported harvest						Method of take					
	M	%	F	%	Unk.	Total	Trap/snare	%	Shot	%	Unk.	Successful trappers
1996–97	32	(59)	22	(41)	13	67	62	(93)	5	(7)	0	14
1997–98	20	(48)	22	(52)	4	46	45	(98)	1	(2)	0	11
1998–99	18	(67)	9	(33)	6	33	33	(100)	0	(0)	0	11
1999–2000	23	(56)	18	(44)	0	41	25	(61)	16	(39)	0	11
2000–01	25	(48)	27	(52)	4	56	52	(93)	4	(7)	0	16
2001–02	22	(54)	19	(46)	0	41	40	(98)	1	(2)	0	16
2002–03	23	(62)	15	(41)	1	39	37	(95)	2	(5)	0	16
2003–04	40	(67)	20	(33)	1	61	59	(97)	2	(3)	0	15
2004–05	32	(46)	38	(54)	3	73	59	(81)	14	(19)	0	13
2005–06	84	(63)	50	(37)	6	140	102	(73)	38	(27)	0	13

TABLE 5 Unit 3 wolverine harvest, 1996–2005

Regulatory year	Reported harvest						Method of take				Successful trappers
	M	%	F	%	Unk.	Total	Trap/snare	%	Shot	%	
1996–97	1	(50)	1	(50)	0	2	2	(100)	0	(0)	2
1997–98	2	(67)	1	(33)	0	3	3	(100)	0	(0)	2
1998–99	0	(0)	0	(0)	0	0	0	(0)	0	(0)	0
1999–2000	0	(0)	0	(0)	0	0	0	(0)	0	(0)	0
2000–01	0	(0)	0	(0)	0	0	0	(0)	0	(0)	0
2001–02	0	(0)	0	(0)	0	0	0	(0)	0	(0)	0
2002–03	1	(33)	2	(67)	0	3	3	(100)	0	(0)	2
2003–04	0	(0)	0	(0)	0	0	0	(0)	0	(0)	0
2004–05	1	(100)	0	(0)	0	1	1	(100)	0	(0)	1
2005–06	1	(100)	0	(0)	0	1	1	(100)	0	(0)	1

TABLE 6 Unit 3 beaver harvest chronology by month, 1996–2005

Regulatory year	Month								
	November	December	January	February	March	April	May	June[a]	*n*
1996–97	0	12	5	18	9	0	0	0	44
1997–98	0	19	14	8	8	7	0	0	56
1998–99	0	21	4	0	0	24	1	4	54
1999–2000	0	12	1	7	11	12	0	0	43
2000–01	0	62	40	31	1	5	0	0	139
2001–02	2	28	28	18	12	14	8	0	110
2002–03	0	29	26	16	7	8	0	0	86
2003–04	0	6	13	2	17	1	4	0	43
2004–05	0	38	3	3	14	3	0	0	61
2005–06	3	26	11	0	3	0	0	0	43

[a]Department of Transportation took 4 beavers that were damming culverts.

TABLE 7 Unit 3 marten harvest chronology by month, 1996–2005

Regulatory year	Month					
	December	January	February	March	Unknown	*n*
1996–97	132	95	33	0	2	262
1997–98	189	64	17	0	4	274
1998–99	161	58	2	0	0	221
1999–2000	94	56	10	0	0	160
2000–01	184	73	9	0	24	290
2001–02	106	40	23	9	0	178
2002–03	0	75	75	0	0	150
2003–04	59	69	25	0	0	153
2004–05	144	60	5	0	0	209
2005–06	61	55	4	0	0	120

TABLE 8 Unit 3 land otter harvest chronology by month, 1996–2005

Regulatory Year	Month							
	June[a]	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	*n*
1996–97	0	0	18	31	19	0	0	67
1997–98	0	0	25	11	10	0	0	46
1998–99	1	0	13	18	1	0	0	33
1999–2000	0	0	15	12	14	0	0	41
2000–01	0	0	29	22	5	0	0	56
2001–02	0	0	18	14	5	0	4	41
2002–03	0	0	15	16	8	0	0	39
2003–04	0	0	38	18	5	0	0	61
2004–05	0	0	33	33	7	0	0	73
2005–06	0	1	45	92	1	1	0	140

[a] Accidental catch by Department of Transportation taking beavers that were damming culverts.

TABLE 9 Unit 3 wolverine harvest chronology by month, 1996–2005

Regulatory year	Month						
	November	December	January	February	March	April	*n*
1996–97	0	0	1	1	0	0	2
1997–98	0	1	1	1	0	0	3
1998–99	0	0	0	0	0	0	0
1999–2000	0	0	0	0	0	0	0
2000–01	0	0	0	0	0	0	0
2001–02	0	0	0	0	0	0	0
2002–03	0	1	0	0	1	1	3
2003–04	0	0	0	0	0	0	0
2004–05	0	0	0	1	0	0	1
2005–06	0	0	0	1	0	0	1

TABLE 10 Unit 3 beaver harvest, method of transportation, 1996–2006

Regulatory year	Airplane	Boat	3-wheeler	Highway	Off Road Vehicle	Skis/snowshoes	Snowmachine	Total
1996–97	0	12	0	26	0	5	1	44
1997–98	0	25	0	31	0	0	0	56
1998–99	0	38	0	16	0	0	0	54
1999–2000	0	1	0	42	0	0	0	43
2000–01	0	50	20	69	0	0	0	139
2001–02	0	14	0	91	0	0	5	110
2002–03	0	18	12	56	0	0	0	86
2003–04	0	20	1	21	0	0	1	43
2004–05	0	11	0	50	0	0	0	61
2005–06	0	7	6	28	2	0	0	43

TABLE 11 Unit 3 marten harvest, method of transportation, 1996–2005

Regulatory Ear	Airplane	Boat	3-wheeler	Snowmachine	Highway	Skis/snowshoes	Unknown	Total
1996–97	0	170	8	29	55	0	0	262
1997–98	0	136	18	0	120	0	0	274
1998–99	0	72	9	5	120	15	0	221
1999–2000	0	29	0	0	131	0	0	160
2000–01	4	82	27	6	171	0	0	290
2001–02	0	32	9	44	93	0	0	178
2002–03	0	57	19	0	74	0	0	150
2003–04	0	36	14	42	61	0	0	153
2004–05	0	60	35	13	101	0	0	209
2005–06	0	33	30	0	56	1	0	120

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: Unit 4 (5820 mi^2)

GEOGRAPHIC DESCRIPTION: Admiralty, Baranof, Chichagof, and adjacent islands

BACKGROUND

Furbearer trapping in Game Management Unit 4 was of greater significance in the past than it is today. Local Natives historically used furbearers for cultural and subsistence purposes and as items of trade. Russian settlement in the region was instigated by the quest for fur. More recently, trapping provides income during the winter when other cash-generating opportunities are scarce, as well as providing recreational opportunities. However, recent government and other financial aid programs are at least partially responsible for diminishing the incentive to trap. Fur prices and the relative strength of the local economy, rather than furbearer abundance, have always been major factors influencing trapping effort. Today most trapping has a strong recreational aspect, although income remains important. Because most trapping is facilitated through boat transportation, weather often affects the amount of effort. Winter storms frequently preclude trap line access, and in extreme years, limit trapper activity. The use of motorized land vehicles is increasing in areas where logging roads remain open to public use. High fuel costs have influenced sustained trapper effort in recent years.

Furbearers occurring in Unit 4 are marten (*Martes americana and Martes caurina*), river otter (*Lontra canadensis*), mink (*Mustela vison*), short-tailed weasel (*Mustela erminea*), red squirrel (*Tamiasciurus hudsonicus*), and beaver (*Castor canadensis*). Coastal marten (*Martes caurina*) are found only on Admiralty Island, where they are an indigenous population. American marten (*Martes americana*) were introduced on Baranof and Chichagof islands.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

1. Regulate seasons and bag limits to maintain viewable and harvestable populations of mink, marten, and river otters.

2. Through regulatory restrictions, allow beaver populations to expand in western portions of the unit (Chichagof and Baranof Islands).

3. Seal harvested beaver, marten, and river otter pelts as they are presented for sealing.

4. Contact reliable observers for general information about the status and trends of furbearer populations, including the use of an annual trapper survey.

5. Continue to monitor mink, marten, and river otter populations through carcass necropsies and evaluation of those data.

METHODS

Trappers were required to submit river otter, beaver, and marten hides to authorized personnel for sealing. Each marten and otter pelt was examined and sex was determined. Otters were sexed by the presence or absence of the preputial orifice. Marten pelts were sexed by the larger size of males (Strickland and Douglas 1987). After sorting, the presence of a preputial orifice and/or the direction of the growth of the underfur at the posterior end of the abdominal gland were used to verify sex (Lensink 1953 in ibid). Width and length measurements were recorded for otter and beaver. Trappers provided data on the method of take (trap, snare, or firearm), primary transport means, month of catch, and location of take.

A mail-out questionnaire was sent to trappers that use Unit 4. Names and addresses were compiled from sealing documents. During the 2001–03 seasons, 42 questionnaires were mailed out yearly and 15 (36% response rate) were received. For the 2003 and 2004 seasons, 62 questionnaires were mailed out yearly and 21 (34% response rate) and 18 (29% response rate), respectively, were received. Questionnaires in the 2005–06 season totaled 81 mailed out and 31 (38% response rate) were received.

Responses to trapper questionnaires provided a profile of trappers and their activities and observations. Additionally, responses can be analyzed to provide a more precise indication of the amount of harvest of unsealed furbearers. Formerly, the annual estimate of mink taken in Unit 4 was based on biologist estimates or from combining Fur Export Reports and Fur Acquisition Reports. Neither of these methods was deemed accurate; they severely underestimated the amount of harvest.

For this reporting period, we used a new method begun by Jack Whitman (previous area management biologist for Unit 4) during the 1999–2000 season (Whitman 2001). He compared the number of marten reported harvested on the questionnaires to the number of marten sealed. Whitman assumed that the number of marten sealed more accurately reflected the total harvest than the questionnaire returns and developed an annual conversion factor, which was then used to estimate the number of mink harvested. That is, the number of mink reported on the questionnaire responses was multiplied by the conversion factor Whitman derived for marten to estimate total mink harvest.

During the 2000–02 seasons, carcasses were collected from area trappers and necropsies were performed. A series of weights and standard body measurements were collected from marten, mink, and river otter. Sex and age classes were assigned to each carcass. Relative physical condition was assessed, based on the amount of external and internal fat depositions. Stomachs were examined for the presence and number of parasites, particularly roundworm (*Soboliphyme*

baturini). Skulls and femurs, and where appropriate, bacula, were collected and later cleaned. Canine teeth were extracted and cementum analysis was conducted on animals presumed to be >1 year old. Other aging techniques were investigated, and data were collected based on skull suture characteristics, baculum development, and femur morphology (Whitman 2001). Only incidental information has been collected from the 2002–06 seasons due to budget and scheduling conflicts.

Sex and age ratios can be used to evaluate the relative extent of the harvest in some species and the current status of populations of mink and marten. Data are presented in appropriate sections of this report. In addition, Whitman used data from cementum aging of mink to advance a plausible management scheme for that species. This manuscript was published elsewhere (Whitman 2003).

As indicated by Flynn (personal communication), small mammal abundance may best reflect marten abundance. Therefore, Whitman instigated small mammal snap-trap lines in an effort to monitor potential prey abundance and assess the technique's relative value as a predictor of marten abundance and harvests.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

In 1990 the U.S. Forest Service (USFS) and the Alaska Department of Fish and Game (ADF&G) began a cooperative study on marten ecology on northeast Chichagof Island (Flynn 1993). Marten densities in the study areas have been monitored since 1992 using mark-recapture techniques (Flynn and Schumacher, 1994). Marten numbers declined during the winter of 1991–92 and remained low into 1993. Marten numbers peaked in winter and fall 1996 and declined substantially by winter 1997. At the same time, numbers of small mammals, especially long-tailed voles (*Microtus longicaudus),* showed a similar trend. Research has documented that marten prey primarily on long-tailed voles, when they are available.

Although no formal population investigations resulting in statistically bound density estimates are available for any furbearer species in Unit 4, evidence from trapper questionnaires is probably adequate to reveal general population trends. During the period 1995–2002, trapper responses indicated that marten populations were moderate, with a slightly increasing trend. Mink populations remained stable at moderate levels, while river otter populations apparently increased slightly to moderate levels. Beaver and ermine populations were thought to remain low, while populations of red squirrels were moderate to high, increasing throughout the period. Grouse and ptarmigan populations were generally thought to be quite low, with mice and vole populations high during 1995 and 1996, then dropping to moderate levels.

Another indication of relative population levels can be inferred from male:female ratios or from total young:adult female ratios in the harvested segment of the population, particularly for marten. Based on sealing documents during 2002–03 and 2003–04, marten harvests consisted of 63% and 65% males, respectively. The 2004–05 season indicated males in the harvest as 65%, while in 2005–06 males represented 64%. With raw fur price doubling in 2004–05, the marten

harvest was at one of the highest levels Unit 4 has seen. Total young: adult female ratios are probably a better indication of population status (Strickland and Douglas 1987). Various Canadian jurisdictions use a ratio of 3:1 in management of their seasons. If ratios fall below that, seasons are curtailed. Higher ratios signify populations in which production and subsequent survival of young were high. Ratios from Unit 4 were 6.8:1 during 2000–01 and 4.8:1during 2001–02. Necropsies were not conducted in the 2002–06 seasons, but these high juvenile:adult ratios appear to reflect secure marten populations.

Mink occur throughout Unit 4, but are largely restricted to the intertidal and riverine habitats. Populations are thought to be stable at relatively high densities (Whitman 2003). Based on trap line captures in good habitat near Sitka, densities of at least 12 mink per linear mile of beach exist. No statistically bound census techniques were employed.

River (land) otters occur throughout the islands of Unit 4. No census data are available, but populations are thought to be stable.

Admiralty Island beaver populations are thought to be stable. Beavers occur in low, but increasing numbers, on Baranof and Chichagof islands. On both of these islands, higher beaver densities in localized areas have caused road drainage problems and resulted in an increasing number of nuisance permits since 2001. A proposal before the Board of Game in their fall 2006 meeting to open up the season on Baranof and Chichagof islands was supported by the department and approved by the board. The season will open on both Chichagof and Baranof islands in the 2007–08 regulatory year.

Status of prey populations potentially available to marten and mink were investigated. From mail-out questionnaires, trappers indicated status and trends of red squirrels (*Tamiasciurus hudsonicus*), blue grouse (*Dendragapus obscurus*), ptarmigan (*Lagopus* spp.), and mice, voles, and shrews collectively. Squirrel populations throughout Unit 4 were thought to be moderate to high during the period 1995–2002, with a generally increasing trend. Both grouse and ptarmigan numbers were low and stable. Small rodent and soricid populations were reported to be high during 1995 and 1996, declining to moderate numbers during 2000–2002.

Population Composition

Marten

In 2001–02, trappers caught 60% male marten and 63% males in 2002–03. Trappers caught 65% males in both 2003–04 and 2004–05, and 56% males in 2005–06 (Table 1), according to reports on sealing documents. In the ADF&G research program, 59% males were caught in 1991–92 (Flynn and Blundell 1992). In 1992–93 the ratio was 60% male (Flynn 1993). Because of possible sex-based differences in the vulnerability of marten to trapping, these ratios may not accurately reflect the sex ratio (Buskirk and Lindstedt 1989).

According to Flynn and Schumacher (1994), juvenile martens significantly increased in the population in 1993–94 from the low levels recorded the previous years. This increase coincided with a 2-fold increase of mice and voles within their study areas. They concluded that marten numbers were recovering on northern Chichagof Island, but that recruitment to the south appeared to be lagging a year behind.

A total of 121 marten carcasses were collected and necropsied during the 2000–01 season. Seventy-nine were males (65%). The total young:adult female ratio in the harvested sample was 75:11, yielding a ratio of 6.8:1. This ratio suggests reasonable production and survival of pups during spring 1999, with the overall marten population probably stable (Whitman 2001).

Of 85 marten carcasses necropsied during the 2001–02 season, 54 were males (63%). The total young:adult female ratio was 44:9, or 4.8:1. This young:adult female ratio is probably reflective of a stable marten population. It should be noted, however, that the sample of carcasses was collected from northern Baranof and southern Chichagof islands, where logging activities have been minor. Marten carcasses were not necropsied during the 2002–06 seasons.

River otter

Sex ratios of river otters taken by trappers were 53% males in 2001–02, 47% males in 2002–03, and 58% males in 2003–04. In 2004–05 the harvest was 50% males and it was 54% males the following season, in 2005-06 (Table 1).

Because of their larger home ranges and their propensity to travel more, male river otters are more vulnerable to trapping (Melquist and Dronkert 1987). Thus, the percentage of males in the harvest is usually greater than females. As harvest pressures increase, the proportion of females often increases and may signify harvest above sustainable limits. Unit 4 river otter harvests ranged from 63 to 427 animals during the period 1977 through 2005–06, and percent males in the harvest ranged from 39.7 to 64.0 (mean of 53.2% males). There was no indication that increases in the harvest resulted in a decline in male percentages in the harvest, and I suspect that the relatively light harvest has little impact on the otter population.

Annual variations in mean age of harvested otters may be useful in determining population trend. While any single year may provide limited data upon which population status assumptions can be made, it does provide baseline data for comparison purposes.

Mink

In 2003 Whitman published a manuscript in The Canadian Field-Naturalist concerning mink population parameters and management recommendations in Unit 4. These recommendations are incorporated into this report.

MORTALITY

Harvest

	Season	Bag Limit
Hunting		
Coyote	1 Sep–30 Apr	2 coyotes
Wolf	1 Aug–30 Apr	5 wolves
Wolverine	10 Nov–15 Feb	1 wolverine

	Season	Bag Limit
Hunting		
Beaver (that portion east of Chatham Strait)	1 Dec–15 May	No limit
	Season	Bag Limit
Trapping		
Beaver (that portion west of Chatham Strait)	No open season	
Coyote, red fox, lynx, otter	1 Dec–15 Feb	No limit
Marten and mink, that portion of Chichagof Island east of Idaho Inlet and north of Trail River and Tenakee Inlet and north of a line from the headwaters of Trail River to the head of Tenakee Inlet	1 Dec–31 Dec	No limit
Marten and mink	1 Dec–15 Feb	No limit

Board of Game Actions and Emergency Orders. A proposal before the Board of Game at its fall 2006 meeting to open up the season on Baranof and Chichagof islands was supported by the department and approved by the board. The season will open on both Chichagof and Baranof islands in the 2007–08 regulatory year. No emergency orders were issued during the period.

Trapper Harvest. Of 755 marten pelts sealed in 2001–02, 434 were males, 286 were females, and 35 were of unknown sex. In 2002–03 there were 697 males, 411 females, and 1 of undetermined sex, for a total of 1109. Marten sealed in 2003–04 totaled 1199 (777 males, 420 females, and 2 of unknown sex. Numbers continued to climb in 2004–05 with a total of 1729 marten sealed (1113 males, 608 females , and 8 unknown sex). The 2005–06 season experienced record fur prices in recent history and 2231 marten were sealed (1419 males, 806 females, and 6 unknown sex). Table 1 summarizes the sexes of martens in the harvest for the 2001–2005 regulatory years.

In 2001–02 147 otters were sealed: 78 males, 65 females and 4 of unknown sex. The 2002–03 harvest was 283 otters: 132 males, 149 females and 2 of unknown sex. The 2003–04 season produced 243 otter; 140 males and 103 females. Harvest climbed by 75% in 2004–05 with 427 otters sealed: 215 males and 212 females. The numbers declined somewhat in 2005-06 with 354 otters sealed: 192 males, 152 females, and 10 unknown sex. Harvest sex ratios since 2001 are presented in Table 1.

Over the years a comparison of marten harvest data from sealing documents and from trapper questionnaires resulted in a conversion factor (number of sealed marten/number of marten reported on trapper questionnaires). Using that conversion factor, I estimate 200-400 mink which are not required to be sealed are taken on a seasonal basis in Unit 4.

Hunter Residency and Success. In 2003–04 there were 33 marten trappers reporting, 30 who listed residency in Unit 4. For 2004–05 there were 46 trappers, of which 35 were unit residents, and in 2005–06, 37 of 47 trappers reported residency in the unit (see Table 2).

Of the 32 trappers having otters from Unit 4 sealed, 27 claimed unit residency in 2003–04. In 2004–05 30 trappers reported catching otters; 26 of them claimed Unit 4 residency. For 2005–06 there were 30 trappers, with 23 of them being unit residents (see Table 2).

Harvest Chronology. The greatest marten harvest occurred in the first month of the trapping season. A total of 939 (78%) of the 2003–04 martens were taken in December. In 2004, 1216 (70%) martens were caught in December. In 2005 the December harvest was 1269 (57%) (Table 3).

In 2003–04, 88 (36%) of trapped otters were taken in December. For the 2004–05 and 2005–06 seasons, 214 (50%) and 201 (57%), respectively, were taken in December (Table 3).

Transport Methods. Trappers using boats for transportation take most martens. In 2003–04, 77% of all martens were taken by trappers who used boats; in 2004–05, 75%; and in 2005–06, 62% (Table 4). Other transportation means that may be important in any given year include snowmachines, 4-wheelers, highway vehicles, and walking. Weather conditions influence the degree to which these other transportation types are used in any given year.

The take of otters is almost entirely with the aid of boats. For the 2003–04, 2004–05, and 2005–06 seasons, respectively, boats were reportedly used for 99%, 98%, and 90% of the harvest.

HABITAT

Assessment

The carrying capability for marten is undoubtedly decreasing in many areas in Unit 4 because of clearcutting of old-growth habitats. Martens have been documented as spending most their time in old-growth forest areas (Flynn 1993). Clearcutting may also be impacting otters. Larsen (1983) reported otters made little use of shorelines associated with clearcuts. Intertidal areas and immediately adjacent upland habitat is probably secure in terms of mink habitat.

CONCLUSIONS AND RECOMMENDATIONS

Seasons for most species have remained the same for many years. Federal subsistence regulations supersede State regulations on federal lands under the terms of the Alaska National Interest Lands Conservation Act (ANILCA). On Chichagof Island federal lands were closed to mink, marten, and weasel trapping in 1994. In 1995 and 1996 they were open for a December-only season. Nonfederal lands remained open under state regulations during the 3-year period. The discrepancy between state and federal regulations confused the public and created management problems.

Marten populations during this report period may have been affected by trapping, but the decline probably correlates directly to the lower densities of small mammals. The high 1991–92 harvest was in part due to nutritionally stressed martens moving more and being more vulnerable to trappers. As pointed out by Strickland and Douglas (1987), it is impractical to set harvest levels by determining an absolute population level. The need for trapping restrictions can be supported by monitoring the sex ratio and the presence of juveniles in the harvest (Strickland and Douglas 1987, Young and Schenck 1991). Because the population is now relatively high, existing

trapping regulations are appropriate. With further population increase, more liberal season dates may be appropriate. Because marten are often captured in mink sets, the seasons for the 2 species should coincide to reduce the incidental take of martens at the low end of their cycle.

Otter populations appear to be healthy, and trapping pressure is light. No changes are recommended in trapping regulations at this time.

The beaver harvest remained low during the report period, with less than 7 beavers harvested seasonally. This is probably because of a small demand for beavers and the lack of good habitat in the unit. Timber harvest in Chichagof Island (and to a lesser degree Baranof Island) valley bottoms appears to favor beaver habitat because of alder and willow regrowth. Limited areas of cottonwood habitat within the unit usually attract beavers. Since 2000, specific roaded areas on these islands have sustained repeated damage from flooding caused by beaver dams. Nuisance permits have increased and sometimes exceed the total number of beaver trapped in the unit. Recommendations to open up these islands to beaver trapping, allowing the harvest of animals when the fur is prime, were proposed to the Board of Game. During its November 2006 meeting the board decided to open these areas up for beaver trapping in the 2007–08 season.

Given the cyclic nature of marten populations and economic factors that affect trapping effort, management objectives based on some past harvest levels are not realistic. Further, reasonable means of monitoring population densities over such a large area are not available to establish appropriate yearly harvest objectives. Therefore, the evaluation of population status will continue to be subjective. Examining harvest statistics and anecdotal information from trappers and local residents can enhance this evaluation. With reduced fur prices and decreasing interest in trapping, the possibility for over-trapping most species appears low. Specific harvest or population objectives cannot be used as management standards without programs in place that document population status.

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PREPARED BY:
Philip Mooney
Wildlife Biologist III

SUBMITTED BY:
Dale Rabe
Management Coordinator

Please cite any information taken from this section, and reference as:

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TABLE 1 Unit 4 furbearer harvest data, 2001-02 through 2005-06

Season	Male	Female	Unknown	Total
Marten				
2001–02	434	286	35	755
2002–03	697	411	1	1109
2003-04	777	420	2	1199
2004-05	1113	608	8	1729
2005-06	1419	806	6	2231
Otter				
2001–02	78	65	4	147
2002–03	132	149	2	283
2003-04	140	103	0	243
2004-05	215	212	0	427
2005-06	192	152	10	354

TABLE 2 Unit 4 trapper residency and success, 2001-02 through 2005–06

Season	Local[a]	Nonlocal	Nonresident	Total
Marten				
2001–02	28	6	0	34
2002–03	27	4	0	31
2003-04	30	3	0	33
2004-05	35	11	0	46
2005-06	37	10	0	47
Otter				
2001–02	17	4	0	21
2002–03	20	5	0	25
2003-04	27	5	0	32
2004-05	26	4	0	30
2005-06	23	7	0	30

[a]Unit 4 residents.

TABLE 3 Unit 4 furbearer harvest chronology by month, 2001–02 through 2005–06

Season	November	December	January	February	Seasonwide	Total
Marten						
2001–02	0	702	52	0	0	754
2002–03	0	1073	32	4	0	1109
2003-04	0	939	173	87	0	1199
2004-05	0	1216	380	129	0	1725
2005-06	0	1269	809	153	0	2231
Otter						
2001–02	0	78	68	0	0	146
2002–03	0	170	70	43	0	283
2003-04	0	88	75	79	0	242
2004-05	0	214	151	62	0	427
2005-06	0	201	109	44	0	354

TABLE 4 Unit 4 successful trapper transport methods, 2001-02 through 2005–06

Season	Airplane	Horse/ dog team	Boat	Highway vehicle	4-wheeler/ snowmachine	Walked	Off-road vehicle	Unknown
Marten								
2001–02	7	0	451	241	5	3	48	0
2002–03	0	0	753	349	1	6	0	0
2003-04	0	0	919	89	158	33	0	0
2004-05	16	0	1289	168	214	58	0	0
2005-06	5	6	1394	387	42	56	339	13
Otter								
2001–02	0	0	137	4	0	6	0	0
2002–03	0	0	274	6	0	3	0	0
2003-04	0	0	240	3	0	0	0	0
2004-05	0	0	418	6	0	2	1	0
2005-06	12	0	317	7	17	2	4	7

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: Unit 5 (5800 mi^2)

GEOGRAPHIC DESCRIPTION: Cape Fairweather to Icy Bay, eastern Gulf of Alaska coast.

BACKGROUND

Furbearer species probably gained access to the Yakutat Forelands via the Alsek/Tatshenshini corridor (Klein 1965). Beavers, river otters *(Lutra canadensis)*, and mink *(Mustela vison)* are the common water-associated species; muskrats *(Ondatra zibethacus)* are noticeably absent, although they were once plentiful, according to some Yakutat residents. Lynx *(Lynx canadensis)* are present in small numbers, while martens *(Martes americana)* are found in fair abundance. Wolverines *(Gulo gulo)* probably occur in low numbers over extensive areas. Trapping pressure has historically been light throughout the Malaspina and Yakutat Forelands.

In Yakutat the harvest of furbearers is largely dependent on 2 main factors: effort by experienced trappers and winter weather conditions. There are usually 1 or 2 ambitious trappers in Yakutat, and when they participate in trapping, the furbearer catch is usually high, and vice versa. Winter weather also affects trapping effort by enhancing or inhibiting locomotion. In winters with little snow, the roads remain open to vehicle traffic, thereby allowing more trapping opportunity. This is the opposite of many other areas of the state where lack of snowfall inhibits trapping effort.

Trapping effort in Unit 5 is limited almost entirely to Unit 5A, and much of that effort is limited to that area west of the Dangerous River. Although there are a number of airstrips associated with U.S. Forest Service (USFS) cabins on the forelands, the trapping effort related to aircraft access at these sites is generally fairly low. Forest Highway 10 is commonly used by highway vehicles to access trapping areas, as is the road to the lower Situk River. Aside from these select few areas, much of Unit 5 is not utilized by trappers.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

1. Provide information to the Board of Game to further maintenance of viewable and harvestable populations of furbearers.

2. Seal harvested beaver, marten, otter, lynx, and wolverine pelts as they are presented for sealing.

3. Contact reliable observers for general information about the status and trends of furbearer populations, including the use of an annual trapper survey.

METHODS

Staff from the Alaska Department of Public Safety Division of Fish and Wildlife Protection (now Bureau of Wildlife Enforcement), Alaska Department of Fish and Game (ADF&G) Commercial Fisheries Division in Yakutat, and Division of Wildlife Conservation in Douglas sealed furbearer hides. All known trappers were encouraged to fill out a trapper survey to provide us with information on furbearer abundance and trapping effort.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

We do not conduct any formal furbearer research to document or monitor population status or trends; rather we depend on trapper questionnaires and trapper effort for furbearer information. Trapping pressure is generally light within this subunit and trends in harvest reflect several factors in addition to furbearer population levels. One or two individuals changing their trapping intensity can have substantial effect on harvests, as in the marten harvest during this period. Indications are that most furbearer populations are stable in Unit 5. The lynx harvest remains low, which is related to the low density of snowshoe hares. Little is known of marten abundance, but all indications are that they are common in forested regions of the unit. Land otters are more common in Unit 5 than the harvest would indicate. Low trapping effort reflects the scarcity of these animals in harvest records. As with other furbearers, no population estimate exists for wolverines. It is believed that they occur at low densities in areas remote from habitation or roads.

MORTALITY

Harvest

Seasons and Bag Limits

Hunting	Season	Bag Limit
Beaver, marten, otter, mink, red fox, lynx	No open season	
Coyote	1 Sep–30 Apr	2
Wolverine	10 Nov–15 Feb	1
Trapping	**Season**	**Bag Limit**
Beaver	10 Nov–15 May	No limit

Trapping (continued)	Season	Bag Limit
Coyote	1 Dec–15 Feb	No limit
Red Fox	1 Dec–15 Feb	No limit
Lynx	1 Dec–15 Feb	No limit
Marten	1 Dec–15 Feb	No limit
Mink, weasel	10 Nov–15 Feb	No limit
Otter	10 Nov–15 Feb	No limit
Wolverine	10 Nov–30 Apr	No limit

Board of Game Actions and Emergency Orders. The board took no actions that changed trapping regulations in this unit, and no emergency orders were issued during the period.

Trapper Harvest: Table 1 shows the furbearer harvest since 1986.

There were 24 beavers harvested during this report period, which is nearly identical to the previous two report periods, when 22 and 24 beavers were harvested during 1997–2000 and 2000–2003 respectively. Nearly all the beaver trapping effort took place near town, with the Situk River being the farthest extent of beaver trapping effort. During the last year of the report period, 6 of the 8 beavers were harvested at the airport where beavers are abundant. The Department of Transportation (DOT) encourages trappers to harvest beavers in this area due to flooding problems beavers cause.

There were 4 lynx harvested during this report period. Given the ease with which lynx can be trapped, the lack of harvest is a fair indication that lynx were scarce or absent.

The harvest of 373 martens during this report period was the second highest harvest during the past 7 report periods, and substantially higher than the last report period, when only 76 marten were harvested. In looking at the harvest in Table 1 of the last five years, one can track the increasing harvest over time with the highest annual harvest of 173 marten coming in 2005.

The otter harvest increased from 10 during the previous report period to 14 during this period. Although not comparable to the otter harvest in other units in Southeast Alaska, this harvest equals the highest report period harvest over the past 20 years. With the high price being paid for otters, trappers are targeting them in spite of the effort required to prepare an otter pelt for sale.

The wolverine harvest of 3 during the current report period is the lowest since 1991–1993. Whether this reflects lower wolverine abundance or a lack of effort for this large furbearer is unknown.

Harvest Chronology: Most furbearers were caught in early to midwinter, especially marten, which trappers typically go after aggressively early in the season. Trappers typically target marten first and foremost and then put out sets for other furbearers while afield. This then leads to most furbearer catch occurring during the same time period as the bulk of the marten harvest.

Transport Methods: Highway vehicles and boats were the most commonly used transport modes for marten trappers during this period, with all-terrain vehicles (ATVs) and snowshoes being less commonly used. For other species, highway vehicles were also the most commonly used, with the use of boats, 4-wheelers, and airplanes being much less common. Generally speaking, the favored mode of transportation is dictated by snow accumulation.

CONCLUSIONS AND RECOMMENDATIONS

We believe harvests were within sustainable limits during the report period. It is not possible to determine if the annual harvest of each species indicates declining, stable, or increasing populations because of the variation in trapper effort from year to year. In some cases, lack of reporting adds further confusion to our data interpretation. This variation is a reflection of both the amount of trapping effort directed at furbearers, as well as the intensity of the effort. Because of this, it is important to continue to collect information on furbearer populations from trapper interviews, as well as annual trapper surveys. These can provide us with a subjective measure of the relative abundance of furbearers.

During the last report period, conflicts between trappers and dog owners seemed to be rampant. This concern was carried over to the early part of this report period when the Yakutat city assembly was approached by a number of Yakutat residents to adopt an ordinance prohibiting the setting of traps in certain areas, similar to what occurred in the Juneau area in years past. During the latter part of this report period that concern seemed to die down. ADF&G staff participated in some discussions about these concerns, and offered assistance to address trapping related concerns.

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PREPARED BY:
Neil L. Barten
Wildlife Biologist III

SUBMITTED BY:
Dale Rabe
Regional Management Coordinator

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TABLE 1 Unit 5 furbearer harvest, 1996–2005

Regulatory year	Beavers	Lynx	Martens	Otters	Wolverines
1996–1997	1	2	103	0	12
1997–1998	11	0	229	10	4
1998–1999	3	0	134	4	3
1999–2000	8	0	0	0	1
2000–2001	7	0	48	5	0
2001–2002	0	1	7	2	4
2002–2003	17	3	21	3	4
2003-2004	7	0	82	0	0
2004-2005	9	3	118	5	2
2005-2006	8	1	173	9	1

TABLE 2 Unit 5 marten harvest chronology by sex, 1997–2005

	1997–1998			1998–1999			1999–2000		
Month	Males	Females	Unknown	Males	Females	Unknown	Males	Females	Unknown
November	35	31	0	23	23	0	0	0	0
December	68	43	0	19	11	0	0	0	0
January	38	14	0	36	22	0	0	0	0
February	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0
Total	141	88	0	78	56	0	0	0	0

	2000–2001			2001–2002			2002–2003		
Month	Males	Females	Unknown	Males	Females	Unknown	Males	Females	Unknown
November	15	14	0	3	1	0	6	0	0
December	8	5	0	0	1	0	1	6	0
January	1	2	0	1	1	0	1	2	0
February	2	1	0	0	0	0	3	2	0
Unknown	0	0	0	0	0	0	0	0	0
Total	26	22	0	4	3	0	11	10	0

TABLE 2 (continued) Unit 5 marten harvest chronology by sex, 1997–2005

	2003–2004			2004–2005			2005–2006		
Month	Males	Females	Unknown	Males	Females	Unknown	Males	Females	Unknown
November	9	2	0	24	0	0	12	11	43
December	29	12	0	24	21	1	7	1	48
January	14	13	0	37	11	0	17	5	15
February	2	1	0	0	0	0	2	4	8
Unknown	0	0	0	0	0	0	0	0	0
Total	54	28	0	85	32	1	38	21	114

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 6 (10,140 mi^2)

GEOGRAPHIC DESCRIPTION: Prince William Sound and north Gulf Coast

BACKGROUND

Beavers, coyotes, lynx, martens, mink, muskrats, land otters, weasels and wolverines are all present in Unit 6. Density of individual species is variable, depending upon a variety of ecological factors and levels of harvest. Historical information on population status and trends is mostly anecdotal. Harvests of beavers, lynx, martens, land otters and wolverines were monitored by sealing.

Beavers are abundant in Subunits 6A, 6B and 6C, where the deltas of the Copper and Bering Rivers and other freshwater streams provide suitable habitat. Density is lower in Subunit 6D, where less habitat is available. Heller (1910) reported beavers in the Rude River drainage of eastern Prince William Sound (PWS), but he apparently did not find them on islands in PWS. J. Reynolds (ADF&G files 1976) documented occurrence on Hawkins and Hinchinbrook Islands, in Simpson Bay, and in the Rude and Gravina river drainages. Beavers also occur in the Sheep River drainage.

We have sealed beaver hides to monitor harvest since 1927 (Courtright 1968). Most of the take was from the Copper and Bering River deltas, where total harvest has fluctuated widely. In 1938 C. Rhode (ADF&G files) reported a harvest of 700 from the deltas. When the town of Katalla was abandoned, trapping pressure on the Bering River delta declined considerably. By 1951 beaver harvest declined to a low of 27, and then increased again to more than 300 in 1960 and 1963 (Griese 1990). Average harvest during the last 20 years was 60 beavers.

Coyotes are relatively new arrivals in Unit 6. Heller (1910) did not note their presence in 1908, and F. Robards (ADF&G files) suggested coyotes replaced red foxes as the dominant canid by 1938. However, recent observations by trappers and ADF&G personnel suggest they have declined in eastern Unit 6, while wolves have increased.

Red foxes are rare in Unit 6. They were common in the early 1900s but may have been displaced as coyote populations increased (Griese 1990). The last significant harvest of foxes was reported in 1972 in Subunit 6C (Griese 1988*b*).

Lynx occur at low density in Unit 6. O. Koppen (ADF&G files) indicated in 1949 that numbers had always been low. Lynx abundance in Unit 6 increased following cyclical decline of snowshoe hares in adjacent Units 11 and 13, indicating lynx probably disperse to the coast in search of prey. Harvest increased for 1–5 years in Unit 6 following peak lynx abundance in adjacent units during 1972, 1982, 1992, and 2000. Few kittens have been reported in the harvest

Density of marten is quite variable. In 1949, O. Koppen (ADF&G files) characterized populations as scattered. He believed the highest density occurred between Cape Suckling and Cape Yakataga. He suggested that PWS and deltas of the Copper and Bering rivers were frequently subjected to excessive trapping, resulting in low numbers. Populations in the 1980s increased, except in heavily trapped areas near Valdez and Cordova (Griese 1988*b*). During the late 1990s marten numbers increased unitwide, trappers reported a higher abundance than normal, and a record harvest occurred. Marten sealing began during 1999–2000.

Mink are common in most of Unit 6. Observations made between 1931 and 1955 (ADF&G files) suggested the potential for high numbers may not have been realized because of periodic overharvest. Trapping effort declined during the 1980s because of low pelt prices, and mink numbers increased throughout the unit (L. Kritchen, personal communication). However, this increase may have been slowed or reversed in 1989 in western PWS because of mortality caused by the *Exxon Valdez* oil spill.

Muskrats occur at low density in Unit 6 east of PWS. Heller (1910) did not report muskrats in PWS in 1908, and J. Reynolds (ADF&G files) confirmed their absence in 1976. On the Copper River Delta, muskrats were plentiful during the 1930s (G. Nelson, ADF&G files); however by 1935 icing and overflows had reduced numbers. O. Koppen (ADF&G files) also reported depressed numbers in 1948 due to predation. By 1955 the Copper River Delta population had recovered (F. Robards, ADF&G files) and persisted with scattered but locally common densities (Griese 1988*a*).

Land otters are common in most of Unit 6. Heller (1910) reported land otters were the most common carnivore in PWS in 1908. However, trapping and hunting with dogs reduced them to low levels during the early 1930s (G. Nelson, ADF&G files). The population recovered during the 1940s (O. Koppen, ADF&G files) and became plentiful throughout the unit by 1951 (F. Robards, ADF&G files). The *Exxon Valdez* oil spill in 1989 caused significant mortality in western PWS. However, land otters were reported as recovered by the *Exxon Valdez* Oil Spill Trustee Council in 1999.

Weasels are common on the mainland of Unit 6. They generally are not a species targeted by trappers, but are caught incidentally in marten and mink sets.

Wolverines are present in most of the unit. In the late 1930s, they were plentiful and considered a nuisance (G. Nelson, ADF&G files). Bounties were placed on wolverines in 1954 that resulted in "undue" harvest pressure on the population, increasing the take five-fold (F. Robards, ADF&G files). The bounty was removed in 1959. Harvest peaked between 1972 and 1978 because of increased trapper access and effort, as well as greater numbers of wolverines (Griese 1988b). Harvest was relatively high during the 1990s, averaging 19 per year during 1992–1998.

MANAGEMENT DIRECTION

Management Objectives

The management goal is to provide optimum harvests and maximum opportunities to participate in the hunting and trapping of furbearers (Rausch 1977). Management objectives have not been established.

METHODS

We sealed hides of beavers, land otters, lynx, martens, and wolverines taken by trappers and hunters. Sealing of martens began in 1999–2000. We recorded location and date of harvest, method of take, and type of transportation for all species. Sex was recorded for otters, martens and wolverines, and we measured length and width of beavers, lynx and otters. We also sent questionnaires to trappers to obtain information on relative abundance and trends in furbearer populations. I calculated indices of density (coyotes/km^2) by recording observations of coyotes while conducting aerial surveys for moose.

We assessed habitat used by land otters along the coastline in eastern PWS during 2000, 2001 and 2004 as described by Golden (1998). We collected scat deposition rates in eastern PWS during 2002 to determine a relative measure of otter abundance.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Beavers were abundant during this reporting period in Subunits 6A, 6B, and 6C, particularly on the deltas of the Copper and Bering rivers. On the Copper River Delta in Subunit 6C, the population was high and stable. Cache surveys in 1988 and 1990 indicated 2400 and 3100 animals, respectively (Nowlin 1993). Beavers increased in abundance on eastern Hinchinbrook Island; dams and ponds became a nuisance for some homeowners in Boswell Bay.

Coyotes were common to abundant in Unit 6. A record number of coyotes (17) was observed during a moose survey in Unit 6C, yielding an observed density of 0.14/mi^2. Griese (1990) estimated density at 0.1-1.0/mi^2 in suitable habitat. Red foxes were absent and did not show signs of increasing during the reporting period.

Lynx were rare to absent in Unit 6, which is typical when prey and lynx populations are rebuilding in adjacent, interior areas (Units 11 and 13). Marten were common and apparently stable to increasing. Mink and land otters were both common, with stable numbers in most of Unit 6. An analysis of relative abundance of land otters is being prepared. After a brief increase in numbers during the early 2000s, muskrats were uncommon during the reporting period. Wolverines were present at low to moderate density and were stable.

MORTALITY

Harvest

Seasons and Bag Limits. The beaver trapping season was 10 November–30 April with no bag limit. Harvest ranged from a low of 83 during 2003–04, when poor trapping conditions occurred,

to a high of 109 during 2004–05 (Table 1). Traps or snares were the normal method of take, and the proportion of juveniles in the harvest varied. Beavers reported as shot were killed under nuisance permits for airport or highway maintenance purposes. As in past years, 90–100% of the harvest came from Unit 6C.

The coyote trapping season was 10 November–30 April with no bag limit for all of Unit 6. The coyote hunting season was 10 August–30 April and the bag limit was 10 coyotes during the reporting period. No harvest data are available. Because of low prices, trapping effort is minimal.

The lynx trapping and hunting seasons were closed during the reporting period. The marten trapping season during the reporting period was 10 November–28 February with no bag limit. Good trapping conditions during 2005–06 resulted in a high marten harvest. (Table 1). The mink trapping season during the reporting period was 10 November–28 February with no bag limit. No harvest data are available.

The muskrat trapping season during the reporting period was 10 November–10 June and there was no bag limit. No harvest data are available. Because of low prices, trapping effort was minimal.

Land otter trapping season was 10 November–31 March with no bag limit. Harvest was 107–196 during this reporting period (Table 1). About 80% of the otters were taken in Unit 6D. Most otters were taken using traps or snares.

The weasel trapping season during the reporting period was 10 November–28 February with no bag limit. No harvest data are available. Because of low prices, trapping effort is minimal.

The wolverine trapping season was 10 November–28 February and there was no bag limit. The wolverine hunting season was 1 September–31 March and the bag limit was 1 wolverine. Harvest was at a normal level during the reporting period. (Table 1).

Board of Game Actions and Emergency Orders. Both season and bag limit for coyote were increased beginning in 2003–04. We regulated the lynx trapping season each year by emergency order as part of our tracking harvest strategy. Emergency orders were issued to modify season lengths as lynx and prey populations varied, to ensure sustainable harvest.

Harvest Chronology. Peak beaver harvest varied during the reporting period (Table 2), depending primarily on ice and snow conditions that provided access to beavers. The maritime climate causes annual variation in timing and endurance of winter conditions favorable to trappers. A similar pattern occurred over the past 5 years.

Land otters were primarily harvested during December (Table 2). The highest harvest of martens occurred during November and December (Table 2), as was reported during the previous two years. Chronology of wolverine harvest varied with snow conditions

Transport Methods. Beaver trappers consistently used highway vehicles for the majority of transportation (Table 3). Heavy reliance on highway vehicles occurred because the Copper River Highway provided easy access to high beaver populations in Subunit 6C. Land otter trappers

used primarily boats. Transportation used by wolverine and marten trappers and hunters varied, depending on snow conditions (Table 3). Typically, good snow conditions allow better access with snowmachines and harvest increases. During the reporting period snow conditions were relatively poor, which restricted snowmachine use. More wolverine trapping occurred by boat in PWS during 2005-06 (Table 3).

CONCLUSIONS AND RECOMMENDATIONS

Quantifiable management objectives need to be established for beavers, land otters and wolverines. Harvest information is available for all these species from sealing records, and application of existing and emerging methodologies may provide opportunities to monitor population trends. We are approaching this goal with our ongoing work on land otters.

Harvests of most furbearers were within sustainable limits, and no changes in seasons or bag limits are recommended.

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PREPARED BY:
David W. Crowley
Wildlife Biologist III

SUBMITTED BY:
Gino Del Frate
Management Coordinator

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TABLE 1 Unit 6 beaver, land otter, marten, lynx and wolverine reported harvest by sex, age and method of take, 1998–2006

Regulatory	Sex				Reported harvest					Method of take					Successful
year	M	F	(%)	Unk	Juv.[a]	(%)	Adults	Unk	Total	Trap/snare	(%)	Shot	L&S	Unk	trappers
Beaver															
2001–02				75	5	(13)	33	37	75	60	(80)	15	0	0	8
2002–03				106	7	(19)	29	70	106	106	(100)	0	0	0	17
2003–04				83	2	(5)	38	43	83	76	(92)	7	0	0	13
2004–05				109	10	(37)	17	82	109	99	(93)	8	0	2	15
2005–06				92	7	(22)	25	60	92	80	(87)	12	0	0	12
Land otter															
2001–02	30	28	(48)	6	31	(58)	22	11	64	50	(78)	14	0	0	13
2002–03	109	59	(35)	8	74	(45)	90	12	176	168	(95)	8	0	0	18
2003–04	49	41	(46)	17	69	(72)	27	11	107	103	96	4	0	0	21
2004–05	121	72	(37)	3	71	(37)	119	6	196	187	97	5	0	4	26
2005–06	117	68	(37)	3	102	(56)	79	7	188	188	100	0	0	0	26
Marten															
2001–02	60	29	(33)	25					114	99	(100)	0	0	0	13
2002–03	56	28	(33)	0					84	84	(100)	0	0	0	14
2003–04	86	48	(36)	15					149	149	(100)	0	0	0	17
2004–05	98	51	(34)	13					162	162	(100)	0	0	0	19
2005–06	154	83	(35)	19					256	256	(100)	0	0	0	23
Wolverine															
2001–02	7	3	(30)	0					10	9	(90)	1	0	0	7
2002–03	4	0	(0)	0					4	4	(100)	0	0	0	4
2003–04	6	10	(63)	0					16	16	(100)	0	0	0	8
2004–05	6	7	(54)	2					15	14	(100)	0	0	1	9
2005–06	13	6	(32)	0					19	18	(95)	1	0	0	19
Lynx															
2001–02	4	4	(50)	11	1	(5)	18		19	17	(89)	2	0	0	9
2002–03	0	3	(100)	0	0	(0)	2	1	3	2	(67)	1	0	0	3
2003–2006	0	0		0					0						0

[a] Beavers (length + width) $\leq$ 52", otters (length) <42", lynx (length) < 34".

TABLE 2 Unit 6 beaver, land otter, marten and wolverine harvest chronology percent by time period, 1998–2006

Regulatory year	Harvest periods							
	October	November	December	January	February	March	April	*n*
Beaver [a]								
2001–02	0	3	9	21	31	9	7	75
2002–03	0	13	35	12	4	32	0	106
2003–04	0	20	13	17	20	12	8	83
2004–05	0	14	20	9	2	25	17	109
2005–06	0	26	11	9	0	42	0	92
Land otter								
2001–02	0	22	36	27	16	0	0	64
2002–03	0	7	27	44	18	3	0	176
2003–04	0	14	35	33	10	8	0	107
2004–05	6	28	29	15	14	8	0	196
2005–06	0	27	43	18	11	2	0	188
Marten								
2001–02	0	56	26	11	6	0	0	114
2002–03	0	24	38	24	14	0	0	84
2003–04	0	40	28	18	15	0	0	149
2004–05	0	28	41	14	18	0	0	162
2005–06	0	42	25	18	14	0	0	256
Wolverine								
2001–02	0	10	0	20	70	0	0	10
2002–03	0	0	0	0	100	0	0	4
2003–04	0	31	19	44	6	0	0	16
2004–05	0	20	27	27	27	0	0	15
2005–06	5	5	53	5	32	0	0	19

[a] Beavers taken during May through September under damage control permits are as follows: 15 in 2001–02, 4 in 2002–03 and 2003–04, 8 in 2004–05, and 10 in 2005–06.

TABLE 3 Unit 6 beaver, land otter, marten and wolverine harvest percent by transport method, 1998–2003

Regulatory year	Percent of harvest							
	Airplane	Dogsled skis snowshoes	Boat	3-or 4-wheeler	Snowmachine	Highway vehicle	Unknown	*n*
Beaver								
2001–02	0	0	20	0	0	75	5	75
2002–03	0	0	6	4	0	91	0	106
2003–04	0	0	7	1	0	88	4	83
2004–05	0	2	4	19	1	72	2	109
2005–06	0	0	8	15	0	77	0	92
Land otter								
2001–02	0	11	67	3	0	19	1	64
2002–03	0	0	78	5	0	16	0	176
2003–04	0	0	76	0	3	21	0	107
2004–05	0	0	76	1	1	14	9	196
2005–06	0	2	70	4	5	19	0	188
Marten								
2001–02	0	27	13	16	37	7	0	114
2002–03	17	0	30	6	12	36	0	84
2003–04	0	0	34	1	30	30	5	149
2004–05	1	0	38	11	9	41	0	162
2005–06	11	0	30	5	17	36	0	256
Wolverine								
2001–02	0	0	40	10	30	20	0	10
2002–03	0	0	0	25	75	0	0	4
2003–04	0	0	56	19	0	6	19	16
2004–05	0	13	33	7	13	33	0	15
2005–06	0	0	68	0	16	11	5	19

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
907-465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNITS: 7 and 15 (8397 mi^2**)**

GEOGRAPHIC DESCRIPTION: Kenai Mountains

BACKGROUND

Beavers, coyotes, lynx, marten, mink, muskrats, river otters, short-tailed weasels, and wolverines are found on the Kenai Peninsula at varying densities, depending upon habitat quality or prey abundance. Of the three canid species, the distribution and density of red foxes is limited on the peninsula. Red foxes were abundant prior to 1930, according to longtime Kenai residents, however, the fox population likely decreased due to competition from increased numbers of the other two canids, coyotes and wolves (Peterson and Woolington 1982). Unit 15C supports a small remnant population of red fox with an occasional observation reported from other areas of the Kenai Peninsula. The wolf population recolonized the Kenai Peninsula in the 1960s after a 50-year absence (Peterson et al. 1984). Wolves and coyotes are currently distributed throughout the peninsula.

Marten are moderately abundant in Unit 7, but are rare in Unit 15, with the exception of the portion of Unit 15B between the Kenai and Skilak Rivers. There are no definitive reports of marten being widespread or common on the western side of the Kenai Peninsula (Osgood 1901, Allen 1902). Because marten have been uncommon in Unit 15 for more than a century, it seems likely habitat and/or prey availability or some other regional limiting factor influences their distribution.

Beaver are common in suitable habitat on the Kenai Peninsula. However, population densities and trends have not been measured and are poorly understood in most areas. The yearly harvest of beaver averaged more than 400 in the late 1950s and early 1960s, reaching a high of nearly 800 in 1959, but has since dropped to fewer than 300.

River otters are common in inland waters and sheltered coastal areas of the Kenai Peninsula. Observations and harvest information indicate otters are most abundant in drainages that support anadromous fish, stream connected lakes, and sheltered coastal waters, such as the south shore of Kachemak Bay.

Wolverines are found most commonly 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. Much of their range is essentially protected from trapping due to very difficult access, and, in the case of Kenai Fjords National Park, trapping closures.

Lynx are cyclically abundant in the forest habitats of the Kenai Peninsula. Mixed deciduous and spruce forests in Units 15A and 15B appear to have a higher abundance of snowshoe hares, and consequently, lynx numbers are usually higher in these areas than in spruce forests of Units 7 and 15C. The latest snowshoe hare cyclic peak occurred in 1999–2000 (Spraker 2001). The hare population now (2006–07) appears to be slowly increasing after their most recent cyclic low.

Mink and short-tailed weasels are common throughout Units 7 and 15. Although their pelt value is generally low, they continue to be important furbearers, especially for young trappers. Muskrat distribution is limited over much of the Kenai Peninsula.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

- Allow for sustainable harvests of all species of furbearer.
- Monitor the harvest through sealing and trapper questionnaires.

METHODS

Harvests were monitored through mandatory sealing for beaver, lynx, marten, river otter, and wolverine and through trapper questionnaire surveys for other species.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Other than monitoring harvest trends, no research has been conducted on furbearer populations in Units 7 and 15, except for wolverines. The Alaska Department of Fish and Game (ADF&G) is in the process of conducting structured surveys of the wolverine population on the Kenai Peninsula in order to determine densities to better monitor the population and to determine sustainable harvest rates (Golden et al. 2006[A] and 2006[B]).

MORTALITY

Seasons and Bag Limits. The trapping and hunting seasons and bag limits for furbearers did not change during the reporting period.

Harvest. The annual variations in the furbearer harvest reflect effort, trapping conditions, and access. Only beaver, lynx, marten, otter, and wolverine are required to be sealed. The beaver harvest has averaged 154 animals over the past five seasons (Table 1). The lynx harvest was low

during the reporting period and resulted from hunter kills, because the trapping seasons have been closed since 2002–03 (Table 1). The marten harvest averaged more than 100 animals per year over the past 5 seasons, with almost all of the harvest occurring in Unit 7 (Table 1). The mean 5-year percentage of females in the marten harvest was 40%. The harvest of river otters averaged 46 animals over the past 5 seasons (Table 1). The mean 5-year percentage of females in the otter harvest was 39%. The wolverine harvest averaged 16 animals over the past five seasons (Table 1). The mean 5-year percentage of females in the wolverine harvest was 38%.

Board of Game Actions and Emergency Orders. At its spring 2005 meeting, the Board of Game eliminated the trapping closure around Homer city limits. In response to this, the Homer City Council later passed an ordinance banning trapping within the city limits.

Harvest Chronology. Interpretation of the harvest chronology can be misleading due to variations in weather and access. Most of Unit 15 is within the Kenai National Wildlife Refuge and restrictions (related to snow depth) affect when trappers can access the area. Also, periodic freeze/thaw cycles on the Kenai Peninsula affect effort throughout the winter. The detailed analyses required to obtain meaningful information concerning harvest chronology are beyond the scope of this report. Therefore, the data are provided without interpretation (Table 2).

Transport Methods. Generally, most trappers in Units 7 and 15 use a highway vehicle to access traplines and then use snowshoes or a snowmachine as they travel along their traplines.

CONCLUSIONS AND RECOMMENDATIONS

Trapping on the Kenai Peninsula is mostly a recreational activity. Trapping effort varies substantially year to year based on snow conditions, fur prices, and other factors. A louse infestation currently affects wolves and some coyotes on the Kenai, and can greatly decrease the quality of the fur, which further reduces trapping effort.

Lynx management on the Kenai Peninsula has followed the recommendations of Brand and Keith (1979). Their study indicated that, during a lynx population decline in Alberta, trapping mortality was additive to natural mortality. Using computer modeling they showed more lynx would be produced and greater long-term harvest would be achieved when trapping was curtailed for 3–4 years, starting with the second year after the lynx harvest peak. This harvest strategy is in place on the Kenai Peninsula. Lynx trapping was closed in Units 7 and 15 from 2002–2006. Hunting has remained open, but the limited harvest suggests impacts to the population from hunting are minimal.

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PREPARED BY:
Thomas McDonough
Wildlife Biologist

SUBMITTED BY:
Gino Del Frate
Management Coordinator

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TABLE 1 Annual furbearer harvest on the Kenai Peninsula, 2001-2005

Regulatory Year	Game Management Units				Total
	7	15A	15B	15C	
Beaver					
2001-02	25	38	14	42	119
2002-03	143	45	64	25	277
2003-04	21	14	0	34	69
2004-05	63	49	7	23	142
2005-06	67	52	11	35	165
Lynx					
2001-02	15	33	15	11	74
2002-03*	1	4	2	3	10
2003-04*	1	4	3	1	9
2004-05*	0	2	6	0	8
2005-06*	7	1	4	0	12
Marten					
2001-02	154	1	0	0	155
2002-03	36	0	0	0	36
2003-04	115	0	0	0	115
2004-05	68	0	1	0	69
2005-06	125	6	0	0	131
River Otter					
2001-02	12	6	1	20	39
2002-03	22	21	3	17	63
2003-04	5	8	2	11	26
2004-05	10	18	8	9	45
2005-06	8	20	3	26	57
Wolverine					
2001-02	4	1	3	3	11
2002-03	6	0	0	0	6
2003-04	10	3	2	1	16
2004-05	17	0	2	7	26
2005-06	13	0	1	7	21

* Trapping season closed

TABLE 2 Chronology of furbearer harvest on the Kenai Peninsula, 2001-2005

Regulatory Year	Month							other/ unknown	Total
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.		
Beaver									
2001-02	0	55	31	13	8	3	2	7	119
2002-03	0	115	61	23	58	19	0	1	277
2003-04	0	24	12	7	8	17	0	1	69
2004-05	0	51	20	24	26	21	0	0	142
2005-06	2	63	46	22	11	11	0	10	165
Lynx									
2001-02	0	3	6	37	28	0	0	0	74
2002-03*	0	3	1	5	1	0	0	0	10
2003-04*	0	0	1	5	1	0	0	2	9
2004-05*	0	2	1	5	0	0	0	0	8
2005-06*	0	2	3	7	0	0	0	0	12
Marten									
2001-02	0	44	72	34	3	0	0	2	155
2002-03	0	6	12	18	0	0	0	0	36
2003-04	0	38	41	35	0	0	0	1	115
2004-05	1	21	23	24	0	0	0	0	69
2005-06	0	54	49	27	1	0	0	0	131
River Otter									
2001-02	0	11	9	9	8	1	0	1	39
2002-03	0	16	25	17	5	0	0	0	63
2003-04	0	10	3	6	5	0	0	2	26
2004-05	0	11	12	8	10	0	0	4	45
2005-06	0	17	23	6	11	0	0	0	57
Wolverine									
2001-02	0	0	2	6	2	0	0	1	11
2002-03	0	0		3	3	0	0	0	6
2003-04	1	1	2	4	6	0	0	2	16
2004-05	3	0	6	5	9	1	0	2	26
2005-06	0	1	7	7	4	1	0	1	21

* Trapping season closed

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 8 (5097 mi^2)

GEOGRAPHIC DESCRIPTION: Kodiak and adjacent islands

BACKGROUND

Archeological evidence indicates the only furbearers indigenous to the Kodiak Archipelago are red foxes, land otters, and short-tailed weasels (Rausch 1969). Skeletal remains of other species have been found in midden sites, but Native traders probably brought these into the area. Wildlife management agencies introduced beavers and muskrats in 1925 and 1929, respectively. Mink, marten, and red squirrels were introduced in 1952 (Burris and McKnight 1973). Healthy populations of all of these furbearers, except mink, now reside in the unit. Raccoons were illegally introduced at various times, but sightings are rare. Norway rats are common in the vicinity of Kodiak and other villages. There was widespread escape or release of red and arctic foxes from fox farms in the early 1900s. Arctic foxes occur only on Chirikof Island. Feral dogs are occasionally observed near villages on Kodiak, where they sometimes form packs and hunt deer.

Red foxes, land otters, beavers, and short-tailed weasels are the most abundant furbearers on the archipelago. Marten occur only on Afognak Island. Trappers most commonly pursue red foxes, land otters, and beavers. Furbearer populations and trapping pressure have been stable during the past decade. No changes in regulations occurred during this report period.

Recreational trappers conduct most of the trapping in Unit 8, and effort is typically affected more by weather than by vagaries in the fur market. The majority of land otter pelts are exported for sale; most other species are kept on the island for personal use or to sell locally.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

Management objectives for furbearers in Unit 8 are to develop measurable objectives for all furbearer species and collect harvest data on land otters and beavers through the mandatory sealing program and statewide trapper questionnaire.

METHODS

We monitored beaver and land otter harvests through a mandatory sealing program. We sent statewide trapper questionnaires to trappers each year and recorded the number of furs exported from the state.

RESULTS AND DISCUSSIONS

POPULATION STATUS AND TREND

Population Size

We have no objective estimates of furbearer populations for the unit. Most trappers reported furbearer populations were high during this report period, except along portions of the Kodiak road system.

MORTALITY

Harvest

Season and Bag Limit. Land otter, marten and weasel trapping seasons were 10 November–31 January with no limit on the number of these animals a trapper could legally catch. Land otter harvests fluctuated during this reporting period, but continued on an increasing trend. During the past 5 years (2001–02 through 2005–06), the annual harvests ranged from 110 to 325, with an average of 223.8 (Table 1). The previous 5-year period (1996–97 through 2000–01) had similar fluctuations, but the average annual harvest was 147.2. The number of otter trappers during the past 5 years has fluctuated from 23–34, averaging 26.4/year. The average take per trapper ranged from 4.6 to 10.2, with an average of 8.5 otters/trapper/year.

Beaver trapping season was 10 November–30 April. The bag limit was 30 beavers per trapper. Harvests fluctuated but showed a generally increasing trend. During the past 5 years (2001–02 through 2005–06), annual harvests ranged from 18 to 71 and averaged 48.6 (Table 2). The previous 5-year period (1996–97 through 2000–01) had similar fluctuations, but the average annual harvest was 46.2. The number of trappers during the past 5 years fluctuated from 10 to 18, averaging 14.8 per year. The average take per trapper ranged from 1.0 to 4.8, with an average of 3.3 beavers/trapper/year.

The red fox trapping season was 10 November–31 March with no limit on the number of animals a trapper could legally take. The red fox hunting season was from 1 September–15 February and the bag limit was 2 foxes. Red foxes are the most commonly pursued furbearer in Unit 8, but current methods of monitoring harvest may underestimate the take. The average annual harvest by trappers and hunters is estimated at 300 red foxes. Some foxes are home-tanned or dried for wall hangings, and we suspect hides are often shipped without fur export permits.

The muskrat trapping season was 10 November–10 June with no bag limit. There was no closed hunting or trapping season on squirrels, nor was there a bag limit on squirrels.

Harvests of marten, squirrels, weasels, and muskrats were negligible. Occasionally, trappers made sets for marten on Afognak Island, but little trapping effort occurred for the remaining species.

Board of Game Actions and Emergency Orders. The Board of Game made no changes in furbearer trapping or hunting regulations in this report period.

Harvest Chronology. November is typically the most active month for fur trappers in Unit 8, but harvest chronology for both land otters and beavers has been variable (Tables 3 and 4, respectively).

Transport Methods. Highway vehicles and boats are the most common modes of transport for otter and beaver trappers (Tables 5 and 6, respectively), but methods are variable with aircraft and 3- or 4-wheelers common in some years.

Other Mortality

None noted.

HABITAT

Logging on Afognak Island was the only major land use activity altering furbearer habitat. Clearcut logging of old-growth timber was detrimental to marten populations in southeastern Alaska (Young 1990), but studies of the effects of logging on furbearers have not been conducted in Unit 8.

NONREGULATORY MANAGEMENT PROBLEMS/NEEDS

A population trend estimation technique for land otters should be developed. The land otter is the furbearer most susceptible to overexploitation in Unit 8. During the 1980–81 season, the harvest exceeded 400 otters, and in local areas up to 1 otter/mile of coastline was harvested. Annual harvests have never reached that level again, but they have been generally increasing for the past several years. Prices for otters remained high for much of this reporting period, but experienced a dramatic drop in 2006. The lower prices may change the increasing harvest trend, but without survey data it is difficult to properly assess the population status.

Beavers caused occasional flooding of roads by plugging culverts. Approximately 1–5 nuisance beavers were removed adjacent to roads in northeastern Kodiak Island annually by trapping and shooting. The Alaska Department of Transportation & Public Facilities (DOT&PF) is periodically issued a beaver depredation permit to allow control of nuisance beavers along the highway.

Ground squirrels are a chronic nuisance at the state airport in Kodiak, where they undermine runway edges and damage runway lights. DOT&PF has a permit to shoot ground squirrels.

Some conflicts between trappers and other recreational users occur where trappers make sets near beaches and roadsides. Deer, bear, and eagles are periodically caught in fox snares, and 1–2 deer per year are reported dead in snares. Domestic dogs and cats are also occasionally caught in these sets, prompting articles and letters to the local newspaper.

Typically, inexperienced trappers are responsible for the snared deer and pets, and better trapper education could alleviate the problem.

The commander of the U.S. Coast Guard base near the city of Kodiak closed all Coast Guard lands to trapping in 2003. This action was in response to concerns about pets and children being

vulnerable to getting caught in traps and snares, and to a perceived decline in the number of foxes on the base.

CONCLUSION AND RECOMMENDATIONS

Harvests of all furbearer species were relatively low and furbearer populations were relatively high. Less than 25 beaver and otter trappers were active each year, and the average annual harvest of all species was estimated at 500 animals. An inaugural otter population survey is scheduled for summer 2007. Department staff will investigate shorelines within representative bays on the west side of the aArchipelago, recording otter sign and collecting scat. We will also conduct genetic analyses of scat samples to ascertain population density.

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PREPARED BY:

Lawrence J. Van Daele
Wildlife Biologist III

John R. Crye
Wildlife Biologist I

SUBMITTED BY:

Gino G. Delfrate
Management Coordinator

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TABLE 1 Unit 8 land otter harvest 1996/97–2005/06

Regulatory Year	Reported Harvest				Method of Take		Successful	
	M (%)[a]	F (%)[b]	Unk[c]	Total	Trap/Snare (%)	Shot (%)	Unk[c]	Trappers
1996–97	59 (54)	50 (46)	17	126	124 (98)	2 (2)	0	18
1997–98	70 (57)	53 (43)	25	148	142 (96)	6 (4)	0	17
1998–99	77 (57)	59 (43)	37	173	143 (85)	25 (15)	5	19
1999–2000	48 (63)	28 (37)	24	100	93 (95)	5 (5)	2	20
2000–01	102 (56)	80 (44)	7	189	178 (95)	9 (5)	2	24
2001–02	98 (48)	106 (52)	12	216	211 (99)	3 (1)	2	24
2002–03	54 (51)	52 (49)	4	110	103 (94)	6 (6)	1	24
2003–04	120 (59)	83 (41)	31	234	207 (95)	12 (5)	15	27
2004–05	168 (55)	137 (45)	20	325	302 (96)	11 (4)	12	34
2005–06	124 (55)	101 (45)	9	234	200 (97)	6 (3)	28	23

[a] male
[b] female
[c] unknown

TABLE 2 Unit 8 beaver harvest 1996/97–2005/06

Regulatory	Reported Harvest					Method of Take					Successful
Year	Juv [a]	%	Adult	%	Total	Trap/Snare	%	Shot	%	Unk.	Trappers
1996–97	9	24	28	76	38	37	97	1	3	0	8
1997–98	10	28	26	62	42	31	82	7	18	4	12
1998–99	8	19	35	81	43	39	91	4	9	0	13
1999–2000	4	13	28	88	48	39	91	4	8	5	13
2000–01	13	25	39	75	60	34	74	12	26	14	13
2001–02	7	39	11	61	18	14	78	4	22	0	18
2002–03	15	28	39	72	71	49	69	22	31	0	17
2003–04	14	27	37	73	67	52	79	14	21	1	14
2004–05	8	17	40	83	57	35	61	22	39	0	15
2005–06	8	27	22	73	30	27	93	2	7	1	10

[a] - Beavers ≤ 52" were reported as juveniles (juv); numbers and percentages of juveniles and adults listed on this table reflect only those measured, while the total column reflects all beavers reported harvested.

TABLE 3 Unit 8 land otter harvest chronology percent by month, 1996/97–2005/06

Regulatory year	Harvest periods					*n*
	November	December	January	February[a]	Unknown	
1996–97	44	21	35	0	0	126
1997–98	29	49	22	0	0	148
1998–99	66	26	8	0	0	173
1999–00	38	45	15	0	2	100
2000–01	30	35	35	0	0	189
2001–02	31	40	19	0	10	216
2002–03	21	66	12	0	1	110
2003–04	23	43	29	0	5	234
2004–05	26	25	46	0	3	325
2005–06	19	72	9	0	0	234

[a]- Season closed 31 January

TABLE 4 Unit 8 beaver harvest chronology percent by month, 1996/97–2005/06

	Harvest periods								
Regulatory year	November	December	January	February	March	April	May	Unknown	*n*
1994–95	38	7	28	0	0	10	0	17	29
1995–96	22	50	0	0	10	14	0	4	50
1996–97	71	21	0	3	3	3	0	0	38
1997–98	19	43	0	21	17	0	0	0	42
1998–99	60	34	0	0	0	5	0	0	43
1999–00	52	15	15	15	4	0	0	0	48
2000–01	44	13	8	8	3	0	0	24	60
2001–02	72	22	0	0	0	6	0	0	18
2002–03	34	11	11	6	6	32	0	0	71
2003–04	25	51	12	0	5	7	0	0	67
2004–05	28	11	12	>1	5	11	0	32	57
2005–06	13	58	3	20	0	3	0	3	30

TABLE 5 Unit 8 land otter harvest percent by transport method, 1996/97–2005/06

Regulatory year	Percent of harvest								
	Airplane	Boat	3- or 4-wheeler	Snow machine	ORV[a]	Highway vehicle	Foot	Unknown	*n*
1996–97	5	66	5	0	0	17	0	8	126
1997–98	5	68	14	0	0	14	1	0	148
1998–99	1	59	8	0	0	21	4	7	173
1999–2000	3	44	22	0	0	29	0	2	100
2000–01	2	66	13	0	0	16	0	3	189
2001–02	1	75	9	0	0	11	2	1	216
2002–03	15	14	11	0	0	59	0	1	110
2003–04	10	63	4	0	0	15	0	8	234
2004–05	4	68	9	0	0	6	0	13	325
2005–06	12	75	5	0	0	2	0	6	234

a Off-road vehicle (other than a 3- or 4-wheeler)

TABLE 6 Unit 8 beaver harvest percent by transport method, 1996/97–2005/06

Regulatory year	Percent of harvest								
	Airplane	Boat	3- or 4-wheeler	Snow machine	ORV[a]	Highway vehicle	Foot	Unknown	*n*
1996–97	0	0	37	0	0	61	0	3	38
1997–98	12	0	31	0	5	50	2	0	42
1998–99	0	77	2	2	0	12	0	7	43
1999–2000	4	40	17	0	0	25	4	10	48
2000–01	8	40	22	0	0	7	0	23	60
2001–02	0	22	39	0	0	33	0	6	18
2002–03	35	11	41	0	0	8	0	4	71
2003–04	13	11	51	0	0	24	0	1	67
2004–05	14	18	59	0	0	9	0	0	57
2005–06	7	7	57	0	0	26	0	3	30

[a] Off-road vehicle (other than a 3- or 4-wheeler)

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNITS: 9 (45,522 mi^2) and 10 (15,798 mi^2)

GEOGRAPHIC DESCRIPTION: Alaska Peninsula, Aleutian Islands, and Pribilof Islands

BACKGROUND

Furbearers in Units 9 and 10 include beaver (*Castor canadensis*), coyote (*Canis lantrans*), red fox (*Vulpes vulpes*), lynx *(Lynx canadensis),* marten (*Martes americana*), mink (*Mustela vison*), muskrat (*Ondatra zibethacus*), land otter (*Lutra canadensis*) and wolverine (*Gulo gulo*). All species are found on at least part of the mainland of Unit 9. There are fewer species on the islands in both units. On some islands furbearers are present because of past introductions for fur farming or efforts to establish harvestable wild populations.

Beavers primarily occur on the mainland north of Port Moller. The most productive beaver habitat has a dependable water supply with little fluctuation in stream flow and is adjacent to abundant and easily accessible willow, aspen, cottonwood, or birch vegetation. Beavers can be found from sea level to an elevation of 2000 feet.

Coyotes apparently first arrived in Alaska near the turn of the 20th century and were rare in much of the state before 1980. They rapidly extended their range and now occur throughout the mainland portion of Unit 9. Relatively few are trapped, usually incidentally to fox, lynx, or wolf trapping effort. Sport hunters generally take a few coyotes.

Red foxes are on the mainland, on some of the offshore Alaska Peninsula islands, and on the larger islands of the eastern Aleutian Islands. Red fox introductions to the Aleutian and Alaska Peninsula islands began during Russian occupancy and continued through 1932. Some earlier red fox introductions succeeded, but these foxes were later exterminated to facilitate introduction of arctic foxes. Rabies, mange and distemper epidemics occur periodically in fox populations in Unit 9, resulting in widespread mortality.

Arctic foxes occur in a narrow band along the marine coast, on open tundra, and on sea ice many miles from shore. Their natural distribution along the Bering Sea coastline extends to the northwestern shore of Bristol Bay. Blue color-phase arctic foxes were introduced dating back to the Russian period. Arctic foxes are noted for their wide fluctuations in population levels with periodic peaks about every 4 years. Their population densities are linked to cyclic fluctuations in small rodent populations. Foxes also patrol beaches in search of carrion and are efficient

predators of nesting birds. The U.S. Fish and Wildlife Service (FWS) removed introduced fox populations from many Aleutian islands to revert the habitat to a "preintroduction" state and to benefit sea bird populations.

Lynx inhabit the mainland north of Port Heiden. Primarily a boreal species, lynx venture onto the tundra in search of arctic hares, lemmings and ptarmigan when prey is scarce. The lynx-hare cycle is well known, and population highs can sometimes be predicted every 8 to 10 years. However, Unit 9 is on the fringe of the range for both lynx and snowshoe hare, and the fluctuations for both species are less consistent than elsewhere in Alaska.

Marten occur regularly only in parts of Units 9A and 9B and are occasionally trapped in 9C. The distribution of marten is limited primarily to climax spruce forests from sea level to timberline.

Mink inhabit the mainland of the Alaska Peninsula and Unimak Island. Microtine populations typically fluctuate drastically and are the primary factors affecting mink abundance. An abundance of mice or hares in upland areas will sometimes prompt mink populations to spread inland in search of prey. In some areas spring flooding may reduce populations by drowning young mink in dens.

Land otters occur on the mainland, some adjacent islands east of the Alaska Peninsula, and Unimak Island. Otter populations are relatively stable, with coastal areas providing abundant marine food. Parasites and disease are not normally important mortality factors. Spring flooding occasionally drowns young otters in dens.

Wolverines live on the mainland and Unimak Island. Compared to other furbearers, wolverines never attain high densities, partially because of their large territorial requirements and low reproductive rate.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVE

Management objectives for furbearers in Units 9 and 10 have not been developed.

METHODS

We assessed population trends indirectly by monitoring harvests of sealed species and by obtaining information from trappers on questionnaires. Fieldwork for surveying furbearers was not funded this report period. We made incidental observations of furbearers during moose, caribou and brown bear surveys.

Pelt sealing is required for beaver, lynx, otter, and wolverine and provided the most accurate and complete harvest information. Because furs kept for personal use were sometimes not reported, actual harvest exceeded those obtained from this data source.

The harvest of unsealed furbearers (coyote, red fox, arctic fox, marten, mink, and muskrat) could not be estimated with any confidence. However, trapper questionnaires and other incidental information provided a rough, qualitative index to trends in populations of furbearers and key

prey species. The trapper questionnaire population abundance index (AI) was calculated by assigning rank values of 1 for "scarce," 5 for "common," and 9 for "abundant". Similarly, the trend index (TI) used the same rank values for "fewer," "same," and "more" than present the previous year."

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

Beaver. Beaver cache surveys have not been conducted since 1987. Beavers recovered from the brief decline reported in the mid 1990s (i.e., AI and TI averaged 5.5 and 5.0 in 1994-96). Both the AI and TI increased in 1996–97 to 7.9 and 5.6, despite extremely low water levels during 1996–97 causing some freeze-out mortality. During the late 1990s trappers rated beaver as abundant (Average AI = 7) and increasing (Average TI = 6.0). Since 2000 trappers continued to rate beaver as abundant (Average AI = 6.5) and increasing (Average TI = 6.2).

Coyote. Trappers rated the coyote population as being low in abundance (Average AI = 3.3 since 2000), but increasing (Average TI = 5.9 since 2000). Interspecific conflict with wolves, which were ranked abundant (Average AI = 6.2) and increasing (Average TI = 7.0), may be limiting the coyote population to relatively low numbers.

Red Fox. A moderate outbreak of rabies in 1997–98 temporarily diminished the red fox population in 1998–99 (AI = 4.7, TI = 3.2), but it recovered within a year to more normal abundance in 1999–2000 (AI = 7.3 and TI = 7.7). Red fox were the most prevalent furbearer species based on trapper ratings since 2000 (Average AI = 7.0), but the relative abundance index declined during this reporting period (AI = 9.2, 8.3, and 5.0 in 2003, 2004, and 2005, respectively). Several animals were tested for rabies, but none tested positive. Indices for potential prey species provide little explanation for the perceived decrease (Average A.I. = 7.3, 4.5, and 4.6 for voles, hares, and ptarmigan, respectively).

Lynx. Trappers believed lynx abundance to be generally low (Average AI = 4.0 since 2000), but stable (Average TI = 5.8). Snowshoe hare abundance was rated moderate and stable (Average AI = 4.5 and Average TI = 5.7).

Marten. So few trappers (≤2 per year) rated marten abundance that meaningful interpretation is precluded. Marten distribution is very limited within Unit 9, and changes in status are difficult to document.

Mink. Mink abundance was reported as moderate (Average AI = 5.9 since 2000) and with some increase (Average TI = 6.1).

Otter. Otters appear to be recovering from the decline during the 1997–99 reporting period (AI = 7.5, 5.0 and 3.9 and TI = 6.3, 4.1, and 3.9). Otter abundance was reported as moderately high (Average AI = 6.0 since 2000) and increasing (Average TI = 6.8).

Wolverine. Trappers reported wolverines as relatively scarce (Average AI = 3.4) and stable (Average TI = 5.0) since 2000.

MORTALITY

Harvest

The winter of 2003–04 appears to have had more favorable conditions for trapping, particularly in Subunit 9B, where the harvests of several species increased during that regulatory year. The winter of 2005–06 was cold and windy and was generally poor for trapping.

Season and Bag Limits. The beaver trapping season in Unit 9 was 10 November–31 March with no bag limit, and trappers in all of Unit 9 were allowed to take 2 beavers per day using firearms 15 April–31 May. Unit 10 was not open for beaver trapping. Harvests have declined dramatically since 867 were taken in 1987–88. Harvests averaged 171 beaver during the 1990s and 105 since 2000. The reduction in harvests during the 1990s was primarily attributed to reduced prices for beaver pelts, a high cost in both effort and expenses, and a diminished interest in trapping among village residents. Poor conditions for trapping and traveling have likely contributed to the more recent reductions in harvests. The harvest in 2002–03 (182 beaver) was the highest on record since 1994–95 (187 beaver). Beaver harvests averaged 82 during this reporting period (Table 1).

The coyote trapping season in Units 9 and 10 was 10 November–31 March with no bag limit. The coyote hunting season in these units was 1 September–30 April with a bag limit of two. Because sealing was not required for coyotes, no estimate of harvest is available.

The red fox and arctic fox trapping seasons in Units 9 and 10 were open 10 November–28 February with no bag limit. The red fox hunting season in both units was 1 September–15 February and the bag limit was two. The arctic fox hunting season in Unit 9 was 1 September–30 April with a 2-fox limit. In Unit 10 there was no closed hunting season and no bag limit for arctic fox. Sealing was not required for foxes, so no harvest estimates are available.

The lynx and marten trapping season in Unit 9 was 10 November–28 February with no bag limit for either species. The lynx hunting season in Unit 9 ran concurrent with the trapping season, but the bag limit was two. Unit 10 was not open for lynx or marten trapping or hunting. The lynx harvest reached a high of 51 lynx in 2003 as the result of increased take in Subunit 9B, but decreased to more typical levels in 2004 and 2005 (Table 1). Marten are not required to be sealed in Unit 9, so no harvest estimates are available.

The mink trapping season was 10 November–28 February in Units 9 and 10 with no bag limit, and the muskrat trapping season was 10 November–10 June with no bag limit. No harvest estimates are available for these species.

The otter trapping season in Units 9 and 10 was 10 November–31 March with no bag limit. Otter harvests remained high during this reporting period (Table 1), particularly in Subunit 9C, which accounted for 46% of the otter harvests. The increase corresponds with an increase in beaver harvest, but was undoubtedly influenced by the increase in fur prices offered for otter.

The trapping season for wolverines in Units 9 and 10 was from 10 November–28 February with no bag limit. The hunting season was 1 September–31 March with a bag limit of one. On average, 64 wolverines per year were taken from Unit 9 during 1974–94. Poor travel conditions and overall low fur prices reduced trapping effort. Since 2000 harvests have averaged 31

wolverine (range = 21–56 Table 1). There has not been a reported harvest of wolverines from Unit 10 since 1980.

Board of Game Actions and Emergency Orders. No Board of Game actions or emergency orders affected trapping or hunting of furbearers in Units 9 or 10 during this reporting period.

Permits. One permit was issued to trap beaver obstructing a road culvert on the FAA outer marker road in the Paul's Creek Drainage during the fall of 2005.

Trapper Residency and Success. Residents of communities in Unit 9 have taken 89% of the reported fur harvest in the Unit since 2000. Alaska residents from other areas and nonresidents accounted for 10% and 1% of the fur harvest, respectively.

For species with sealing requirements, an average of 16, 11, 24, and 19 trappers successfully took beaver, lynx, otter, and wolverine, respectively, during this reporting period. The average take per successful trapper of each species was 5 beavers, 3 lynx, 6 otters, and 2 wolverines.

Harvest Chronology. The harvest chronology should be viewed cautiously, because trappers do not always keep close track of when harvests occur. Annual variations in chronology usually reflect weather and travel conditions. January and February are typically the most important months for trapping (Table 2).

Transport Methods. Snowmachines and ATVs were the most common means of access for beaver, lynx, otter, and wolverine trappers (Table 3). Variation in the use of these two transportation methods between regulatory years was associated with differences in snow conditions between years.

Other Mortality

No confirmed cases of rabies were reported during this reporting period.

HABITAT

No formal habitat assessment programs were conducted in Unit 9. Habitat enhancement is not necessary or practical in this relatively inaccessible area.

CONCLUSIONS AND RECOMMENDATIONS

The furbearer harvests in Units 9 and 10 appeared to be low and relatively stable. Low fur prices, difficult travel conditions and large refugia in national parks have reduced harvests of most species below historic levels. Although population information was lacking, harvests of furbearers appeared below sustainable yield.

Harvest information was sufficient for management purposes for all species of furbearers requiring sealing in Unit 9. Harvest information for unsealed species, based on export and acquisition reports, was incomplete and potentially biased because of inaccurate unit coding by furbuyers and a lack of enforcement of fur export regulations. We have discontinued using these data.

Reports from trappers through both personal contact and trapper questionnaires provided a useful relative index to abundance and trend, but the number of responses per subunit was generally inadequate to detect local trends.

We lacked adequate field observations to augment harvest data and trapper questionnaires in evaluating population sizes and trends. New methodology for assessing lynx and wolverine population densities are under development in Interior Alaska, but may not be easily applied in Unit 9 because of typically poor snow conditions. Given the lack of techniques to assess population status for most species and the low level of trapping pressure in recent years, there is little impetus to intensify management or develop management objectives.

PREPARED BY:
Lem Butler
Wildlife Biologist II

SUBMITTED BY:
Gino Delfrate
Management Coordinator

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TABLE 1 Unit 9 beaver, lynx, otter and wolverine harvest, 2000–2006

Species	Regulatory Year	Reported Harvest							Method of Take			
		M	F	Unk.	Juvenile	Adults	Unk.	Total	Trap/Snare	Shot	Unk.	Total Trappers
Beaver	2000–01	0	0	95	22	70	3	95	84	11	0	16
	2001–02	0	0	105	39	49	17	105	77	27	1	20
	2002–03	0	0	182	37	135	10	182	161	19	2	24
	2003-04	0	0	74	10	64	0	74	69	5	0	14
	2004-05	0	0	103	29	73	1	103	81	1	21	16
	2005-06	0	0	70	20	50	0	70	69	1	0	18
Lynx	2000–01	0	0	33	2	31	0	33	33	0	0	7
	2001–02	0	0	34	1	20	13	34	34	0	0	8
	2002–03	0	0	35	0	31	4	35	35	0	0	7
	2003-04	0	0	51	0	51	0	51	51	0	0	15
	2004-05	0	0	28	1	26	1	28	28	0	0	8
	2005-06	0	0	22	0	18	4	22	20	1	1	10
Otter	2000–01	27	14	0	0	0	41	41	27	3	11	13
	2001–02	30	13	19	0	0	62	62	56	3	3	16
	2002–03	70	37	7	0	0	114	114	112	2	0	16
	2003-04	75	50	25	0	0	150	150	140	4	6	22
	2004-05	95	57	8	0	0	160	160	150	4	6	28
	2005-06	51	36	9	0	0	96	96	81	6	9	21
Wolverine	2000–01	17	2	2	0	0	21	21	19	2	0	10
	2001–02	15	7	1	0	0	23	23	15	8	0	16
	2002–03	18	8	0	0	0	26	26	22	4	0	12
	2003-04	38	17	1	0	0	56	56	47	5	4	24
	2004-05	19	5	2	0	0	26	26	25	1	0	15
	2005-06	24	6	1	0	0	31	31	28	3	0	18

TABLE 2 Unit 9 beaver, lynx, otter and wolverine harvest percent chronology by month, 2000–2006

Species	Regulatory Year	Harvest Periods						
		September-October	November	December	January	February	March	April-May
Beaver	2000–01	0	0	0	41	34	15	9
	2001–02	3	3	0	49	38	4	4
	2002–03	0	0	6	42	35	6	11
	2003-04	1	8	21	34	10	1	25
	2004-05	0	9	25	24	21	12	9
	2005-06	11	9	4	32	38	5	0
Lynx	2000–01	0	0	19	43	38	0	0
	2001–02	0	2	40	42	13	2	0
	2002–03	0	48	9	13	30	0	0
	2003-04	9	15	29	15	15	18	0
	2004-05	0	14	37	9	40	0	0
	2005-06	0	24	18	27	31	0	0
Otter	2000–01	0	8	15	34	22	21	0
	2001–02	0	0	13	32	23	32	0
	2002–03	0	0	60	17	20	3	0
	2003-04	0	2	29	39	23	8	0
	2004-05	0	14	19	46	14	7	0
	2005-06	0	7	19	19	43	11	0
Wolverine	2000–01	3	5	13	35	35	10	0
	2001–02	6	3	24	47	18	3	0
	2002–03	0	0	10	19	67	5	0
	2003-04	22	4	35	17	17	4	0
	2004-05	4	0	15	50	27	4	0
	2005-06	0	2	21	34	43	0	0

TABLE 3 Unit 9 beaver, lynx, otter and wolverine harvest percent by transportation method, 1998–2003

Species	Regulatory Year	Percent of Harvest							
		Airplane	Dogsled	Boat	3- or 4-Wheeler	Snowmachine	ORV	Highway Vehicle	Unk.
Beaver	2000–01	6	0	14	48	16	0	3	13
	2001–02	0	0	21	10	57	1	0	10
	2002–03	1	0	19	48	1	0	18	14
	2003-04	8	0	0	28	47	0	8	8
	2004-05	0	17	2	55	16	0	5	5
	2005-06	0	0	9	47	24	4	1	14
Lynx	2000–01	3	0	21	67	0	0	0	9
	2001–02	0	0	0	6	88	0	3	3
	2002–03	0	0	0	86	3	0	9	3
	2003-04	0	0	0	45	45	0	8	2
	2004-05	0	0	0	61	32	0	7	0
	2005-06	5	4	5	23	64	0	0	0
Otter	2000–01	0	0	2	20	22	0	10	46
	2001–02	0	0	0	29	66	2	0	3
	2002–03	9	0	9	46	0	11	16	9
	2003-04	2	0	3	34	39	1	9	11
	2004-05	4	0	5	38	23	0	21	9
	2005-06	0	0	2	40	8	1	32	17
Wolverine	2000–01	5	0	5	29	10	0	0	52
	2001–02	26	0	0	9	43	4	0	17
	2002–03	15	0	4	19	0	0	12	50
	2003-04	7	0	0	11	61	2	9	11
	2004-05	0	0	0	42	31	0	23	4
	2005-06	10	0	13	19	26	10	0	23

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
907-465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 11 (12,784 mi^2) and 13 (23,368 mi^2)

GEOGRAPHIC DESCRIPTION: Nelchina and Upper Susitna Rivers, Wrangell Mountains

BACKGROUND

Historic harvest data are limited for furbearers in Units 11 and 13 prior to the initiation of sealing requirements. Wolverine and beaver sealing became mandatory in 1971, followed by lynx and land otter in 1977. Before sealing began, fur buyer reports gave minimal information on harvests, and bounty records provided harvest data only on wolverines. Little research on furbearer populations has been conducted in either unit, and as a result, data pertaining to population densities, movements and distribution of furbearers are limited. Harvest records, reports by hunters and trappers, and field observations by department personnel are the main unit-specific historic sources of information concerning furbearer abundance.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVE

- Provide for an optimal harvest of furbearers consistent with sustained yield principles.

MANAGEMENT OBJECTIVES

- Maintain accurate annual harvest records based on sealing documents.
- Maintain indices of population trends using trapper questionnaires and track surveys.

METHODS

Beaver, lynx, river otter, and wolverine pelts were sealed, and trappers interviewed at the time of sealing to obtain harvest statistics for these species. Between 1992 and 2002, marten pelts were also sealed in subunit 13E. Recent trapper questionnaire results (Blejwas 2006) provided additional harvest and relative abundance information on both sealed and unsealed furbearers.

Yearly trends in lynx abundance were monitored by conducting track surveys within favorable lynx habitat in both Units 11 and 13. Twenty-six aerial transects (7 in Unit 11 and 19 in Unit 13) were established in 1988 for the purpose of conducting lynx track surveys on a yearly basis.

Standardized aerial transects each approximately 8 km long and 0.4 km wide, were flown in late winter.

Between 1995 and 1999, small mammals were trapped along the Richardson and Glenn highways near Glennallen, in an attempt to develop a population abundance index. The objective was to develop a small mammal abundance index and determine if this information could be used to predict furbearer abundance based on prey abundance. No obvious correlations between voles and furbearers were evident from this intensive trapping effort, therefore it was discontinued.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

Beavers are considered relatively abundant in both Units 11 and 13. Beaver cache surveys were not flown, though frequent field observations of beaver ponds and food caches along roadways, as well as those made during aerial big game surveys, suggest beaver numbers remain high. Trappers responding to the trapper questionnaire also consider beavers to be common to abundant on their lines and indicate current population levels are similar to those reported in previous trappers' surveys.

Land otters are common in both Units 11 and 13. Trapper questionnaire results also suggest most local trappers consider river otters to be common, but not abundant. Most trapper questionnaire respondents reported river otter numbers had not changed in recent years.

Based on the aerial lynx track survey index, other field observations, and sealing records, lynx numbers in Unit 11 and 13 have started to rebound from the low point in 2002-03. The lynx population appears to follow a 9- to 10-year cycle, with peaks in 1972, 1982, 1991, and 2000. Even though the lynx trapping season was closed for 3 years between 1987 and 1990, the next peak (1991–1992) was only moderate at best in Unit 11, and never fully developed in Unit 13. One likely factor was the low amplitude snowshoe hare peak. Through the next low (1993–1995), the lynx trapping season remained open annually for 30–45 days. Low lynx prices aided in keeping trapping pressure at a minimum. Based on the historic cycle, the snowshoe hare population was not expected to increase until 1997; instead, numbers began to increase between 1994 and 1995, boosting lynx reproduction. Between the 1995–96 and 2000–01 seasons, the lynx population steadily increased, and the combined harvest for both units increased nearly eight-fold. Minimal lynx track surveys were flown between 1998 and 2001, though the population likely peaked in 1999 or 2000. Aerial lynx track survey data indicate a low in 2002, and increasing numbers since then. Initial observations indicate the next peak may come as early as 2008.

In Units 11 and 13, hares have historically followed a 10-year cycle that has varied in amplitude. Hare peak amplitude was very high during the 1972 high, and lower during subsequent peaks, with the lowest being in 1989 and 1990. The most recent peak, between 1999 and 2001, was the highest since that observed in the early 1970s, as indicated by snowshoe hare pellet transect surveys conducted in Unit 11 by National Park Service staff (Mason Reid, unpublished data) and

subsequent lynx harvest. Pellet transect surveys showed that the hare population declined into a low phase by 2002 and 2003. Since 2004, the hare population has started to increase again. Hare numbers (and then lynx harvest) generally increase first in northern portions of Units 11 and 13, and then gradually increase down and across both units.

Wolverines are considered common in the more remote mountainous regions of Units 11 and 13, and remain relatively scarce at lower elevations. Between 1987 and 1995, density estimates within favorable wolverine habitat in moderate to high elevation areas of 13A and 13D ranged from 4.5-5.2 wolverine/1,000 km^2 (Becker and Van Daele 1988, Gardner and Becker 1991, Golden 1996). While trappers responding to the trapper questionnaire between 1996 and 2003 considered wolverines to be scarce, in 2004 the consensus was that wolverines were common. Observations in 2005 and 2006 indicated increasing numbers in moderately-high elevation areas of Units 11 and 13.

Marten numbers increased in both Units 11 and 13 during the mid 1980s, appeared to peak about 1988 and have been fluctuating annually since. Abundance estimates are developed from the trapper questionnaire and field observations. Marten trappers considered the species to be abundant in 1995, though only common between 1997 and 2004. Yearly fluctuations in marten numbers are thought to represent changes in production and/or survival of young due to food availability and stochastic weather, though trends are not fully understood. Field observations in 2001 and 2002 showed an abundance of red-backed voles throughout the Copper River Valley, though the summer of 2003 was very dry, and observations dropped off. The marten population appeared stable through this reporting period. Most recently, during the winter of 2006–07, increased sightings of marten tracks across the basin suggest that the population has increased. Abundant marten tracks were observed in subunit 13B within the Alphabet Hills Prescribed Burn Area (~40,000 acres burned in 2003 and 2004), and in subunit 13D and western Unit 11 while we flew lynx transect surveys (late March 2007), and by several local trappers throughout the 2006–07 winter.

Trappers reported coyotes to be common or abundant, depending on the habitat type trapped. Coyotes are relatively abundant throughout both Units 11 and 13, and are commonly found in river bottoms and creek drainages, as these appear to be favored habitat. Coyote family groups and small ‘packs’ have also been observed throughout both units dispersing into areas generally considered to be fox habitat. Small groups have been seen from valley bottoms, such as within the Copper River as well as along the West Fork of the Gulkana River, to higher elevation areas within sheep country in subunit 13D and in Unit 11. Coyote population trends are difficult to ascertain, though numbers are expected to increase in coming years. Since 2000, competition with wolves has likely declined in Unit 13 due to an ongoing predator management program. Additionally, the currently increasing number of snowshoe hares across Units 11 and 13 will likely lead to increased coyote productivity and survival (Krebs et al. 2001).

Foxes are found in both Units 11 and 13, from forested lowlands to alpine tundra. Trappers reported that fox numbers increased during the late 1990s and were considered abundant until 2000. Fox were considered common in 2001 and 2002, but scarce in 2003. Potential factors in the observed decline were the snowshoe hare low, as well as decreased numbers of ptarmigan (indicated by ADF&G breeding count data from subunit 13B). Though fox numbers remain low,

given the increasing snowshoe hare cycle, the fox population is expected to increase somewhat in the next couple of years.

Muskrats were abundant during the early 1980s in Units 11 and 13, but their numbers declined dramatically only a few years later. Trappers considered muskrats either not present or scarce on their lines during the mid 1990s. Since 1998, trappers have considered muskrats relatively common. The winter of 2002–03 had the highest muskrat population in over 20 years, based on the number of houses and pushups in many lakes and marshes, although that high seemed to last only a single year. During this reporting period, muskrat numbers have been variable, dependent on locality, but the overall population remains well below numbers seen in the 1980s.

Mink are common to abundant across the low-lying lake and marsh areas within Units 11 and 13, and numbers seem to be relatively stable.

Distribution and Movements

Lynx distribution follows that of the spruce forest habitat in both units. Lynx harvests have consistently been highest in subunits 13A, B and C along the Copper, Gulkana, Gakona and Chistochina rivers, and in 13D along the Klutina and Tonsina river drainages. Harvest remains low in 13E, and only occurs on the west side of the subunit, where habitat is suitable and easily accessible. Trappers on the east side of 13E are unable in many years to reach their traplines until the end of lynx season due to open rivers. The dispersal of marked lynx from both the Kenai Peninsula and Yukon Territory into Unit 13 suggests that lynx can disperse over long distances. It has also been observed, and supported by harvest data, that lynx numbers first increase in interior regions of the state, followed by increases in southcentral regions. Many lynx carcasses observed in the area during population lows have abundant fat deposits, indicating the ability certain lynx have to persist during adverse foraging conditions. It is likely that long-distance movements and dispersal of these lynx are an integral part of the lynx population cycle in Units 11 and 13.

Long-distance dispersal of radiocollared wolverines in Unit 13 has been reported by Gardner (1985) and Golden (1997). Gardner (1985) observed that movements declined during the fall but increased again in February with the dispersal of juveniles into vacant habitat. Wolverines are most abundant in mountainous habitats of the Chugach, Talkeetna, and Alaska ranges in Unit 13 and the Chugach and Wrangell mountains in Unit 11. Prior to the late 1970s, wolverines were reportedly more numerous near settlements and on the Lake Louise flats.

MORTALITY

Harvest

Seasons and Bag Limits. Between 1995 and 2000, the beaver trapping season in Unit 13 was 10 October–15 May, with no bag limit. Beginning in 2001, 2 weeks were added to the beginning of the season. In 2003, two additional weeks were added to the end of the season to allow for additional open water trapping. The current beaver trapping season in Unit 13 is 25 September–31 May. Between 1988 and 2004, the beaver trapping season in Unit 11 was 10 November–30 April, with a bag limit of 30 beavers per season. In 2005 the season was lengthened to May 31, and a take-by-firearm provision was added 15 April–31 May. In 2007, the opening season date

was changed to 25 September, the bag limit was eliminated, and the firearm provision was dropped due to lack of use. Beginning in 2007–08, the beaver trapping regulations will be the same for Units 11 and 13. Beaver can also be taken during the summer under the federal subsistence hunting season on federal lands in Unit 11, 1 June 1–10 October, and 15 June–10 September in Unit 13.

Coyote and river otter trapping seasons in Units 11 and 13 were 10 November–31 March, with no bag limit. The coyote hunting season was aligned with Interior Alaska game management units beginning 2003–04. The current hunting season dates in Units 11 and 13 are 10 August–30 April with a bag limit of 10 coyotes.

The fox trapping season in Units 11 and 13 was 10 November–28 February with no bag limit. The fox hunting seasons in Units 11 and 13 were aligned with Interior game management units beginning 2003–04, and run 1 September–15 March, with a bag limit of 10 foxes (no more than 2 may be taken prior to 1 October.

Since 1997, the trapping season for mink and weasels has been 10 November–28 February. Since 1992, the wolverine trapping season has been 10 November–31 January. The 2-wolverine bag limit was dropped in 1997. The wolverine hunting season runs 1 September–31 January, with a bag limit of 1 wolverine.

From 1997 to 2002, the marten trapping season in subunit 13E was 10 November–31 December, and marten had to be sealed. The remainder of Unit 13, and Unit 11, was 10 November–28 February, with no sealing requirement. In 2003, the sealing requirement for 13E was eliminated, and the season was aligned with the remainder of the unit.

From 2000 to 2002, the muskrat trapping season in Unit 11 and 13 was 10 November–10 June and there was no bag limit. In 2003, 45 days were added to the beginning of the season in Unit 13, aligning the beaver and muskrat trapping opening dates. The current trapping season in Unit 13 runs 25 September–10 June.

Historically, lynx trapping seasons have had no bag limit in either Unit 11 or 13. The season dates are set according to the lynx tracking harvest strategy (THS). Season lengths are adjusted during the various stages of the lynx cycle in an attempt to control the harvest. The lynx harvest objective under the THS is to reduce the catch of lynx after the beginning of the cyclic decline to keep the population from being pushed even lower by high harvests. When lynx are abundant and producing kittens, the season is lengthened. Reproduction is monitored by assessing the percentage of kittens in the harvest; in some years uterine tracts are collected and analyzed. Abundance is monitored by trapper questionnaires, harvest records, and track index surveys. These factors are used to determine season dates for the following year.

In 2001, during the last low lynx cycle, the trapping seasons were shortened to 1 December–31 January. Between 2002 and 2004, as lynx increased, the season was lengthened to 1 December–15 January. In 2005, the season was 1 December–31 January; in 2006 it was lengthened to 1 December–15 February. In 2007, the season will be 10 November through the end of February. Through 2004, the hunting season for lynx was 10 November–31 January; in 2005 it was lengthened to 10 November—28 February. The hunting bag limit was 2 lynx.

Hunter/Trapper Harvest. The beaver harvest in Unit 11 has fluctuated between 0 and 15 during the last 5 reporting seasons (Table 1). Historically, the highest harvest was 56 beaver, taken in 1985, but harvests have fluctuated appreciably between years. Recently, little effort has been made to trap beaver in Unit 11.

The beaver harvest in Unit 13 over this reporting period was variable, and has averaged 234 beaver per year over the past 5 years (Table 2). The final harvest of 360 beavers in 2002–03 was the highest annual harvest ever recorded. The last historic peak was during the 1986–87 and 1988–89 seasons, with reported catches of 333 and 300 beavers respectively. The percentage of kits in the harvest has ranged from 20% to 30% over the last 5 years (Table 2).

While harvests under the recently established summer federal subsistence hunting seasons on federal lands are low in Units 11 and 13, they are incorporated into state harvest records due to state sealing requirements.

Though muskrats are not sealed in Units 11 or 13, trapping pressure is variable year to year based on winter conditions. Seasons were extended 45 days in Unit 13 in 2003, though harvest has not likely increased significantly.

River otter harvests in Unit 11 varied from 2 to 6 during the last 5 years (Table 3). River otter harvests in this unit have historically been low, averaging fewer than 4 animals per year (range 0–12) since 1977. In Unit 13, the average reported harvest during the last 5 years was 39 otters (Table 4), up from the previous 5–year average of 24 otters per year. Since 1977 the annual harvest has averaged 30 otters (range 5–68) for Unit 13.

Between 1996 and 2001, the annual lynx harvest was moderately high in Units 11 and 13, with a combined annual average of 426 lynx. The highest lynx harvest ever recorded in Units 11 and 13 occurred in 2000, with 693 lynx sealed. Of the lynx sealed in Unit 13, kittens peaked at 43% in 1997 and dropped off through the high, bottoming out at 12% in 2001, just 1 year after the peak harvest. Harvests bottomed out in 2002. The harvest in Unit 11 remains low, mostly due to difficult access, and the percent kittens variable (Table 5). In Unit 13, the harvest has increased annually since 2002, as have the percent kittens in the harvest (Table 6). Initial observations suggest the lynx population may peak again in 2008. Preliminary harvest data for 2006–07 indicated 364 lynx were taken in Unit 11 and 13. This was a 92% increase from 2005–06.

The wolverine harvest has been low in Unit 11 since 1985, averaging 9 wolverines per year. During the 1997–98 season, 27 wolverine were harvested. Since then, the average has been only 8 per year (range 3–16 during the past 5 years; Table 7). The wolverine harvest in Unit 13 has also remained relatively stable since 1985, averaging 35 per year, and ranging from 16 in 1988 to a high of 53 in 2001. For the past 5 years the annual harvest has averaged 40 (Table 8), up slightly from the previous 5–year average of 36 wolverines. Males have consistently accounted for the majority of the harvest in both Units 11 and 13 (81% and 63% respectively between 2003 and 2005).

Harvest locations indicate the majority of wolverines are harvested from the foothills of the Chugach, Talkeetna, Alaska and Wrangell mountain ranges.

Marten harvest data are not directly available in Units 11 and 13, due to the lack of sealing requirements. Sealing of marten was required from 1992–2002 in subunit 13E, but has since been discontinued. The price paid by Alaska fur buyers dropped considerably on most furs in 1997, marten included. Lower prices led to drastic declines in the number of marten purchased by Alaska fur buyers as well as exported by individual Alaska trappers statewide (Blejwas 2006). The price for marten remained low until 2004, when prices more than doubled. Prices in 2005 and 2006 remained relatively strong. Marten continues to be the most economically important furbearer in Units 11 and 13. In 2004, subunit 13A had the second highest reported marten harvest in Southcentral, behind 16B (Blejwas 2006), which is largely indicative of the number of trappers with active lines in this subunit rather than overall abundance.

Hunter/Trapper Residency and Trapper Success. Interest in beaver trapping in Unit 11 has remained low; 1–3 trappers reported taking beaver during this reporting period. The interest has been low since the mid 1980s, when 13 and then 12 trappers reported taking beaver in 1985 and 1986. Harvest was low during this reporting period, though trapping, snaring and shooting were all reported in Unit 11 (Table 1). Most trappers who sealed beaver from Unit 11 were local residents. Interest in trapping beaver in Unit 13 has varied year to year, though the number of successful trappers averaged 30 over the past five years. Trapping and snaring were the most reported methods of take (Table 2; 87% of all beavers were taken with traps).

Only 1-4 trappers successfully harvested otter annually in Unit 11 in the last 5 years. The harvest and number of successful trappers in Unit 13 peaked in 1983 (68 otters, 24 trappers), then again in 1994 (61 otters, 26 trappers). An average of 19 trappers successfully harvested otter annually during the last 5 years in Unit 13, up from the previous 5-year average of 12. The average successful trapper caught 2.2 otters annually. Trapping and snaring were the most reported methods of take for otters in Units 11 and 13 (Tables 3 and 4 respectively). Trapping was responsible for 93% and 95% of all otter taken in Units 11 and 13 respectively.

In Unit 11 the number of successful lynx trappers dropped to only 2 during the low in 2002 and 2003. The number has slowly increased to 9 successful trappers in 2005, each catching an average of 4 lynx. In Unit 13 there were only 27 successful lynx trappers during the low in 2002. This number has since increased to 50 successful trappers in 2005, each catching an average of 3 lynx. The highest average catch rate per successful trapper was 11 lynx in 1997. The most commonly reported method of take for lynx in both Units 11 and 13 was trapping (Table 5 and 6), accounting for 91% and 83% of all lynx taken respectively.

Three to 8 trappers have successfully harvested wolverine in Unit 11 annually for the past 5 years. The number of trappers taking wolverine in Unit 11 has been relatively stable, averaging 7 per year since 1982. The catch per trapper is low and has fluctuated between 1 and 2 wolverine(s) per trapper over the last 20 years. During the past 5 years, an average of 25 trappers successfully harvested wolverine annually in Unit 13 (range 19-31). Similar to Unit 11, the average catch varies between 1 and 2 wolverine per trapper. In the past 5 years, an average of 88% of wolverines harvested in Unit 11 were trapped, with 7% shot, and 5% snared (Table 7). In Unit 13, 81% of wolverines harvested were trapped, with 10% shot, and 9% snared.

The trapper questionnaire had a 67% response rate for the most recent 2004–05 season. Trapping effort has been consistent in recent years; Southcentral trappers reported an average of 11 weeks

spent trapping. Those trappers who responded to the survey had an average of 11 years trapping their current lines, which averaged 29 miles in length. Most trappers averaged fewer than 100 sets on their main line; 14% reported setting more than 100 traps.

Comments received from the trapper questionnaire have often centered around concerns over recreational use of traditional trapping trails. Most trappers in this area have begun to focus more on the early part of the season in order to avoid trail conflicts. More recently, questionnaire comments have centered around trapping ethics. Many new trappers have moved onto established traplines (or currently trapped roadside areas). Also, many long-time trappers have refused to relinquish lines they no longer trap regularly.

This year's questionnaire included questions regarding the recent louse infestation of wolves in the Matanuska-Susitna valley and elsewhere. Trappers were very concerned about the spread of this louse to Unit 13. During the last reporting period, a wolf previously infested was trapped in Unit 11 following capture (and treatment) near Wasilla in 1999. In 2003–04, 6 confirmed lousy wolves were taken in subunit 13B near the West Fork of the Gulkana River (from packs of 9 and 3, and a single, all living in close proximity). The remaining wolves that were taken in the area that year were louse free. Two wolves were left in the immediate area at the end of the season. In 2004–05, only 1 confirmed lousy wolf was taken from subunit 13B, along the lower Gulkana River from a pack of six. No lousy wolves were taken in Unit 13 in 2005–06. In 2006–07, preliminary harvest results indicate 2 lousy wolves were taken, 1 in subunit 13A in Caribou Creek, and 1 in subunit 13D in the Matanuska River Valley. These incidents have created concern over the future of wolf management in the Copper River Basin. Trappers will have little incentive to trap wolves, and pilots will have less incentive to participate in control programs if lice become more prevalent in the area and the hides are of diminished value.

Harvest Chronology. In Unit 11, beaver harvests have been low and harvest chronology highly variable (Table 9). In Unit 13, chronology data indicate most beavers are taken early or late in the season, with few trappers expending much energy trying to take beavers between December and February, when trapping through the ice is most difficult (Table 10). Open water trapping early in the season has been popular, and is used by those collecting beaver meat for trapping bait and sled dog food. Since 2001–02, the 25 September opening has afforded trappers a longer open water season. Since 2001, 43% to 66% of beavers harvested in Unit 13 have been taken annually during this early period (September and October). The summer federal subsistence season has likewise added additional early season opportunity in recent years. Since 2001, up to 10% of the beaver harvest has been taken prior to August (Table 10). Much of the remaining harvest occurs during October; the annual average over the past 5 years in Unit 13 was 38% (Table 10). Harvest generally increases during the spring months reflecting the longer days, moderating temperatures and increasing pelt quality.

Similar to beaver, the otter harvest in Unit 11 is generally low and harvest chronology highly variable (Table 11). While the Unit 13 harvest chronology is generally variable, the months of December through February continue to be popular, the period averaging about 73% of the total harvest annually (Table 12). During 2002, 29% of the otters were harvested in November, and 16% in 2004 (Table 12). Late freeze-up and the abundance of open water in November during these years may have been partially responsible for the increased take.

Harvest chronology data for lynx in Unit 11 and 13 are included in Tables 13 and 14 respectively. Lynx harvest chronology data for both units generally reflect season dates more than any other factor. Since 2001, trapping has been open only during the months of December and January in both units. In 2006, the trapping season was lengthened to mid February. Preliminary data for 2006–07 shows that Unit 13 trappers caught 17% of their lynx in February; 32% of the Unit 11 lynx were caught in February. Beginning in 2007, the season will run from mid November through the end of February; this change is expected to affect the harvest chronology. While Unit 13 trappers will likely utilize the entire season length, the late freeze-up of large rivers such as the Copper River may keep trappers from accessing their lines in Unit 11 until midwinter.

Tables 15 and 16 present chronology data for Unit 11 and 13 wolverine harvest. Because the season is so short, the timing of the wolverine harvest generally reflects season dates and trapping conditions more than differences in trapping preference. Although the seasons open 10 November, and traps are often set at that time, wolverine trappers often go 2-3 weeks between checks, particularly when using Conibear-style traps. Often times the first line checks are done in early December; therefore, few wolverine are recorded being caught in November.

Transport Methods. Transportation methods are reported in Tables 17 through 24. The transport method most used by successful trappers during this reporting period was snowmachine. Beaver trappers in Unit 13 however, used a wide variety of transportation methods (Table 18). Other common transport methods reported this period were airplane, dog sleds, snowshoes, skis and highway vehicles.

CONCLUSIONS AND RECOMMENDATIONS

Estimates of trapping pressure and success in Unit 11 and 13 are compiled annually from the trapper questionnaire, sealing data and staff contact with trappers. Questionnaire responses indicated a fairly consistent average age of trappers (45 years of age) between 1994 and 2001. Since then, the average has increased slightly to 47 years of age. Although the average age of respondents has increased, the number of trappers taking a young person (under 16) along has remained between 40–50%. Other changes in the last few years include higher fur prices for marten, otter and lynx, as well as higher fuel prices.

Trapping in Southcentral has become more of a weekend/recreational activity, compared to the long-line/commercial activity seen during the 1970s and 1980s. Fur prices affect trapping effort less each year. While the steep drop in prices during the mid 1990s reduced trapping effort for a few years, the average number of weeks trapped by Southcentral trappers increased by 1998, and has averaged about 11 weeks since then.

In Southcentral much of the trapping effort occurs along the roadside (approximately 30%). This type of trapping does not allow for line establishment, and often results in trapper conflicts. The questionnaire respondents also indicate a growing number of unethical trappers in the field. The main complaint is new trappers setting on top of established trappers. While some of this activity is unintentional, most new trappers have limited time and are drawn to established trails, seismic lines, rivers and pond edges, which are often already considered part of someone else's trapline. These problems are exacerbated when trappers let their lines sit vacant for a year or two.

Furbearer populations in Unit 11 and 13 are considered healthy, and are experiencing normal fluctuations. The beaver harvest in Unit 13 increased in 2002 following adoption of a fall open water trapping period. The addition of two weeks in late May in 2003 had no effect. The harvest has since dropped back to the average observed prior to the changes. The seasons have been lengthened in Unit 11 as well, although trapping pressure is so low the additional opportunity has had little effect. In Alaska, average beaver prices have fluctuated between $17.50 and $45 between 1992 and 2004. The average price for beaver in 2004 was $35. Despite low prices, trappers still trap beaver for a variety of reasons. Some trappers have found markets for carcasses, and sometimes skulls. Beaver trapping continues to be an educational tool for young people as well. Beaver populations are considered healthy across Units 11 and 13. Trapping is not concentrated, with the possible exception of trapping around some highly visible roadside beaver colonies. Current harvest rates are considered sustainable.

Otter harvests in Unit 13 have fluctuated over the past 20 years, perhaps in part due to prices paid for pelts. As with other furs, there was a decline in harvest and price paid during the late 1990s, though in the past few years, harvest has risen slightly, and the price has rebounded to an average of $113 paid in 2004. Otter harvest in Unit 11 is extremely low, similar to beaver. Trapper reports and field observations suggest the current otter harvests are sustainable.

Lynx in these units have successfully been managed by the lynx THS since the late 1980s. Since the peak in the early 1970s, lynx highs in this area have had decreasing amplitudes. The most recent peak however, in 2000, was comparable to that in the early 1970s. It is unknown whether the high amplitude of the most recent peak was due to the THS, environmental conditions, or a combination of both. Regardless, the lynx population appears healthy, the cycle is on track and perhaps a year or two ahead of normal, and the current trapping pressure appears optimal. With lynx prices and population numbers increasing in recent years, trapper satisfaction with the THS should remain high.

Trapper reports and general observations suggest wolverine numbers are common in mountainous areas of Unit 11 and 13; however, numbers remain relatively low in forested habitats at lower elevations. Management actions during the early 1990s included shortening the season and setting a bag limit of 2 in an attempt to increase wolverine numbers at lower elevations. No change has since been detected in harvest or observation trends. The bag limit was eliminated in 1997, though the season has remained short. The wolverine harvest in Unit 13 has been stable and appears sustainable; no changes are recommended at this time. In Unit 11, the low harvest and the high percentage of males being taken by relatively few trappers suggests a longer season would be sustainable.

Marten are still considered the most important furbearer to individuals currently trapping in Units 11 and 13. Though pelt prices dropped by over 50% during the 1990s, they have recovered somewhat in recent years. Responses to the trapper questionnaire suggest marten numbers are currently common, given normal fluctuations in the food supply and predation. The season across Unit 13 was aligned and lengthened in 2003, making some interior habitats accessible to trappers late in the season. Current harvest levels for marten are considered to be sustainable and are largely dependent on localized trapping effort and the size of refugia between active traplines.

Recent fox harvests seem to be down across Units 11 and 13, due to fewer foxes being available and the low prices paid for pelts. As hares continue to increase, the abundance of both fox and coyote are expected to increase. The potential of expanding coyote populations has been cause for concern among hunters and trappers, particularly in reference to the effects on Dall sheep. Coyote predation is difficult to monitor, and high coyote populations are even more difficult to reduce. Extended hunting and trapping seasons allow for ample opportunities to take coyotes, although take is considered negligible. Between the difficulty in trapping/snaring coyotes, the reluctance of sheep hunters to shoot coyotes, and the low value of their pelts, the statewide coyote harvest is low and has been declining. The number of coyote pelts purchased by Alaska furbuyers combined with the number of pelts sent to auction by trappers has steadily declined over the last 10 years, hitting a low of 68 in 2004 (Blejwas 2006).

While muskrat, mink and weasels are common in Units 11 and 13, the harvest of all continues to be low and largely dependent on individual trapping efforts. Average prices paid by Alaska furbuyers in 2004 were $2.84, $14.26, and $3.15 respectively (Blejwas 2006). There were no overall population trends detected other than annual fluctuations in abundance for these species.

Although the cost of trapping has increased in recent years, trapping continues to be an important recreational activity in the Copper River Basin, and is still used by some to supplement annual income. Many trappers in Units 11 and 13 begin to pull sets by late January as recreational snowmachine activity increases. With increasing lynx and marten numbers, in addition to increasing fur prices, trappers may continue to trap through the end of the season during the next couple years. Competition for available roadside trapping areas, and existing trails will continue to be an issue for trappers in Unit 13. Responses to the trapping questionnaire indicate that trapping is still a popular activity in Southcentral, though many trappers have growing concerns with overcrowding. With more weekend trappers in the field now than in the past, trappers will need to be increasingly aware of others in order to avoid conflicts.

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PREPARED BY:

Rebecca A. Schwanke
Wildlife Biologist II

Bob W. Tobey
Wildlife Biologist III

SUBMITTED BY:

Gino DelFrate
Management Coordinator

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TABLE 1 Unit 11 beaver harvest, 2001-2005

Regulatory	Reported Harvest					Method of Take				
Year	Adult	Juv[a]	%[a]	Unk.	Total	Trap/snare	(%)	Shot	% Shot	Unk.
2001/02	2	0	0%	4	6	3	50%	3	50%	0
2002/03	0	0	0%	0	0	0	0%	0	0%	0
2003/04	7	0	0%	0	7	7	100%	0	0%	0
2004/05	15	0	0%	3	15	12	80%	3	20%	0
2005/06	1	0	0%	0	1	1	100%	0	0%	0

[a] Beaver < 52”

TABLE 2 Unit 13 beaver harvest, 2001-2005

Regulatory	Reported Harvest					Method of Take				
Year	Adult	Juv[a]	%[a]	Unk.	Total	Trap/snare	%	Shot	% Shot	Unk.
2001/02	148	51	26%	3	202	187	94%	13	6%	2
2002/03	240	104	30%	16	360	349	100%	1	0%	10
2003/04	136	46	25%	10	192	111	90%	13	10%	68
2004/05	115	28	20%	44	187	157	99%	1	1%	29
2005/06	165	63	28%	3	231	223	98%	5	2%	3

[a] Beaver < 52”

TABLE 3 Unit 11 otter harvest, 2001-2005

Regulatory	Reported Harvest					Method of Take				
Year	Males	%	Females	Unk.	Total	Trap/snare	%	Shot	% Shot	Unk.
2001/02	0	0%	1	1	2	1	100%	0	0%	0
2002/03	1	50%	1	0	2	2	100%	0	0%	0
2003/04	2	40%	3	0	5	5	100%	0	0%	0
2004/05	4	80%	1	1	6	2	67%	1	33%	3
2005/06	4	80%	1	0	5	5	100%	0	0%	0

TABLE 4 Unit 13 otter harvest, 2001-2005

Regulatory	Reported Harvest					Method of Take				
Year	Males	%	Females	Unk.	Total	Trap/snare	%	Shot	% Shot	Unk.
2001/02	21	81%	5	8	34	31	91%	3	9%	0
2002/03	15	68%	7	6	28	26	93%	2	7%	0
2003/04	24	51%	23	2	49	46	98%	1	2%	2
2004/05	27	73%	10	1	38	37	100%	0	0%	1
2005/06	26	59%	18	1	45	40	100%	0	0%	6

TABLE 5 Unit 11 lynx harvest, 2001-2005

Regulatory	Reported Harvest					Method of Take				
Year	Adult	Juv[a]	%[a]	Unk.	Total	Trap/snare	%	Shot	% Shot	Unk.
2001/02	28	3	10%	1	32	28	88%	4	13%	0
2002/03	1	1	50%	0	2	2	100%	0	0%	0
2003/04	6	0	0%	0	6	6	100%	0	0%	0
2004/05	5	0	0%	0	5	4	100%	0	0%	1
2005/06	23	12	34%	0	35	32	100%	0	0%	3

[a] Lynx < 35" in length.

TABLE 6 Unit 13 lynx harvest, 2001-2005

Regulatory	Reported Harvest					Method of Take				
Year	Adult	Juv[a]	%a	Unk.	Total	Trap/snare	%	Shot	% Shot	Unk.
2001/02	158	22	12%	15	195	161	85%	29	15%	5
2002/03	33	7	18%	2	42	37	88%	5	12%	0
2003/04	51	14	22%	7	72	64	89%	8	11%	0
2004/05	78	26	25%	1	105	101	96%	4	4%	0
2005/06	104	47	31%	4	155	123	95%	6	5%	26

[a] Lynx < 35" in length.

TABLE 7 Unit 11 wolverine harvest, 2001-2005

Regulatory	Reported Harvest						Method of Take				
Year	Males	(%)	Females	(%)	Unk.	Total	Trap/snare	(%)	Shot	% Shot	Unk.
2001/02	2	40%	3	60%	1	6	5	83%	1	17%	0
2002/03	2	67%	1	33%	0	3	3	100%	0	0%	0
2003/04	7	78%	2	22%	0	9	8	89%	1	11%	0
2004/05	13	81%	3	19%	0	16	16	100%	0	0%	0
2005/06	10	83%	2	17%	0	12	11	92%	1	8%	0

TABLE 8 Unit 13 wolverine harvest, 2001-2005

Regulatory	Reported Harvest						Method of Take				
	Males	(%)	Females	(%)	Unk.	Total	Trap/snare	(%)	Shot	% Shot	Unk.
2001/02	27	59%	19	41%	7	53	49	96%	2	4%	0
2002/03	12	50%	12	50%	1	25	23	92%	2	8%	0
2003/04	26	74%	9	26%	0	35	31	89%	4	11%	0
2004/05	26	60%	17	40%	0	43	32	74%	11	26%	0
2005/06	23	53%	20	47%	0	43	42	98%	1	2%	0

TABLE 9 Unit 11 beaver harvest chronology percent by month, 2001-2005

Regulatory	Harvest periods							
Year	October	November	December	January	February	March	April	*n*
2001/02[a]	--	17%	0%	0%	33%	17%	0%	6
2002/03	--	0%	0%	0%	0%	0%	0%	0
2003/04	--	57%	43%	0%	0%	0%	0%	7
2004/05[b]	--	7%	53%	20%	0%	0%	0%	15
2005/06	--	0%	0%	100%	0%	0%	0%	1

[a] Two (33%) were taken in June under Federal Subsistence Regulations.
[b] Three (20%) were taken in June under Federal Subsistence Regulations.

TABLE 10 Unit 13 beaver harvest chronology percent by month, 2001-2005

Regulatory	Harvest periods										
Year	August	September	October	November	December	January	February	March	April	May	*n*
2001/02	5%	7%	36%	12%	23%	2%	4%	3%	3%	6%	202
2002/03	0%	17%	49%	15%	12%	2%	2%	1%	1%	1%	360
2003/04	10%	5%	38%	12%	5%	2%	2%	3%	8%	15%	192
2004/05	0%	16%	44%	18%	9%	1%	5%	8%	0%	0%	187
2005/06	0%	28%	25%	10%	5%	2%	1%	7%	7%	15%	230

TABLE 11 Unit 11 otter harvest chronology percent by month, 2001-2005

Regulatory	Harvest periods						
Year	November	December	January	February	March	April	*n*
2001/02	0%	0%	0%	100%	0%	0%	1
2002/03	0%	50%	0%	50%	0%	0%	2
2003/04	0%	80%	0%	0%	20%	0%	5
2004/05	50%	0%	17%	33%	0%	0%	6
2005/06	20%	20%	0%	40%	20%	0%	5

TABLE 12 Unit 13 otter harvest chronology percent by month, 2001-2005

Regulatory	Harvest periods						
Year	November	December	January	February	March	April	*n*
2001/02	3%	24%	35%	29%	3%	6%	34
2002/03	29%	36%	18%	11%	7%	0%	28
2003/04	6%	21%	17%	33%	23%	0%	48
2004/05	16%	24%	21%	18%	21%	0%	38
2005/06	9%	11%	39%	26%	15%	0%	46

TABLE 13 Unit 11 lynx harvest chronology percent by month, 2001-2005

Regulatory	Harvest Periods				
Year	November	December	January	February	*n*
2001/02	0%	69%	28%	3%	62
2002/03	0%	50%	50%	0%	2
2003/04	0%	50%	50%	0%	6
2004/05	0%	60%	40%	0%	5
2005/06	0%	44%	56%	0%	35

TABLE 14 Unit 13 lynx harvest chronology percent by month, 2001-2005

Regulatory	Harvest Periods				
Year	November	December	January	February	*n*
2001/02	7%	52%	38%	3%	195
2002/03	2%	55%	43%	0%	42
2003/04	3%	47%	47%	3%	72
2004/05	1%	57%	42%	0%	105
2005/06	3%	42%	54%	0%	155

TABLE 15 Unit 11 wolverine harvest chronology percent by month, 2001-2005

Regulatory	Harvest Periods					
Year	November	December	January	February	March	*n*
2001/02	0%	0%	100%	0%	0%	6
2002/03	0%	0%	100%	0%	0%	3
2003/04	25%	0%	63%	13%	0%	9
2004/05	0%	31%	69%	0%	0%	16
2005/06	0%	42%	58%	0%	0%	12

TABLE 16 Unit 13 wolverine harvest chronology percent by month, 2001-2005

Regulatory	Harvest periods							
Year	September	October	November	December	January	February	March	*n*
2001/02	0%	0%	4%	45%	49%	2%	0%	51
2002/03	4%	0%	4%	20%	72%	0%	0%	25
2003/04	3%	0%	3%	34%	57%	3%	0%	35
2004/05	12%	0%	9%	26%	53%	0%	0%	43
2005/06	0%	0%	2%	35%	58%	5%	0%	43

TABLE 17 Unit 11 beaver harvest percent by transport method, 2001-2005

	Percent of Harvest							
Regulatory Year	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2001/02	0%	0%	0%	50%	0%	0%	50%	6
2002/03	0%	0%	0%	0%	0%	0%	0%	0
2003/04	0%	57%	0%	0%	43%	0%	0%	7
2004/05	0%	0%	0%	0%	80%	0%	20%	15
2005/06	0%	0%	0%	0%	100%	0%	0%	1

TABLE 18 Unit 13 beaver harvest percent by transport method, 2001-2005

	Percent of Harvest							
Regulatory Year	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2001/02	2%	30%	8%	13%	20%	5%	23%	202
2002/03	0%	4%	39%	14%	15%	0%	28%	360
2003/04	0%	6%	10%	12%	33%	0%	39%	192
2004/05	3%	7%	21%	14%	31%	3%	22%	187
2005/06	7%	11%	12%	13%	17%	0%	40%	231

TABLE 19 Unit 11 otter harvest percent by transport method, 2001-2005

	Percent of Harvest							
Regulatory Year	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2001/02	0%	0%	0%	0%	0%	0%	0%	1
2002/03	0%	0%	0%	0%	100%	0%	0%	2
2003/04	0%	80%	0%	0%	0%	0%	20%	5
2004/05	0%	33%	0%	0%	67%	0%	0%	6
2005/06	20%	0%	0%	0%	80%	0%	0%	5

TABLE 20 Unit 13 otter harvest percent by transport method, 2001-2005

	Percent of Harvest							
Regulatory Year	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2001/02	24%	6%	0%	0%	56%	3%	12%	34
2002/03	7%	0%	0%	7%	64%	0%	21%	28
2003/04	6%	2%	0%	0%	66%	0%	26%	49
2004/05	0%	0%	0%	0%	81%	0%	19%	38
2005/06	3%	3%	5%	3%	80%	5%	3%	46

TABLE 21 Unit 11 lynx harvest percent by transport method, 2001-2005

	Percent of Harvest							
Regulatory Year	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2001/02	0%	0%	0%	0%	81%	0%	19%	32
2002/03	0%	0%	0%	0%	100%	0%	0%	2
2003/04	0%	33%	0%	0%	67%	0%	0%	6
2004/05	0%	20%	0%	0%	80%	0%	0%	5
2005/06	0%	0%	0%	0%	100%	0%	0%	35

TABLE 22 Unit 13 lynx harvest percent by transport method, 2001-2005

	Percent of Harvest							
Regulatory Year	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2001/02	0%	10%	1%	1%	65%	1%	23%	195
2002/03	0%	0%	7%	0%	83%	0%	10%	42
2003/04	0%	0%	0%	1%	78%	0%	20%	72
2004/05	1%	4%	0%	2%	86%	0%	7%	105
2005/06	0%	2%	0%	2%	83%	0%	14%	155

TABLE 23 Unit 11 wolverine harvest percent by transport method, 2001-2005

	Percent of Harvest							
Regulatory Year	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2001/02	17%	0%	0%	0%	83%	0%	0%	6
2002/03	0%	0%	0%	0%	100%	0%	0%	3
2003/04	0%	22%	0%	11%	56%	11%	0%	9
2004/05	6%	13%	0%	0%	81%	0%	0%	16
2005/06	0%	0%	0%	0%	100%	0%	0%	12

TABLE 24 Unit 13 wolverine harvest percent by transport method, 2001-2005

	Percent of Harvest							
Regulatory Year	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2001/02	6%	8%	0%	0%	76%	0%	10%	51
2002/03	9%	5%	0%	5%	77%	0%	5%	25
2003/04	14%	0%	0%	0%	83%	0%	3%	35
2004/05	12%	2%	0%	5%	67%	2%	12%	43
2005/06	7%	2%	0%	0%	86%	0%	5%	42

Percentages in these tables reflect known information only. Unknown numbers are excluded from percentage calculations.

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 PO Box 115526
Juneau, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006[1]

LOCATION

GAME MANAGEMENT UNITS: 12 (10,000 mi^2) and 20E (11,000 mi^2)

GEOGRAPHIC DESCRIPTION: Upper Tanana, White, Upper Yukon, Fortymile, Ladue, and Charley River drainages

BACKGROUND

Historically, furbearer trapping has been an important part of the economy in eastern Interior Alaska. Between the early 1900s and 1920, trapping supplemented income of miners and Alaska Natives. The gold rush ended during the 1920s and most of the miners moved out of the Fortymile area. However, trapping still augmented incomes for many area residents. Today, the economy of the area is primarily seasonal. Trapping continues to provide for subsistence use and additional income for local residents. However, trapping effort varies greatly depending on fur prices and species abundance.

Marten and lynx are the most economically important furbearers in Units 12 and 20E. During population highs, muskrats are also economically and culturally important in Unit 12. Beavers are an important subsistence resource to Northway residents but are lightly trapped in most of the area. Little trapping effort is spent on coyotes, red foxes, mink, river otters, ermine, red squirrels, and wolverines because of low pelt values, low abundance, or difficulty and expense of trapping. Wolves are discussed in a separate management report.

MANAGEMENT DIRECTION

MANAGEMENT GOALS

- Provide for an optimal harvest of furbearers.
- Provide the greatest opportunity to participate in hunting and trapping furbearers.

[1] At the discretion of the reporting biologist, this unit report may contain data collected outside the report period.

MANAGEMENT OBJECTIVES

- Maintain accurate annual harvest records based on sealing documents.

- As new research and management findings become available, develop specific population and harvest objectives for furbearers.

METHODS

We collected harvest data for lynx, river otter, and wolverine by requiring trappers to have their furs sealed. Additional information collected at the time of sealing included: trapper name; harvest location; harvest date; pelt measurements for lynx and river otter; sex of the furbearer; method of take; and method of transportation used. Annual harvest estimates for river otter included a subjective estimate of unreported take because some pelts were used in the trappers' homes and were not sealed. Harvest data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY03 = 1 Jul 2003 through 30 Jun 2004).

We mailed questionnaires to trappers in Units 12 and 20E through the Statewide Furbearer Management Program. Trappers were asked to rate species abundance as scarce, common, or abundant and population trends based on field observations along their traplines.

We purchased lynx carcasses from trappers for $10 each during RY03 and RY04. Carcasses were kept frozen until they could be examined to determine age, sex, body condition and reproductive status of females. This information was used to help assess lynx population trends by evaluating age structure, pregnancy rate, and body condition of harvested lynx.

During 1995–1997 and 2002–2003, lynx and snowshoe hare population trends were monitored using an aerial survey technique (M. McNay, ADF&G, unpublished data).

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Lynx

Based on track surveys, harvest data (Tables 1 and 2), lynx necropsy, and comments from area trappers, the last lynx population cyclic high in Units 12 and 20E occurred during 1997–1999. Years of high kitten production corresponded with years of high snowshoe hare numbers. Aerial track count surveys in 2003–2004 resulted in 0.19 lynx tracks/mile (unchanged from 2002–2003 survey) and 1.08 hare tracks/mile (a 280% increase from 2002–2003). Along with the low percentage of juveniles in the harvest (Tables 1 and 2), track surveys indicate that lynx numbers were at a low in their cycle during RY03. This is supported by necropsy data from lynx carcasses purchased from trappers. In RY02 we purchased 16 carcasses (7 adult females, 9 adult males). One female (14%) had recent placental scars. In RY03 we purchased 5 lynx carcasses (4 adult females, 1 adult male). Two females (50%) had recent placental scars, although the small sample size makes it difficult to make assumptions regarding the pregnancy rate. No kitten carcasses were available in RY02 and RY03. In RY04 we purchased 59 lynx carcasses (16 adult females, 22 adult males, 21 kittens). Six females (38%) had recent placental scars. These data, in

combination with an increase in lynx harvest, and a large increase in the percentage of juvenile lynx in the harvest, indicate that the lynx population was increasing in RY04 and RY05.

Wolverine, Marten, Red Fox, Muskrat, Coyote, and Beaver

Historically in Units 12 and 20E, marten trapping contributed most of the income for area trappers. Information from trapper questionnaires and trapper interviews indicated marten remained the most economically important furbearer in Units 12 and 20E during RY03–RY05 and many trappers increased marten trapping efforts due to increased fur value. Furbearer populations vary annually in Units 12 and 20E depending on numerous factors, including weather patterns; quantity, quality, and interspersion of habitat in various successional stages; avian predation; and availability of food. Information from interviews with trappers indicates wolverine, red fox, coyote and beaver populations were stable at moderate-to-high levels, while marten declined to moderate-to-low numbers during RY03–RY05.

Other Species

Trapper questionnaire results and observations by area pilots and department personnel indicated that river otters were scarce in both Units 12 and 20E during RY03–RY05, and ermine and mink were common and stable. Red squirrels were also reported to be abundant in both units. There was little trapper demand for these species. Trappers also were asked about prey species. During RY03–RY05, respondents listed hares as common and increasing, ptarmigan as scarce, grouse as common, and microtines as common to abundant.

MORTALITY

Harvest

Seasons and Bag Limits. Seasons and bag limits for the report period are presented in Table 3.

Alaska Board of Game Actions and Emergency Orders.

Lynx — The Alaska Board of Game adopted a regulation in spring 1992 that allowed the department to annually set the lynx season independent of the board process for Units 12, 20, and 25C. This action enhanced our ability to apply the lynx tracking harvest strategy (Stephenson 1988) that was adopted as board policy in 1987. This strategy was designed to protect lynx populations during the low part of the population cycle to allow for a more rapid and larger growth phase. Lynx trapping seasons were adjusted annually by emergency orders issued by the department after evaluating current lynx and snowshoe hare population trends as part of the lynx harvest tracking system. In spring 2004 the Board of Game adopted a proposal by local residents to discontinue use of the lynx harvest tracking strategy in Units 12 and 20E. Because few people targeted lynx, they believed that harvest would not adversely affect the lynx population, even when the lynx population is at cyclic lows. This action maintains the lynx season at 1 November–28 February each year, regardless of the lynx cycle. The bag limit remained at 5 lynx during November and no bag limit during the remainder of the season.

Beaver — In January 2002 the Board of Game adopted a regulation that no longer required beavers to be sealed after 1 July 2002. At the March 2002 meeting, the board lengthened the beaver trapping season to 20 September–15 May, with a limit of 15 beavers in Unit 12 and 25

beavers in Unit 20E, and specified that during 20 September–31 October and 16 April–15 May only, firearms could be used to take up to 6 beaver per regulatory year if the meat was salvaged for human consumption.

Hunter–Trapper Harvest.

Lynx — During RY03–RY05, the lynx harvest increased from 30 to 113 in Unit 12 (Table 1) and 6 to 89 in Unit 20E (Table 2). Based on pelt measurements, the percentage of kittens in the harvest was 6–18% in Unit 12 and 0–45% in Unit 20E. During RY03 the season in Units 12 and 20E remained open through 31 January, but in RY04 ended 31 December, in accordance with the lynx tracking strategy (Table 3). In RY05 the season was again lengthened to 28 February (Table 3) when the lynx tracking strategy was eliminated from these units. Annual harvest chronology was dependent on season timing and length, and during RY03–RY05 the greatest harvest occurred during December and January in both units (Tables 4 and 5).

Wolverine — During RY03–RY05 the wolverine harvest was 12–26 ($\bar{x}$ = 21.3*)* in Unit 12 and 3–7 ($\bar{x}$ = 5*)* in Unit 20E (Tables 1 and 2). The Unit 12 harvest was average, while the Unit 20E harvest was slightly below average compared to the long-term (RY86–RY05) average annual harvests of 19 and 7 respectively.

Beaver — Sealing requirements for beaver were eliminated in RY02; therefore no harvest data are available for RY03–RY05 (Table 1). Beaver harvest in Units 12 and 20E was historically low (Gross 2004). Most harvest in Unit 12 occurred near Northway, while in Unit 20E most harvest occurred along the Yukon River by residents of Eagle who use beaver as food and for making handicrafts.

River Otter — River otter populations in both Units 12 and 20E were low due to a lack of suitable habitat. Trappers seldom selected for river otters due to low fur prices and the difficulty of catching them. During the past 10 years, an average of 6.4 river otters were taken annually in Unit 12 (Table 1), while a total of 1 river otter was trapped in Unit 20E (Table 2).

Method of Take.

Most trappers (97%) used traps or snares as their primary method of harvesting furbearers in Units 12 and 20E during RY03–RY05 (Tables 1 and 2).

Transport Methods.

Most trappers (85%) used snowmachines as their primary form of transportation to access all furbearer species in Units 12 and 20E during RY03–RY05 (Tables 6 and 7).

Other Mortality

Rates of natural mortality were unknown for furbearers in Units 12 and 20E.

HABITAT

Assessment and Enhancement

Prior to the mid 1990s, 30 years of strict fire suppression activities in Units 12 and 20E created an older, less diverse mosaic of habitats than would have existed under a natural fire regime. Lack of early- to medium-aged seral habitats may have limited snowshoe hare and microtine numbers, and ultimately, lynx, marten, and other species. Since 1995, fire suppression activities have declined and 3 prescribed burns were accomplished, resulting in large areas of early- to medium-aged seral habitats in Unit 20E. Incidental sightings and trapping records indicate that snowshoe hare and lynx numbers were higher in these areas compared to the remainder of Unit 20E. Past logging operations occurred in various areas in Unit 12, and the Department of Natural Resources (DNR) plans to log more than 1000 acres in the Tok River valley over the next 10 years. ADF&G/Division of Wildlife Conservation is working with DNR/Division of Forestry to plan post-logging treatment to promote wildlife habitat regeneration that should benefit furbearers.

The *Alaska Interagency Fire Management Plan* for the upper Tanana area currently guides wildfire suppression activities. Under this plan, a more natural fire regime will occur in the area resulting in greater habitat heterogeneity. All land management agencies agreed to the plan. Having a more diverse mosaic of habitats should benefit all furbearer species.

CONCLUSIONS AND RECOMMENDATIONS

The furbearer management objective to maintain accurate annual harvest records based on sealing documents was met during RY03–RY05. We also monitored population trends and harvest through sealing selected furs, conducting trapper surveys and interviews, conducting the annual lynx and hare track surveys and by examining lynx carcasses and reproductive tracts from lynx purchased from trappers. During RY03–RY05 no new research or management findings were available to develop specific population or harvest objectives for furbearers.

Overall trapping effort was not directly measured. However, information collected from sealing data, trapper questionnaires, and discussions with area trappers indicated that trapping effort may have increased during RY03–RY05 compared to RY00–RY02. This is probably due to increased prices for marten and lynx.

Lynx numbers and harvest began to increase in Units 12 and 20E following the cyclic low in RY03. Lynx pelt prices increased and were adequate for most trappers. In combination with the upswing of the lynx cycle, increased lynx pelt prices could begin to influence trapper effort in the next few years if the trend continues. Since the lynx harvest strategy will no longer be conducted in Units 12 and 20E, with the longer lynx season in combination with the upswing of the lynx cycle, I expect the lynx harvest to further increase during the next report period. This increased harvest is not expected to be detrimental to the lynx population and I recommend no regulatory change.

Wolverine harvest was low, with the majority harvested by a few area trappers who selected for wolverine due to their high market value relative to other furbearer species. Wolverine harvest is

currently low and the amount of refugia is high and I recommend no change in wolverine management.

Marten were the most sought after furbearer in both units. High marten prices in RY03–RY05 probably caused an increase in effort compared to RY00–RY02. Marten harvest varied among individual trappers and was proportional to local marten abundance along individual traplines and trapper effort. Ratios of adults to juveniles and males to females indicate that marten harvest is not limiting and I recommend no regulatory changes.

All other furbearer populations fluctuated within their historic levels and do not warrant changes in seasons and bag limits or methods and means.

Management objective and activities for the next report period will be:

MANAGEMENT OBJECTIVE

- Maintain viable populations of furbearers that will support annual hunting and trapping harvest.

MANAGEMENT ACTIVITY

- Monitor furbearer population trends and annual harvests of furbearers using sealing documents, fur acquisition reports, fur export reports, trapper questionnaires, and trapper interviews.

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PREPARED BY:

Anthony L. Hollis
Wildlife Biologist I

SUBMITTED BY:

Doreen I. Parker McNeill
Assistant Management Coordinator

REVIEWED BY:

Jeffrey A Gross
Wildlife Biologist III

Craig L. Gardner
Wildlife Biologist III

Laura A. McCarthy
Publications Technician II

Please cite any information taken from this section, and reference as:

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TABLE 1 Unit 12 lynx, river otter, and wolverine harvest, regulatory years 1997–1998 through 2005–2006

Species/ Regulatory year	Reported harvest						Estimated harvest		Method of take				Total harvest	Successful trappers/ hunters
	Sex			Age										
	M	F	Unk	Juv	Adults	Unk	Unreported	Illegal	Trap/snare	Shot	L&S[a]	Unk		
Lynx														
1997–1998	0	0	353	103	233	17	0	0	351	2	0	0	353	37
1998–1999	0	0	324	73	237	14	0	0	319	5	0	0	324	28
1999–2000	0	0	221	42	179	0	0	0	216	5	0	0	221	33
2000–2001	0	0	171	27	126	18	0	0	103	28	0	40	171	38
2001–2002	0	0	88	10	65	13	0	0	79	9	0	0	88	36
2002–2003	0	0	27	0	27	0	0	0	25	2	0	0	27	16
2003–2004	0	0	30	2	28	0	0	0	26	3	0	1	30	11
2004–2005	0	0	98	18	79	1	0	0	90	5	0	3	98	16
2005–2006	0	0	113	26	87	0	0	0	107	6	0	0	113	20
River Otter														
1997–1998	0	0	1	0	0	1	3	0	1	0	0	0	4	1
1998–1999	0	0	5	0	0	5	3	0	4	1	0	0	8	3
1999–2000	4	0	0	0	0	4	3	0	4	0	0	0	7	4
2000–2001	2	1	0	0	0	3	3	0	3	0	0	0	6	3
2001–2002	1	1	0	0	0	2	3	0	2	0	0	0	5	1
2002–2003	3	2	0	0	0	5	3	0	5	0	0	0	8	2
2003–2004	0	0	1	0	0	1	3	0	1	0	0	0	4	1
2004–2005	5	1	0	0	0	6	3	0	6	0	0	0	9	4
2005–2006	2	0	0	0	0	2	3	0	2	0	0	0	5	2
Wolverine														
1997–1998	13	4	1	0	0	18	0	0	18	0	0	0	18	11
1998–1999	18	8	0	0	0	26	0	0	24	2	0	0	26	15
1999–2000	17	12	1	0	0	30	0	0	27	3	0	0	30	13
2000–2001	18	9	0	0	0	27	0	0	26	1	0	0	27	15
2001–2002	16	4	1	0	0	21	0	0	20	1	0	0	21	13
2002–2003	13	3	0	0	0	16	0	0	16	0	0	0	16	12
2003–2004	9	3	0	0	0	12	0	0	10	2	0	0	12	8
2004–2005	15	11	0	0	0	26	0	0	23	3	0	0	26	14
2005–2006	18	7	1	0	0	26	0	0	22	4	0	0	26	14

[a] L&S (land and shoot) refers to animals taken by hunters the same day hunters were airborne.

TABLE 2 Unit 20E lynx, river otter, and wolverine harvest, regulatory years 1997–1998 through 2005–2006

Species/ Regulatory year	Reported harvest						Estimated harvest		Method of take				Total harvest	Successful trappers/ hunters
	Sex			Age										
	M	F	Unk	Juv	Adults	Unk	Unreported	Illegal	Trap/snare	Shot	L&S[a]	Unk		
Lynx														
1997–1998	0	0	102	25	77	0	0	0	102	0	0	0	102	12
1998–1999	0	0	116	18	98	0	0	0	111	3	0	2	116	16
1999–2000	0	0	82	18	54	10	0	0	77	5	0	0	82	19
2000–2001	0	0	74	4	44	26	0	0	54	2	0	18	74	12
2001–2002	0	0	56	4	52	0	0	0	39	7	0	10	56	16
2002–2003	0	0	18	2	16	0	0	0	17	1	0	0	18	5
2003–2004	0	0	6	0	6	0	0	0	6	0	0	0	6	3
2004–2005	0	0	22	10	12	0	0	0	22	0	0	0	22	5
2005–2006	0	0	89	10	79	0	0	0	89	0	0	0	89	10
River Otter														
1997–1998[b]														
1998–1999[b]														
1999–2000[b]														
2000–2001	0	0	0										0	0
2001–2002	0	0	0										0	0
2002–2003	0	0	0										0	0
2003–2004	1	0	0	0	0	1	0	0	1	0	0	0	1	1
2004–2005[b]														
2005–2006[b]														
Wolverine														
1997–1998	4	0	4	0	0	8	0	0	8	0	0	0	8	6
1998–1999	6	1	0	0	0	7	0	0	5	2	0	0	7	5
1999–2000	2	1	0	0	0	3	0	0	3	0	0	0	3	3
2000–2001	8	1	2	0	0	11	0	0	10	1	0	0	11	7
2001–2002	3	1	1	0	0	5	0	0	5	0	0	0	5	3
2002–2003	3	1	0	0	0	4	0	0	4	0	0	0	4	3
2003–2004	3	0	0	0	0	3	0	0	3	0	0	0	3	3
2004–2005	4	3	0	0	0	7	0	0	4	3	0	0	7	7
2005–2006	5	0	0	0	0	5	0	0	5	0	0	0	5	3

[a] L&S (land and shoot) refers to animals taken by hunters the same day hunters were airborne.

[b] No reported harvest.

TABLE 3 Furbearer trapping and hunting seasons in Units 12 and 20E, regulatory years 2003–2004 through 2005–2006

Species/	Trapping		Hunting	
Regulatory year	Trapping season	Bag limit	Hunting season	Bag limit
Beaver				
2003–2004	1 Nov–15 Apr	15 in Unit 12; 25 in Unit 20E	No open season	
	20 Sep–31 Oct 16 Apr–15 May	Firearms may be used to take up to 6 per regulatory year with a valid trapping license.		
2004–2005	1 Nov–15 Apr	15 in Unit 12; 25 in Unit 20E.	No open season	
	20 Sep–31 Oct 16 Apr–15 May	Firearms may be used to take up to 6 per regulatory year with a valid trapping license.		
2005–2006	1 Nov–15 Apr	15 in Unit 12; 25 in Unit 20E.	No open season	
	20 Sep–31 Oct 16 Apr–15 May	Firearms may be used to take up to 6 per regulatory year with a valid trapping license.		
Coyote				
2003–2004	15 Oct–30 Apr	No limit	1 Sep–30 Apr	10
2004–2005	15 Oct–30 Apr	No limit	1 Sep–30 Apr	10
2005–2006	15 Oct–30 Apr	No limit	10 Aug–30 Apr	10
Lynx				
2003–2004	1 Nov–30 Nov	5	1 Nov–15 Mar	2
	1 Dec–31 Jan	No limit		
2004–2005	1 Nov–30 Nov	5	1 Nov–15 Mar	2
	1 Dec–31 Dec	No limit		
2005–2006	1 Nov–30 Nov	5	1 Nov–15 Mar	2
	1 Dec–28 Feb	No limit		
Marten				
2003–2004	1 Nov–28 Feb	No limit	No open season	
2004–2005	1 Nov–28 Feb	No limit	No open season	
2005–2006	1 Nov–28 Feb	No limit	No open season	

Species/	Trapping		Hunting	
Regulatory year	Trapping season	Bag limit	Hunting season	Bag limit
Mink				
2003–2004	1 Nov–28 Feb	No limit	No open season	
2004–2005	1 Nov–28 Feb	No limit	No open season	
2005–2006	1 Nov–28 Feb	No limit	No open season	
Muskrat				
2003–2004	20 Sep–10 Jun	No limit	No open season	
2004–2005	20 Sep–10 Jun	No limit	No open season	
2005–2006	20 Sep–10 Jun	No limit	No open season	
River Otter				
2003–2004	1 Nov–15 Apr	No limit	No open season	
2004–2005	1 Nov–15 Apr	No limit	No open season	
2005–2006	1 Nov–15 Apr	No limit	No open season	
Red Fox				
2003–2004	1 Nov–28 Feb	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
2004–2005	1 Nov–28 Feb	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
2005–2006	1 Nov–28 Feb	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
Red Squirrel				
2003–2004	No closed season	No limit	No closed season	No limit
2004–2005	No closed season	No limit	No closed season	No limit
2005–2006	No closed season	No limit	No closed season	No limit
Weasel (Ermine)				
2003–2004	1 Nov–28 Feb	No limit	No open season	
2004–2005	1 Nov–28 Feb	No limit	No open season	
2005–2006	1 Nov–28 Feb	No limit	No open season	
Wolverine				
2003–2004	1 Nov–28 Feb	No limit	1 Sep–31 Mar	1
2004–2005	1 Nov–28 Feb	No limit	1 Sep–31 Mar	1
2005–2006	1 Nov–28 Feb	No limit	1 Sep–31 Mar	1

TABLE 4 Unit 12 lynx, river otter, and wolverine reported harvest[a] chronology by month, regulatory years 1997–1998 through 2005–2006

Species/	Harvest chronology by month							
Regulatory year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unknown
Lynx								
1997–1998	0	1	97	161	94	0	0	
1998–1999	0	3	71	109	141	0	0	
1999–2000	0	1	34	95	89	2	0	
2000–2001	0	17	34	59	46	6	0	9
2001–2002	0	5	15	35	28	5	0	0
2002–2003	0	0	11	15	0	1	0	0
2003–2004	0	3	7	18	2	0	0	0
2004–2005	0	5	74	14	0	0	1	4
2005–2006	0	1	60	27	21	2	0	2
River Otter								
1997–1998	0	0	0	0	0	1	0	
1998–1999	0	0	0	0	0	0	0	5
1999–2000	0	0	0	1	3	0	0	
2000–2001	0	0	0	0	2	0	1	
2001–2002	0	0	2	0	0	0	0	
2002–2003	0	0	2	3	0	0	0	
2003–2004	0	1	0	0	0	0	0	
2004–2005	0	0	2	2	1	0	1	
2005–2006	0	0	1	1	0	0	0	
Wolverine								
1997–1998	0	3	3	7	5	0	0	
1998–1999	2	1	6	4	13	0	0	
1999–2000	1	0	7	7	15	0	0	
2000–2001	0	4	6	9	8	0	0	
2001–2002	0	3	9	1	7	1	0	
2002–2003	0	0	1	8	7	0	0	
2003–2004	1	0	2	6	2	1	0	
2004–2005	2	2	8	6	7	1	0	
2005–2006	1	0	8	7	10	0	0	

[a] Unknown not included.

TABLE 5 Unit 20E lynx, river otter, and wolverine reported harvest chronology by month, regulatory years 1997–1998 through 2005–2006

Species/	Harvest chronology by month							
Regulatory year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unknown
Lynx								
1997–1998	0	0	16	57	29	0	0	
1998–1999	0	2	25	44	42	2	0	1
1999–2000	0	1	11	60	7	3	0	
2000–2001	0	1	1	13	29	0	0	30
2001–2002	0	2	19	15	18	0	0	2
2002–2003	0	1	1	15	1	0	0	0
2003–2004	0	1	1	4	0	0	0	
2004–2005	0	6	15	0	1	0	0	
2005–2006	0	1	41	27	20	0	0	
River Otter								
1997–1998[a]								
1998–1999[a]								
1999–2000[a]								
2000–2001	0	0	0	0	0	0	0	
2001–2002	0	0	0	0	0	0	0	
2002–2003	0	0	0	0	0	0	0	
2003–2004	0	0	0	0	1	0	0	
2004–2005[a]								
2005–2006[a]								
Wolverine								
1997–1998	0	1	2	1	4	0	0	
1998–1999	1	0	4	0	2	0	0	
1999–2000	0	0	1	0	2	0	0	
2000–2001	0	0	3	3	4	1	0	
2001–2002	0	0	1	3	1	0	0	
2002–2003	0	0	1	1	2	0	0	
2003–2004	0	0	1	1	1	0	0	
2004–2005	2	0	2	0	2	1	0	
2005–2006	0	2	1	1	1	0	0	

[a] No reported harvest.

TABLE 6 Unit 12 percent harvest by transport method, regulatory years 1997–1998 through 2005–2006

Species/ Regulatory year	Percent harvest by transport method							
	Airplane	Dogsled, Skis, Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Unknown
Lynx								
1997–1998	0	0	0	1	94	0	5	0
1998–1999	0	3	0	0	83	0	14	0
1999–2000	0	2	0	0	92	0	5	0
2000–2001	3	6	0	1	74	0	16	0
2001–2002	2	3	0	0	79	0	13	2
2002–2003	0	0	0	4	93	0	4	0
2003–2004	0	10	0	0	83	0	7	0
2004–2005	3	3	0	0	88	0	3	3
2005–2006	0	1	0	0	94	0	5	0
River Otter								
1997–1998	0	0	0	0	100	0	0	0
1998–1999	0	0	0	0	80	0	20	0
1999–2000	0	0	0	0	75	0	25	0
2000–2001	0	0	0	0	67	0	33	0
2001–2002	0	0	0	0	100	0	0	0
2002–2003	0	0	0	20	80	0	0	0
2003–2004	0	0	0	0	100	0	0	0
2004–2005	0	17	0	0	83	0	0	0
2005–2006	0	0	0	0	100	0	0	0
Wolverine								
1997–1998	0	0	0	0	100	0	0	0
1998–1999	4	0	0	4	88	0	4	0
1999–2000	0	0	0	0	90	0	10	0
2000–2001	4	0	0	0	96	0	0	0
2001–2002	0	5	0	0	95	0	0	0
2002–2003	0	19	0	0	81	0	0	0
2003–2004	33	0	0	0	67	0	0	0
2004–2005	23	4	0	0	73	0	0	0
2005–2006	10	5	0	0	80	0	5	0

TABLE 7 Unit 20E percent harvest by transport method, regulatory years 1997–1998 through 2005–2006

Species/ Regulatory year	Percent harvest by transport method							
	Airplane	Dogsled, Skis, Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Unknown
Lynx								
1997–1998	18	0	0	0	80	0	2	0
1998–1999	4	0	0	0	93	0	3	0
1999–2000	1	1	0	0	91	0	6	0
2000–2001	0	3	0	0	96	0	1	0
2001–2002	2	0	0	0	82	0	13	4
2002–2003	0	44	0	0	50	0	6	0
2003–2004	0	0	0	0	100	0	0	0
2004–2005	9	0	0	0	91	0	0	0
2005–2006	8	2	0	0	62	0	28	0
River Otter								
1997–1998[a]								
1998–1999[a]								
1999–2000[a]								
2000–2001	0	0	0	0	0	0	0	0
2001–2002	0	0	0	0	0	0	0	0
2002–2003	0	0	0	0	0	0	0	0
2003–2004	0	0	0	0	100	0	0	0
2004–2005[a]								
2005–2006[a]								
Wolverine								
1997–1998	0	0	0	0	100	0	0	0
1998–1999	29	0	0	0	29	0	29	14
1999–2000	0	0	0	0	100	0	0	0
2000–2001	18	18	0	0	64	0	0	0
2001–2002	0	0	0	0	100	0	0	0
2002–2003	50	0	0	0	50	0	0	0
2003–2004	0	0	0	0	100	0	0	0
2004–2005	14	0	0	0	57	0	14	14
2005–2006	0	0	0	0	100	0	0	0

[a] No reported harvest.

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 14 (6625 mi^2)

GEOGRAPHIC DESCRIPTION: Eastern Upper Cook Inlet

BACKGROUND

Game Management Unit 14 is divided into three subunits, and contains more than half (more than 370,000) of the people living in Alaska. Subunit 14A, in the Matanuska-Susitna Borough area, is the fastest growing population center in the state. Subunit 14C includes the Municipality of Anchorage. In subunit 14B most of the population is limited to the Parks Highway corridor and the community of Talkeetna. Most trapping in Unit 14 is low volume, and many resource users access areas from established roads or trails. Availability of additional trapping areas close to the major communities is limited due to the expanding human population. Conflicts with other trail users are common, and educational efforts have begun. Trapping and hunting are prohibited or severely restricted in the western half of Subunit 14C (the Anchorage bowl); therefore, most consumptive use occurs in Subunits 14A and 14B.

MANAGEMENT DIRECTION

MANAGEMENT GOALS

- Provide the opportunity to trap and hunt furbearers.
- Maintain an optimal sustained harvest of furbearers.
- Develop measurable population objectives for all fur species.

MANAGEMENT OBJECTIVES

- Monitor annual harvest of furbearers using sealing forms, questionnaires, and trapper interviews.
- Implement track counts to form a long-term population index.

- Use annual harvest standards to evaluate long-term harvest levels: land otter, 20; lynx, 12 (when the season is open); wolverine, 10; and beaver, 250 (Masteller 1993).

METHODS

Information on trapping conditions, trapper effort, and trends in fur abundance and distribution were collected using a questionnaire sent to Unit 14 trappers. Harvest data were collected for beaver, land otter, lynx, wolverine, and marten through sealing certificates. The location of harvest was identified and recorded. During sealing, data on age (for beaver and lynx) and sex (for land otter, lynx, marten, and wolverine) were collected when possible. The month, method of take, and mode of hunter/trapper transport were also recorded. Minimum harvest data for other species were collected from trapper questionnaires (Kavalok 2004).

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Trappers reported that all species were common or abundant in 2003–2006, except lynx, which were reported as scarce, and wolverine, which were reported as common in 2003–2004 and scarce in 2004–2005. Trappers reported small prey species as abundant and possibly increasing (Blejwas 2006, Peltier 2005).

No specific studies investigating furbearer population size or composition were conducted during the reporting period, due to suboptimal weather and other commitments.

MORTALITY

Trapping Seasons and Bag Limits (seasons for 2003–06 unless otherwise stated).

SPECIES	SEASON	BAG LIMIT
Beaver		
Unit14A and B	10 Nov–15 May	No limit
Unit 14C	1 Dec–15 Apr	20 per season
Coyote		
Unit 14A and B	10 Nov–31 Mar	No limit
Unit 14C	10 Nov–28 Feb	No limit
Red Fox		
Unit 14A and B	10 Nov–28 Feb	No limit
Unit 14C	10 Nov–28 Feb	1 per season
Lynx		
2003 – 2005	No open season	
2005 – 2006	1 Jan–31 Jan	No limit

Marten	10 Nov–31 Dec	No limit
Mink/Weasels	10 Nov–31 Jan	No limit
Muskrat	10 Nov–15 May	No limit
Land Otter		
Unit 14A and B	10 Nov–31 Mar	No limit
Unit 14C	10 Nov–28 Feb	No limit
Wolverine	10 Nov–31 Jan	2 per season

Hunting Seasons and Bag Limits.

SPECIES	**SEASON**	**BAG LIMIT**
Coyote	10 Aug–30 Apr	10 per season
Red Fox	1 Sep–15 Feb	2 per season
Lynx	15 Dec–15 Jan	2 per season
Wolverine	1 Sep–31 Jan	1 per season

Board of Game Actions and Emergency Orders. In spring 2003 the department recommended closing the 2003–04 trapping season for lynx based on the Lynx Harvest Tracking strategy (Golden 1999). The lynx season remained closed in 2004–2005. In 2003 the board extended the start of the coyote hunting season from 1 September to 10 August.

Hunter/Trapper Harvest. Trappers reported increases in pelt prices in 2003–2004 and a decline thereafter. Trapping conditions were fair to good during the reporting period. The harvest of beavers decreased during the reporting period. Beaver populations throughout the unit are stable and possibly declining. The harvest of juveniles and average pelt size appear to have stabilized (Table 1 and Figure 1).

The harvest of otters decreased during the reporting period. Lynx were not harvested for 2 of the 3 seasons in the reporting period, and wolverine harvest increased during the reporting period. The otter harvest had been relatively high during the 7 seasons prior to this reporting period, bolstered by increasing pelt prices (Table 2). Recently the price has collapsed; therefore, it is not likely that there will be a continued demand for otter pelts.

The average price for marten has been increasing steadily, and there have been higher harvests of martens in recent years (Table 5). The marten harvest is probably less market driven than are the harvests of species more difficult or time-consuming to trap, such as beaver. Therefore, the harvest is probably an adequate index of population abundance. Lower harvests reflect decreased productivity/survival of marten in response to scarce prey species that fluctuate in abundance across years. Unit 14 is generally considered marginal marten habitat due to the high level of human settlement disturbing continuous coniferous forests.

Information for the harvest of species that do not require sealing was taken from trapper questionnaires. During the reporting period, the average yearly harvest for respondents in Units 14A and 14B were: coyote, 14; red fox, 36; mink, 21; weasels, 9; muskrats, 54. Many trappers either do not receive, or fail to return, the questionnaires; therefore, these should be considered minimum harvest totals.

In November and December 1998 trappers reported catching coyotes and wolves with lice (*Trichodectes canis*) between Willow and Talkeetna in the lower Susitna River valley. Lice have been consistently reported in the last three years in at least one pack in Unit 14A. There have been no indications packs in Units 14B or 14C have been infected.

Harvest Chronology. Weather conditions, such as snow depth, freezing rain, and cold temperatures can determine trapping success. Variation in trapping conditions and trapping effort can be seen via the chronology of the harvest across years (Tables 6–10).

Transport Methods. Snowmachines are still the most popular transport means for trappers (Tables 11–15). Highway vehicles and 4-wheelers (ATVs) were used in higher numbers during the poor snow years in 2004–04 and 2004–05. Highway vehicles were used heavily by beaver and otter trappers. Aircraft use for wolverine trappers has increased in the last decade and peaked in 1996, (Table 14) while non-mechanized travel has increased recently for marten trappers (Table 15).

Other Mortality

There were 33, 66, and 40 nuisance beaver permits issued in 2003–04, 2004–05, and 2005–06, respectively. These allowed the taking of up to 20 beavers per permit; the amount varied by permit and location. As in previous years, road/railroad maintenance personnel identified most problem areas where beavers have plugged culverts and flooded roadbeds. Lengthening the beaver season in the mid 1990s may have resulted in some reductions in nuisance beaver complaints. However, with healthy beaver populations, relatively low pelt prices, reduced trapping levels, and increased human development, nuisance complaints can be expected to increase.

HABITAT

Significant urban development and growth continues in the Anchorage and Matanuska-Susitna areas, which may have had localized impacts on habitat values and movement corridors.

CONCLUSIONS AND RECOMMENDATIONS

The lack of data on population density, composition, and productivity of furbearers makes it difficult to identify optimal harvest levels. While harvests have exceeded annual harvest standards for some species in Unit 14, there is no reason to believe that this has had a negative impact on the resource. Developing measurable population objectives for fur species through population size estimation is beyond the limits of our resources. Indirect survey techniques tested by Golden (1994) can be used as an index of abundance and need to be conducted yearly. An index will provide more precise information on population trends

than sealing data, which often follow fur prices and trapping conditions rather than population trends.

Martens display relatively low productivity for a small mammal. There was a suspected overharvest of martens in the Matanuska-Susitna area in the late 1980s, resulting in a season reduction and a sealing program for the species in Units 14 and 16. Due to potentially high trapper density in this area, information taken at the time of sealing is important for successfully determining the health and status of the population. The sex of the animal is recorded at the time of sealing, and trappers are asked to keep records of their harvest by sex and month. A relatively high proportion of females caught late in the season is an indication of an overharvest. This trend may not be totally accurate because many sealed martens do not have sex distinguished. The percent of females in the harvest remains the best available method for managers to assess the health of the population. Because of this, there needs to be a concerted effort by trappers and sealers to keep accurate records in noting the sex of the animal and when it was taken.

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PREPARED BY:
Tim C. Peltier
Wildlife Biologist II

SUBMITTED BY:
Gino Del Frate
Management Coordinator

REVIEWED BY:
Tony Kavalok
Wildlife Biologist III

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TABLE 1 Unit 14 beaver harvest, 1995–2006

	Reported harvest[a]			Method of Take				Successful
Regulatory Year	Juv [b]	(%)	Adults	Trap/snare	Shot	Unk	Total	Trappers/hunters
1995–96	51	(20)	203	279	3	0	282	59
1996–97	53	(20)	207	256	5	19	280	56
1997–98	48	(21)	179	197	0	46	243	43
1998–99	48	(26)	140	181	1	10	192	36
1999–2000	35	(21)	129	147	2	24	173	33
2000–01	66	(28)	173	227	3	11	241	38
2001–02	31	(22)	110	133	0	14	147	31
2002–03	69	(33)	140	218	0	1	219	51
2003–04	31	(18)	137	136	1	3	140	36
2004–05	47	(23)	155	160	2	4	166	33
2005–06	48	(21)	184	184	6	1	191	32
Average (2003–2006)	42	(21)	159	160	3	3	166	34

[a] Includes only beavers with reported measurements

[b] Beaver measuring $\leq$ 52 inches (length + width)

TABLE 2 Unit 14 land otter harvest, 1995–2006

Regulatory Year	Reported harvest			Method of Take			Total	Successful Trappers/hunters
	Male	Female	Unk	Trap/snare	Shot	Unk		
1995–96	14	15	6	33	2	0	35	18
1996–97	14	13	12	39	0	0	39	14
1997–98	23	14	2	38	0	1	39	20
1998–99	11	15	7	33	0	0	33	8
1999–2000	18	11	1	30	0	0	30	18
2000–01	13	14	5	30	0	2	32	18
2001–02	17	8	7	32	0	0	32	15
2002–03	28	23	2	52	0	1	53	23
2003–04	15	6	1	22	0	0	22	16
2004–05	16	15	3	34	0	0	34	10
2005–06	17	13	4	31	1	2	34	19
Average (2003–2006)	16	11	3	29	0	1	30	15

TABLE 3 Unit 14 lynx harvest, 1995–2006

Regulatory Year	Age Composition				Method of Take				Total	Successful Hunters/trappers
	Juv[a]	(%)	Ad	Unk	Trap/Snare	Shot	(L&S)[b]	Unk		
1995–96[c]	-	-	-	-	-	-	-	-	-	-
1996–97	1	(50)	1	1	3	0	(0)	0	3	2
1997–98	0	(0)	1	1	1	0	(0)	1	2	2
1998–99	0	(0)	2	2	2	1	(0)	1	4	3
1999–2000	2	(40)	3	4	6	0	(0)	3	9	8
2000–01	8	(21)	31	6	37	3	(0)	5	45	21
2001–02	5	(14)	30	12	40	4	(0)	3	47	27
2002–03	4	(17)	20	12	34	2	(0)	0	36	22
2003–04[c]	-	-	-	-	-	-	-	-	-	-
2004–05[c]	-	-	-	-	-	-	-	-	-	-
2005–06	0	(0)	3	0	3	0	(0)	0	3	2

[a] Lynx measuring ≤ 34 inches in length.

[b] L&S (land and shoot) refers to animals taken by hunters the same day hunters were airborne.

[c] Season closed.

TABLE 4 Unit 14 wolverine harvest, 1995–2006

	Reported Harvest				Method of Take					Successful
Year	Male	Female	(%)	Unk	Trap/snare	Shot	(L&S)[a]	Unk	Total	Trappers/hunters
1995–96	5	2	(29)	3	10	0	(0)	0	10	7
1996–97	4	5	(56)	0	9	0	(0)	0	9	6
1997–98	8	5	(38)	0	12	1	(0)	0	13	9
1998–99	4	1	(20)	1	4	2	(0)	0	6	6
1999–2000	3	2	(40)	0	5	0	(0)	0	5	6
2000–01	7	4	(36)	0	11	0	(0)	0	11	7
2001–02	7	5	(42)	0	12	0	(0)	0	12	10
2002–03	1	0	(0)	0	1	0	(0)	0	1	1
2003–04	8	8	(50)	0	15	0	(0)	1	16	13
2004–05	4	1	(20)	0	4	1	(0)	0	5	4
2005–06	9	3	(25)	0	10	2	(1)	0	12	9
Average (2003–2006)	7	4	(36)	0	10	0	(0)	0	11	9

[a] L&S (land and shoot) refers to animals recorded as “ground shot” when transportation indicated was “aircraft”.

TABLE 5 Unit 14 marten harvest, 1995–2006

	Reported harvest				Method of Take				Successful
Regulatory Year	Male	Female	(%)	Unk	Trap/snare	Shot	Unk	Total	Trappers/hunters
1995–96	37	16	(30)	0	51	0	2	53	12
1996–97	70	32	(31)	0	102	0	0	102	12
1997–98	75	50	(40)	13	138	0	0	138	16
1998–99	32	25	(44)	5	62	0	0	62	14
1999–2000	49	23	(32)	2	74	0	0	74	13
2000–01	100	31	(24)	0	131	0	0	131	10
2001–02	76	37	(33)	15	104	0	24	128	23
2002–03	36	20	(36)	14	69	0	1	70	16
2003–04	118	65	(36)	34	213	0	4	217	32
2004–05	55	21	(28)	14	90	0	0	90	20
2005–06	128	75	(37)	70	268	0	5	273	35
Average (2003–2006)	100	54	(35)	39	190	0	3	193	29

TABLE 6 Unit 14 beaver harvest chronology by month, 1995–2006

Year	Percent harvested											Harvest
	Jun–Aug[a]	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Unk	
1995–96	1	1	1	8	27	5	7	13	24	9	3	282
1996–97	2	2	1	4	12	4	20	19	19	8	9	280
1997–98	2	1	0	10	11	16	13	12	23	11	0	245
1998–99	1	1	0	24	10	7	2	26	21	7	0	193
1999–2000	2	10	2	16	28	13	5	14	4	6	0	173
2000–01	1	0	1	29	12	13	5	7	29	2	0	241
2001–02	1	0	2	23	19	6	6	12	20	11	0	147
2002–03	1	0	4	31	20	26	8	4	1	2	2	219
2003–04	0	6	1	33	14	6	9	4	11	8	1	140
2004–05	1	4	17	25	8	4	14	12	6	8	0	166
2005–06	0	13	0	14	18	13	18	14	4	6	1	191
Average (2003–2006)	0	8	6	23	15	8	14	10	7	7	1	166

[a] These are beaver taken on damage control permits

TABLE 7 Unit 14 land otter harvest chronology by month, 1995–2006

Regulatory Year	Percent of Harvest								Total Harvest
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Unk	
1995–96	0	6	17	37	14	14	11	0	35
1996–97	0	0	20	23	23	23	10	0	39
1997–98	0	0	18	26	13	24	18	3	39
1998–99	0	0	19	19	29	19	13	0	33
1999–2000	0	0	30	47	10	3	10	0	30
2000–01	0	0	28	22	31	3	16	0	32
2001–02	0	0	22	13	28	16	22	0	32
2002–03	0	0	42	23	26	4	6	0	53
2003–04	0	0	23	32	32	9	5	0	22
2004–05	0	0	65	15	15	0	6	0	34
2005–06	0	0	18	29	26	18	9	0	34
Average (2003–2006)	0	0	35	25	24	9	7	0	30

TABLE 8 Unit 14 lynx harvest chronology by month, 1995–2006

Regulatory Year	Percent of Harvest						Total Harvest
	Nov	Dec	Jan	Feb	Mar	Unk	
1995–96[a]	0	0	0	0	0	0	0
1996–97	0	0	100	0	0	0	3
1997–98	0	0	50	0	0	50	2
1998–99	0	25	0	75	0	0	4
1999–2000	11	33	22	0	0	33	9
2000–01	2	38	40	0	0	20	45
2001–02	0	40	53	0	0	6	47
2002–03	0	64	33	0	3	0	33
2003–04[a]	0	0	0	0	0	0	0
2004–05[a]	0	0	0	0	0	0	0
2005–06	0	0	3	0	0	0	3

[a] lynx season closed

TABLE 9 Unit 14 wolverine harvest chronology by month, 1995–2006

Regulatory Year	Percent of Harvest								Total Harvest
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Unk	
1995–96	0	0	30	50	20	0	0	0	10
1996–97	0	0	0	33	67	0	0	0	9
1997–98	8	0	8	31	54	0	0	0	13
1998–99	17	0	0	0	67	17	0	0	6
1999–2000	0	0	0	41	60	0	0	0	5
2000–01	0	0	0	36	64	0	0	0	11
2001–02	0	0	8	58	33	0	0	0	12
2002–03	0	0	0	100	0	0	0	0	1
2003–04	0	0	6	56	31	6	0	0	16
2004–05	0	0	0	60	40	0	0	0	5
2005–06	17	0	0	17	67	0	0	0	12

TABLE 10 Unit 14 marten harvest chronology by month, 1995–2006

	Percent of Harvest								
Year	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Unk	Harvest
1995–96	0	0	62	38	0	0	0	0	53
1996–97	0	0	70	30	0	0	0	0	102
1997–98	0	0	55	45	0	0	0	0	138
1998–99	0	0	39	61	0	0	0	0	62
1999–2000	0	0	55	45	0	0	0	0	74
2000–01	0	0	53	47	0	0	0	0	131
2001–02	0	0	47	52	0	0	0	0	128
2002–03	0	0	46	54	0	0	0	0	70
2003–04	0	0	22	77	1	0	0	0	217
2004–05	0	0	37	54	9	0	0	0	90
2005–06	0	0	33	67	0	0	0	0	273

TABLE 11 Unit 14 beaver trapper transport methods, 1995–2006

Regulatory Year	Percent of Harvest								Total Harvest
	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	Unk	
1995–96	8	3	6	8	26	0	34	14	282
1996–97	1	1	5	6	49	0	25	12	280
1997–98	1	8	7	6	28	0	36	14	243
1998–99	0	18	1	5	47	0	28	1	192
1999–2000	0	22	0	0	22	0	22	33	173
2000–01	0	10	24	6	28	10	17	7	241
2001–02	1	10	0	5	60	1	10	12	147
2002–03	8	14	4	5	20	0	36	13	219
2003–04	0	15	2	6	39	0	36	2	140
2004–05	0	5	3	3	27	1	47	13	166
2005–06	0	12	10	2	48	1	27	1	191

TABLE 12 Unit 14 land otter trapper transport methods, 1995–2006

Regulatory Year	Percent of Harvest								Total Harvest
	Airplane	Dogsled, Skis Snowshoes	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	Unk	
1995–96	9	14	0	3	26	0	31	17	35
1996–97	5	10	0	3	56	0	18	8	39
1997–98	0	13	3	13	38	0	28	5	39
1998–99	0	21	3	0	48	0	27	0	33
1999–2000	0	24	0	3	33	0	33	7	30
2000–01	0	19	0	16	38	0	22	6	32
2001–02	0	28	0	6	63	0	3	0	32
2002–03	2	23	0	8	23	2	38	6	53
2003–04	0	18	0	0	23	0	59	0	22
2004–05	0	6	0	0	18	0	76	0	34
2005–06	0	15	0	0	24	0	56	6	34

TABLE 13 Unit 14 lynx trapper transport methods, 1995–2006

Regulatory Year	Percent of Harvest								Total Harvest
	Airplane	Dogsled, Skis Snowshoes	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	Unk	
1995–96[a]	0	0	0	0	0	0	0	0	0
1996–97	0	0	0	67	33	0	0	0	3
1997–98	0	0	0	0	50	0	0	50	2
1998–99	0	0	0	50	0	0	50	0	4
1999–2000	0	22	0	0	22	0	22	33	9
2000–01	0	13	0	36	7	0	22	22	45
2001–02	0	21	0	17	43	0	11	9	47
2002–03	0	12	6	18	10	0	48	6	33
2003–04[a]	0	0	0	0	0	0	0	0	0
2004–05[a]	0	0	0	0	0	0	0	0	0
2005–06	0	0	0	67	0	0	33	0	3

[a] Lynx season closed

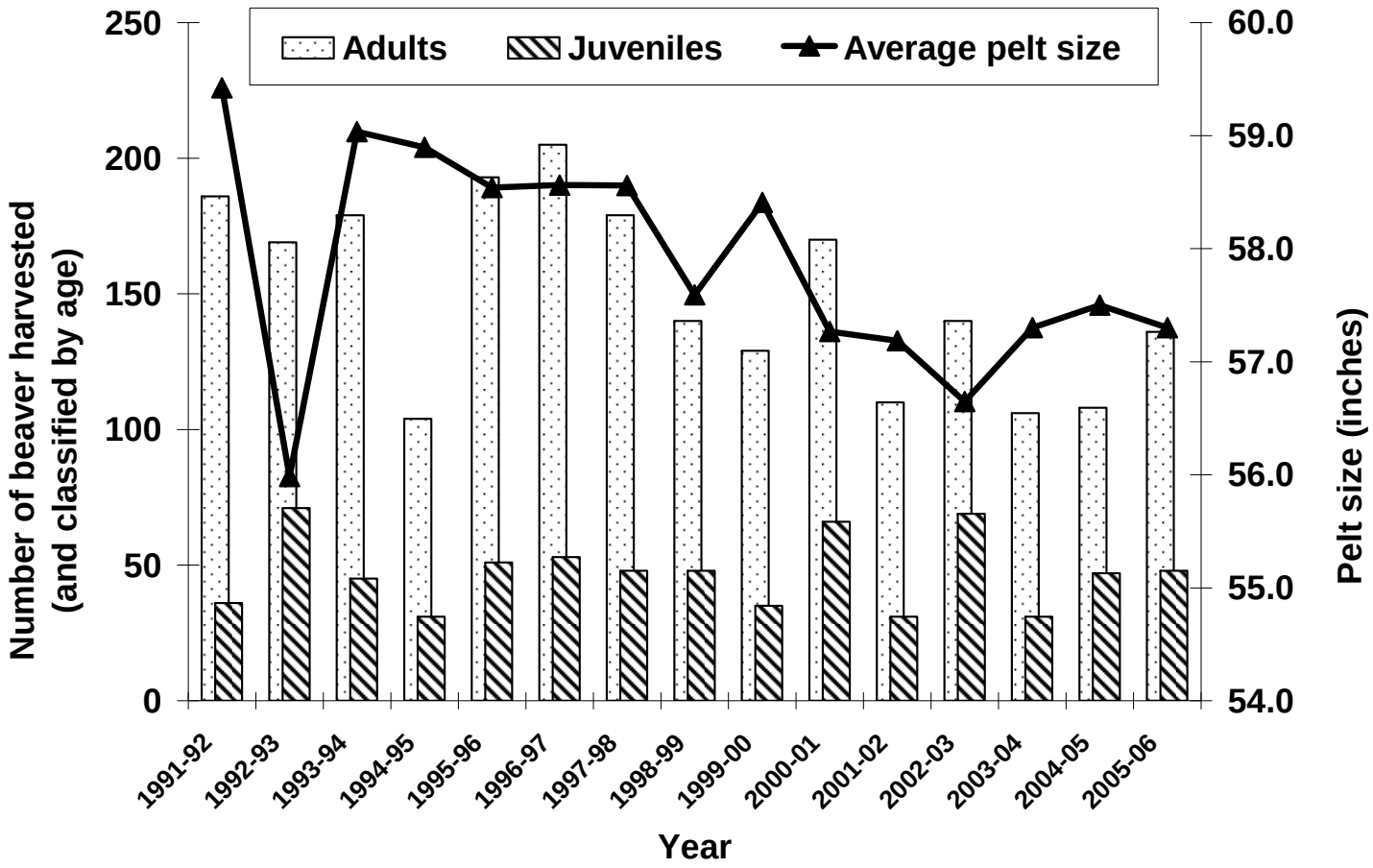
TABLE 14 Unit 14 wolverine trapper transport methods, 1995–2006

Regulatory Year	Percent of Harvest								Total Harvest
	Airplane	Dogsled, Skis Snowshoes	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	Unk	
1995–96	40	0	0	10	40	0	0	10	10
1996–97	67	0	0	0	22	0	0	11	9
1997–98	31	0	0	8	54	0	8	0	13
1998–99	50	17	0	0	33	0	0	0	6
1999–2000	40	0	0	0	60	0	0	0	5
2000–01	18	27	0	0	55	0	0	0	11
2001–02	8	25	0	17	42	8	0	0	12
2002–03	0	0	0	0	100	0	0	0	1
2003–04	19	13	0	6	38	0	19	6	16
2004–05	20	40	0	0	40	0	0	0	5
2005–06	17	0	25	0	42	8	8	0	12

TABLE 15 Unit 14 marten trapper transport methods, 1995–2006

Regulatory Year	Percent of Harvest								Total Harvest
	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	Unk	
1995–96	0	7	0	15	11	0	26	40	53
1996–97	1	10	0	0	80	0	0	9	102
1997–98	0	38	0	2	51	0	2	7	138
1998–99	0	24	0	8	57	0	10	0	62
1999–2000	0	43	0	0	54	0	3	0	74
2000–01	0	27	0	0	69	0	4	0	131
2001–02	0	12	0	0	62	0	7	20	128
2002–03	0	4	0	34	6	0	50	6	70
2003–04	0	12	0	0	77	0	10	1	217
2004–05	0	17	0	1	73	0	9	0	90
2005–06	0	8	0	0	76	0	13	3	273

FIGURE 1 Unit 14 beaver harvest depicted by age group and average pelt size (length + width) across years, 1991–2002 (Juvenile beaver measure $\leq$ 52 inches). Harvest numbers are incomplete due to some beaver measurements unrecorded at time of sealing.



WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
907-465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 16 (12,225 mi^2)

GEOGRAPHIC DESCRIPTION: West side of Cook Inlet

BACKGROUND

Game Management Unit 16 contains large areas of unaltered wildlife habitat. It is bordered to the east by Upper Cook Inlet and the Susitna River, to the west by the Alaska Range, and to the north and south by Denali and Lake Clark National Parks and Preserves, respectively. The area has had no major wildfires since the 1950s, but hundreds of acres of white spruce have been killed over the last two decades by a spruce bark beetle infestation. Most of the area is sparsely populated; most of those people who do live there are hunters and trappers. Recreational cabins and fishing and hunting lodges are scattered throughout the unit. There are maintained roads in the eastern and northern portions of Unit 16A and near the settlements of Tyonek and Beluga in Unit 16B. Permanent residents live along the Parks Highway, in and around the Petersville and Oilwell Road areas, and in the settlements of Skwentna, Beluga and Tyonek. Because of its proximity to Alaska's largest population centers, the area receives a large amount of year-round recreational use. A few local residents trap full time to generate income, primarily from marten and beaver.

MANAGEMENT DIRECTION

MANAGEMENT GOALS

- Provide the opportunity to trap and hunt furbearers.
- Maintain an optimal sustained harvest of furbearers.
- Develop measurable population objectives for all fur species.

MANAGEMENT OBJECTIVES

- Monitor annual harvest of furbearers using sealing forms, questionnaires, and trapper interviews.

- Implement track counts to form a long-term population index.
- Use annual harvest standards to evaluate long-term harvest levels: land otter, 40; wolverine, 20; and beaver, 350 (Masteller 1993).

METHODS

Information on trapping conditions, trapper effort, and trends in fur abundance and distribution were collected using a questionnaire sent to Unit 16 trappers. Harvest data were collected for beaver, land otter, lynx, wolverine, and marten through sealing certificates. During sealing, harvest location, data on age (for beaver and lynx), and sex (for land otter, lynx, marten, and wolverine) were collected when possible. The month, method of take, and mode of hunter/trapper transport were also recorded. Minimum harvest data for other species were collected from trapper questionnaires.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Trappers reported that all species were common or abundant in 2003–2006, except lynx, which were reported as scarce, and wolverine, which were reported as common in 2003–2004 and scarce in 2004–2005. Trappers reported small prey species as abundant and possibly increasing (Blejwas 2006, Peltier 2005).

No specific studies investigating furbearer population size or composition were conducted during the reporting period. Due to suboptimal weather and other commitments, the two track transects in Unit 16A have not been surveyed since 1997.

MORTALITY

Trapping Seasons and Bag Limits (seasons for 2003–06 unless otherwise stated).

Species	Season	Bag Limit
Beaver	25 Sep–15 May	No limit
Coyote	10 Nov–31 Mar	No limit
Red Fox	10 Nov–28 Feb	No limit
Lynx (2003-2005)	No open season	
(2005-2006)	1 Jan–15 Jan	No limit
Marten		
Unit 16A	10 Nov–31 Dec	No limit
Unit 16B	10 Nov–31 Jan	No limit
Mink/Weasels	10 Nov–31 Jan	No limit
Muskrat	10 Nov–10 Jun	No limit

Land Otter	10 Nov–31 Mar	No limit
Squirrels/Marmots	No closed season	No limit
Wolverine		
Unit 16A	10 Nov–31 Jan	2 per season
Unit 16B	10 Nov–28 Feb	No limit

Hunting Seasons and Bag Limits.

Species	Season	Bag Limit
Coyote	10 Aug–30 Apr	10 per season
Red Fox	1 Sep–15 Feb	2 per season
Lynx	15 Dec–15 Jan	2 per season
Wolverine		
Unit 16A	1 Sep–31 Jan	1 per season
Unit 16B	1 Sep–31 Mar	1 per season

Board of Game Actions and Emergency Orders. In 2003, the board extended the Unit 16 beaver season, opening 25 September instead of 10 November to allow more open water trapping opportunities. The board also opened the coyote hunting season 10 August instead of 1 September. In spring 2003 the department recommended closing the 2003–2004 trapping season for lynx, based on the Lynx Harvest Tracking strategy (Golden 1999), and it was closed. The lynx season remained closed in 2004–2005.

Hunter/Trapper Harvest. Fur harvest fluctuates with trapping conditions, effort, and fur prices. Trapping conditions were described as generally fair to good during the reporting period. In general, fur prices increased substantially for most species during the reporting period (Blejwas 2006).

Beaver harvests have increased since the early 1990s (Tables 1 and 2), but remain below historic levels. The previous peak in harvest occurred during 1986–87, when trappers took 651 beavers in Unit 16 (Masteller 1997). Beaver populations throughout the unit are believed to be stable or increasing based on harvest parameters and trapper feedback (Table 1). The average beaver pelt size has fluctuated from 57 to 61.5 inches since the early 1990's. The proportion of juvenile beaver in the harvest has been relatively constant the last several seasons (Figure 1).

Otter harvest has steadily increased over the last 5 years. Recent high otter prices have pushed otter harvest to a new high in the unit (Table 2).

The lynx harvest historically has been low in Unit 16 (Table 3), reflecting a lack of good hare habitat. As part of the lynx harvest tracking strategy, the lynx season was closed in 2003–2004 and again in 2004–05. The 5-year average harvest of 42 wolverines was greater than the 10-year

average of 33 animals (Table 4). The marten harvest has remained high since populations recovered from a decline in the early 1990s and increased substantially during the last 3 seasons, (Table 5) with a peak in 2005.

Information for the harvest of species that do not require sealing was taken from trapper questionnaires. During a 3-year average of 2002–2005 the trappers that did respond reported a yearly average take of 12 coyotes, 9 weasels, 9 mink, 7 muskrats and 10 foxes. Many trappers either do not receive, or fail to return, the questionnaires; therefore, these should be considered minimum harvest totals.

In November and December 1998 trappers reported catching coyotes and wolves with lice (*Trichodectes canis*) between Willow and Talkeetna in the lower Susitna River valley (Kavalok, 2003). Lousy packs change from year to year, however, since the original discovery in 1998, lice have been found in at least one pack in Unit 16 every season.

Harvest Chronology. Weather conditions, such as snow depth, freezing rain, and cold temperatures can determine peak trapping success by limiting human access and optimal trapping conditions. In addition, early thaws can reduce trapping effort in the spring. Variation in trapping conditions can be seen via the chronology of the harvest across years (Tables 6–9).

Transport Methods. Most Unit 16 trappers use snowmachines to access their trapping areas (Tables 10–13). Boats were used much more commonly for beaver and aircraft are used more frequently for wolverine than for any other species. The lack of roads in the unit limits the use of highway vehicles.

Other Mortality

There were two, two, and one nuisance beaver permits issued in 2003–04, 2004–05, and 2005–06, respectively. The number of beaver allowed to be taken under a permit varied by permittee and location. As in previous years, road/railroad maintenance personnel identified most problem areas where beavers have plugged culverts and flooded roadbeds. Two common problem areas are Oilwell Road in Unit 16A and the road system near Tyonek and Beluga in Unit 16B. With healthy beaver populations, relatively low prices, and reduced trapping levels, nuisance complaints can be expected to increase.

HABITAT

No major fires or other significant habitat disturbances occurred in Unit 16 during the reporting period.

CONCLUSIONS AND RECOMMENDATIONS

Many of the population parameters of the different species of furbearer are unknown, therefore we do not know if we are operating at maximum sustainable yield. Developing measurable population objectives for fur species through population size estimation is not feasible at this time. Indirect survey techniques tested by Golden (1994) could be used as an index of abundance, and should be conducted yearly. However, scheduling conflicts, funding and weather have hampered these efforts. An index will provide more precise information on population

trends than sealing data, which often follows fur prices and trapping conditions rather than population trends. The average beaver harvest has been below harvest objectives while harvests of both otters and wolverine have been above objectives (Masteller, 1993). However without more accurate population information it is not certain that those harvests are having a detrimental impact on the populations. Results from the trapper questionnaire would indicate that in the case of wolverine at least, this may be the case.

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PREPARED BY:

Tim C. Peltier
Wildlife Biologist II

SUBMITTED BY:

Gino Del Frate
Management Coordinator

REVIEWED BY:

Tony Kavalok
Wildlife Biologist III

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TABLE 1 Unit 16 beaver harvest, 1995–2006

Regulatory Year	Reported harvest				Method of Take			Total	Successful Trappers/hunters
	Juv [a]	(%)	Adults	Unk	Trap/snare	Shot	Unk		
1995–96	7	(11)	56	2	65	0	0	65	9
1996–97	38	(24)	122	7	152	2	13	167	26
1997–98	28	(23)	93	2	121	2	0	123	14
1998–99	26	(24)	81	0	106	1	0	107	16
1999–00	40	(24)	131	2	171	2	0	173	21
2000–01	32	(17)	160	4	193	3	0	196	23
2001–02	18	(13)	125	20	156	6	1	163	33
2002–03	66	(22)	228	6	233	2	65	300	35
2003–04	60	(28)	158	0	204	4	10	218	30
2004–05	31	(19)	128	2	156	5	0	161	29
2005–06	47	(20)	194	37	274	4	0	278	33
Average (2003-2006)	46	(22)	160	13	211	4	3	219	31

[a] Beaver measuring $\leq$ 52 inches (length + width).

TABLE 2 Unit 16 land otter harvest, 1995–2006

	Reported harvest				Method of Take				Successful
Regulatory Year	Male	Female	(%)	Unk	Trap/snare	Shot	Unk	Total	Trappers/hunters
1995–96	6	7	(54)	3	14	2	0	16	5
1996–97	10	11	(52)	6	27	0	0	27	8
1997–98	14	7	(33)	3	24	0	0	24	10
1998–99	11	4	(27)	3	18	0	0	18	10
1999–00	22	17	(44)	3	42	0	0	42	17
2000–01	15	4	(21)	13	30	0	2	32	20
2001–02	31	25	(45)	4	60	0	0	60	18
2002–03	30	19	(39)	7	55	1	0	56	19
2003–04	22	28	(56)	0	50	0	0	50	15
2004–05	19	26	(58)	2	47	0	0	47	15
2005–06	50	47	(48)	6	103	0	0	103	27
Average (2003–2006)	30	34	(53)	3	67	0	0	67	19

TABLE 3 Unit 16 lynx harvest, 1996–2006

Regulatory Year[a]	Reported Harvest								Method of Take					Successful
	M	F	(%)	Unk sex	Juv[b]	(%)	Ad	Unk age	Trap/Snare	Shot	(L&S)[c]	Unk	Total	Hunters/ trappers
1996–97	0	0	--	0	0	--	0	0	0	0	(0)	0	0	0
1997–98	0	1	(100)	0	0	(0)	1	0	1	0	(0)	0	1	1
1998–99	0	1	(100)	0	0	(0)	1	0	1	0	(0)	0	1	1
1999–00	3	0	(0)	0	2	(67)	1	0	3	0	(0)	0	3	2
2000–01	0	0	--	2	0	--	1	1	2	0	(0)	0	2	2
2001–02	0	0	--	23	0	--	21	2	21	2	(0)	0	23	16
2002–03	0	0	--	0	0	--	8	0	8	0	(0)	0	8	6

2005–06	0	0	--	9	3		3	3	9	0	(0)	0	9	4
Average[d]	0	0	--	3	0	--	4	1	4	0	--	0	5	3

[a] Season closed during 1995–96

[b] Lynx measuring ≤ 34 inches in length.

[c] L&S (land and shoot) refers to animals recorded as “ground shot” when transportation indicated was “aircraft”.

[d] Average for 1998–99 through 2002–2003.

TABLE 4 Unit 16 wolverine harvest, 1995–2006

	Reported Harvest				Method of Take					Successful
Year	Male	Female	(%)	Unk	Trap/snare	Shot	(L&S)[a]	Unk	Total	Trappers/hunters
1995–96	7	2	(22)	0	7	2	(0)	0	9	7
1996–97	11	10	(48)	1	19	3	(1)	0	22	14
1997–98	6	9	(60)	1	11	5	(0)	0	16	11
1998–99	12	1	(7)	2	13	2	(0)	0	15	12
1999–00	15	13	(46)	1	20	9	(0)	0	29	20
2002–01	24	8	(24)	2	25	6	(0)	3	34	17
2001–02	30	14	(32)	1	41	4	(0)	0	45	28
2002–03	15	4	(21)	0	15	4	(0)	0	19	11
2003–04	29	21	(42)	2	47	4	(1)	1	52	31
2004–05	32	19	(37)	0	44	7	(0)	0	51	28
2005–06	24	20	(45)	1	40	5	(1)	0	45	26
Average[b]	28	20	(42)	1	44	3	(0)	0	49	28

[a] L&S (land and shoot) refers to animals recorded as “ground shot” when transportation indicated was “aircraft”.

[b] Average 2003–04 through 2005–06.

TABLE 5 Unit 16 marten harvest, 1995–2006

	Reported Harvest				Method of Take					Successful
Year	Male	Female	(% female)[a]	Unk	Trap/snare	Shot	(L&S)[b]	Unk	Total	Trappers/hunters
1995–96	138	63	(31)	28	186	0	(0)	43	229	18
1996–97	253	149	(37)	178	570	0	(0)	10	580	34
1997–98	122	45	(27)	132	299	0	(0)	0	299	24
1998–99	261	126	(33)	171	558	0	(0)	0	558	33
1999–00	259	109	(30)	115	485	0	(0)	0	485	31
2000–01	326	193	(37)	295	814	0	(0)	0	814	29
2001–02	566	289	(34)	90	922	1	(0)	23	945	40
2002–03	274	139	(34)	85	473	0	(0)	25	498	35
2003–04	424	206	(33)	99	721	0	(0)	8	729	48
2004–05	536	212	(28)	99	713	0	(0)	134	847	32
2005–06	868	394	(31)	46	1294	0	(0)	14	1308	49
Average[c]	609	271	(31)	81	909	0	(0)	52	961	43

[a] Not calculated in years when a large proportion was of unknown sex.

[b] L&S (land and shoot) refers to animals recorded as "ground shot" when transportation indicated was "aircraft."

[c] Average 2003–04 through 2005–2006.

TABLE 6 Unit 16 beaver harvest chronology, 1995–2006

	Percent harvested											
Year	Jun–Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Unk	Harvest
1995–96	0	0	0	0	6	0	14	32	6	41	0	65
1996–97	2	0	5	1	4	21	13	38	7	1	7	167
1997–98	0	0	0	0	15	2	11	12	17	34	0	123
1998–99	0	0	0	14	15	2	8	23	26	11	0	107
1999–00[a]	0	0	9	19	13	6	12	4	37	0	0	173
2000–01	1	1	7	10	23	19	14	21	4	0	0	196
2001–02	2	3	23	17	20	12	2	7	11	1	1	163
2002–03	0	3	18	18	26	6	3	2	7	7	10	294
2003–04	0	8	35	2	2	11	13	8	3	12	5	218
2004–05	2	4	17	15	7	2	4	11	5	33	0	161
2005–06	1	4	5	15	4	14	8	21	10	18	0	278

[a] Season lengthened 1 month in fall.

TABLE 7 Unit 16 land otter harvest chronology, 1995–2006

Year	Percent of Harvest								Harvest
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unk	
1995–96	0	12	38	38	6	6	0	0	16
1996–97	0	11	18	4	44	22	0	0	27
1997–98	0	0	4	17	29	46	4	0	24
1998–99	0	31	30	12	12	19	0	0	18
1999–00	0	27	22	12	10	29	0	0	42
2000–01	0	6	44	28	9	13	0	0	32
2001–02	0	3	33	30	27	7	0	0	60
2002–03	0	18	45	20	13	5	0	0	56
2003–04	0	8	18	14	24	36	0	0	50
2004–05	0	0	40	6	19	34	0	0	47
2005–06	0	17	25	37	12	10	0	0	103

TABLE 8 Unit 16 wolverine harvest chronology, 1995–2006

Year	Percent of Harvest								Harvest
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Unk	
1995–96	0	0	0	11	22	67	0	0	9
1996–97	4	0	9	23	14	45	4	0	22
1997–98	13	0	0	19	19	31	19	0	16
1998–99	0	0	7	20	20	47	7	0	15
1999–00	3	0	3	24	14	31	24	0	29
2000–01	3	0	6	26	18	38	6	3	34
2001–02	4	0	7	24	24	38	2	0	45
2002–03	0	0	0	22	33	33	11	0	18
2003–04	0	0	3	19	31	39	6	3	36
2004–05	0	0	0	17	41	35	7	0	46
2005–06	3	0	9	3	45	27	6	6	33

TABLE 9 Unit 16 marten harvest chronology, 1995–2006

	Percent of Harvest								
Year	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Unk	Harvest
1995–96	0	0	55	44	1	0	0	0	229
1996–97	0	0	41	51	8	0	0	0	580
1997–98	0	0	11	57	32	0	0	0	299
1998–99	0	0	26	57	18	0	0	0	558
1999–00	0	0	36	36	21	6	0	0	485
2000–01	0	0	29	45	25	1	0	0	814
2001–02	0	0	21	47	32	0	0	1	945
2002–03	0	0	29	32	38	0	0	1	498
2003–04	0	0	16	46	32	5	0	0	729
2004–05	0	0	25	38	33	4	0	0	847
2005–06	0	0	29	47	24	0	0	1	1308

TABLE 10 Unit 16 beaver trapper transport methods, 1995–2006

Regulatory Year	Percent of Harvest								Total Harvest
	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	Unk	
1995–96	0	0	42	0	42	0	0	17	65
1996–97	13	0	1	0	69	0	7	9	167
1997–98	9	0	44	0	35	0	7	5	123
1998–99	9	8	7	0	75	0	1	0	115
1999–00	5	20	6	0	62	0	6	0	173
2000–01	18	5	0	3	54	1	11	9	196
2001–02	11	10	7	0	58	0	11	2	163
2002–03	17	10	23	8	12	0	8	22	300
2003–04	25	6	18	7	27	0	16	1	218
2004–05	7	3	37	1	24	22	0	6	161
2005–06	6	6	21	0	59	8	0	0	278

TABLE 11 Unit 16 land otter trapper transport methods, 1995–2006

Regulatory Year	Percent of Harvest								Total Harvest
	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	Unk	
1995–96	19	0	0	0	44	0	0	37	16
1996–97	15	0	0	0	85	0	0	0	27
1997–98	8	4	0	0	83	0	4	0	24
1998–99	0	22	0	0	61	0	0	17	18
1999–00	0	7	5	0	86	0	2	0	42
2000–01	0	19	0	0	63	0	13	6	32
2001–02	15	13	2	0	70	0	0	0	60
2002–03	14	11	2	32	32	2	7	0	56
2003–04	14	0	0	0	84	0	2	0	50
2004–05	19	0	0	0	81	0	0	0	47
2005–06	13	17	0	0	67	3	0	0	103

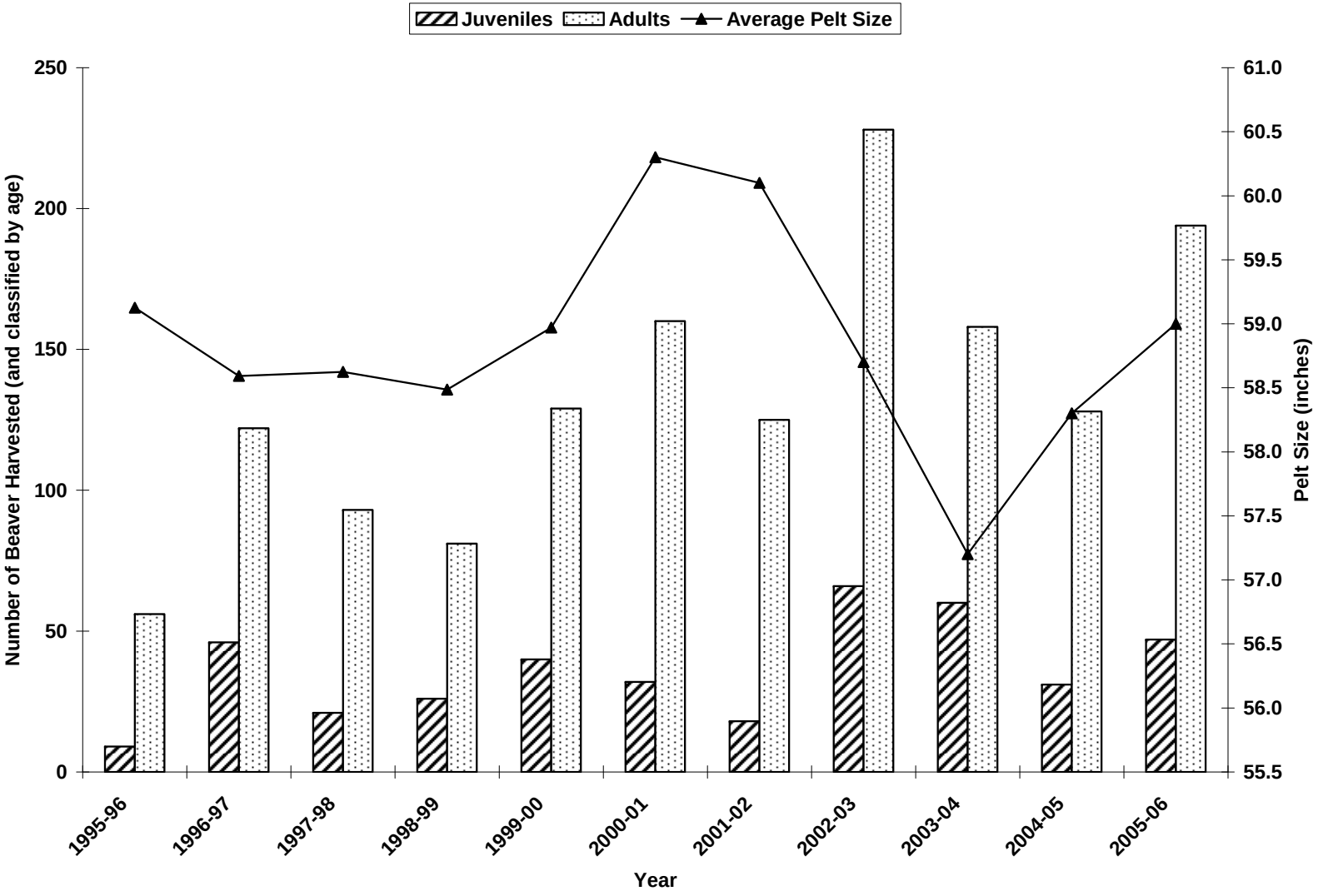
TABLE 12 Unit 16 wolverine trapper transport methods, 1995–2006

Regulatory Year	Percent of Harvest								Total Harvest
	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	Unk	
1995–96	11	0	0	0	78	0	0	11	9
1996–97	27	0	0	0	68	4	0	0	22
1997–98	6	12	0	0	80	0	0	6	16
1998–99	13	0	0	0	87	0	0	0	15
1999–00	21	7	0	0	72	0	0	0	29
2000–01	26	3	0	3	56	3	0	9	34
2001–02	33	2	0	2	60	0	0	2	45
2002–03	16	11	0	0	68	0	5	0	19
2003–04	37	4	0	2	50	0	6	2	52
2004–05	45	4	0	0	51	0	0	0	51
2005–06	31	2	0	7	53	2	4	0	45

TABLE 13 Unit 16 marten trapper transport methods, 1995–2006

Regulatory Year	Percent of Harvest								Total Harvest
	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	Unk	
1995–96	25	3	0	29	24	0	2	17	229
1996–97	15	1	0	0	79	0	2	2	580
1997–98	5	1	0	0	89	0	5	0	299
1998–99	2	5	0	0	80	0	2	11	558
1999–00	0	5	1	0	87	0	2	4	485
2000–01	1	11	0	0	87	0	1	0	814
2001–02	5	4	0	0	87	0	1	2	945
2002–03	3	18	0	4	61	2	7	5	498
2003–04	15	2	0	0	78	0	1	4	729
2004–05	12	1	0	1	70	0	0	16	847
2005–06	17	3	0	0	78	0	1	1	1308

FIGURE 1 Unit 16 beaver harvest depicted by age group and average pelt size (length + width) across years. (Juvenile beaver measure $\leq$ 52 inches). Harvest numbers are incomplete due to some beaver unmeasured at time of sealing.



WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
907-465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 17 (18,800 mi^2)

GEOGRAPHIC DESCRIPTION: Northern Bristol Bay

BACKGROUND

Trapping has long been an important part of the culture and economy of the residents of northern Bristol Bay. Trapping was one of the main sources of income for many local people prior to the growth of the commercial fishing industry. Until recently large numbers of trappers from around the region would come to Dillingham to tag and sell pelts at the annual "Beaver Round-up" in March. In the past, fur buyers purchased thousands of pelts during the week-long rendezvous and celebration. During the past decade there has been a continued decline in the importance of fur trapping to the economy and seasonal activities of local people.

Beaver historically was the most important furbearer in Game Management Unit 17. Beavers are abundant throughout most of unit, occurring in all major drainages and in most of the smaller tributaries. Beaver dams and the resulting reservoirs enhance waterfowl nesting habitat, provide aquatic plants used by moose and other herbivores, and are frequented by a wide variety of wildlife. In some portions of the unit, beaver dams may impede the movement of migrating salmon. While the silt accumulating upstream of the dams might destroy salmon spawning habitat, the ponds provide good rearing habitat for different fish species.

Adverse winter weather and predation are probably the most significant mortality factors presently for beavers in Unit 17. In the past, season closures were imposed in portions of the unit on several occasions to allow populations to recover from trapping pressure. Commercial salmon prices affected beaver trapping effort in the past; as salmon prices rose, fur trapping effort declined. Pelt prices are a significant factor in the annual beaver harvest, with low fur prices contributing to the low amount of beaver trapping activity. However, the importance of beaver as food for local residents assures a base level of harvest regardless of other factors.

Red fox is another common furbearer in Unit 17. Fox occur throughout the unit, preying on ptarmigan, grouse and various small mammals, as well as using remains from hunter-killed moose and caribou. Fox populations fluctuate widely, perhaps because of periodic rabies outbreaks. In the past, they have been an economically important fur species to local trappers.

Land otter populations increased steadily during the 1980s, and appeared to stabilize during the 1990s. Recent increases in otter pelt prices resulted in trappers targeting otters rather than just catching them incidentally while trapping for beaver. During this reporting period, they were one of the more valuable furbearers taken in Unit 17.

Lynx are uncommon in Unit 17. The lynx population fluctuates, but they are generally found in low-to-moderate densities even during peaks. Much of the fluctuation is probably due to local hare abundance and lynx dispersal from adjacent units. Most of the lynx harvested are caught within the Mulchatna River drainage and the mountains near Manokotak.

Wolverines occur throughout Unit 17, ranging from ridge tops to river mouths. Although no data have been collected on the wolverine population in the unit, incidental observations and trapper reports suggest it is stable. Harvest levels fluctuate annually, but they have remained relatively constant since 1976. The high price for wolverine fur, as well as some interest in wolverine as a big game species by hunters during the fall contributes to continued interest in taking wolverine in Unit 17.

Marten were uncommon in most of Unit 17 prior to 1970, but recent reports suggest they are becoming more widespread. Most of their habitat occurs along the Wood-Tikchik Lake system and the spruce forests along the Nushagak and Mulchatna rivers. Marten were reported in moderate numbers during the reporting period.

Mink occur in most of the riparian areas of Unit 17, but the size of the population and its relative trend are unknown. Pelts are smaller than mink found in the Kuskokwim River drainage, and prices paid for Unit 17 mink are much lower. Consequently, there is little trapping effort targeted toward mink in this area.

Coyotes have become common throughout Unit 17 as they expanded their range westward from the Alaska Range. Arctic foxes are uncommon visitors to the unit, probably dispersing from the lower Kuskokwim River drainages during peaks in their population cycles. Weasels are common throughout the unit, but there is little trapping effort targeting the species. Long-term residents of Unit 17 report that muskrats were common along the lower Nushagak and Togiak Rivers and on the Nushagak Peninsula in the past. They are currently rare throughout Unit 17, mainly occupying the Igushik and Snake River drainages.

POPULATION OBJECTIVES

Beaver: To maintain a population in Subunit 17A at an average stream density index of 1.0 cache per river mile. To maintain populations throughout Subunits 17B and 17C at a level sufficient to sustain an average stream density of 1.2 caches per river mile.

Otter: To maintain a population in Unit 17 capable of sustaining an average annual harvest of 200 otters.

Red Fox: To maintain a population in Unit 17 capable of sustaining a 5-year average annual harvest of 400 foxes.

Wolverine: To maintain a population in Unit 17 capable of sustaining an average annual harvest of 50 wolverines.

METHODS

Harvest data were collected when beavers, wolverines, lynx, and otters were sealed. Fur acquisition reports provided additional harvest data for those species not required to be sealed. A trapper questionnaire designed to provide an index of population status of various furbearer species was sent to a sample of trappers throughout the unit each spring. Aerial cache surveys were flown most years between 1968 and 2002 to provide an index of abundance in selected streams and rivers. With the exception of Unit 17A, cache surveys have not been flown in recent years.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Beaver populations in the unit appeared to be stable during this reporting period. Most residents report high beaver densities throughout the area, but low prices kept harvests low during this reporting period. Reports of nuisance beavers, particularly in salmon spawning streams and along roads, have remained constant over the past several years.

Otter and wolverine populations appeared to be stable. Both species occur throughout the unit. No objective population data have ever been collected on these species in Unit 17.

Although never common in the unit, lynx populations probably increased in the early 1990s but are currently low. Population data for lynx are derived from incidental observations and harvest records. Snowshoe hare populations appeared to be moderate in Subunits 17B and 17C during this reporting period.

Red fox populations appeared to be stable during this reporting period, though trends are difficult to determine because of low trapping effort.

Coyotes have become common in the unit, though no objective population data have been collected. Population data for coyotes are derived from incidental observations. Highest densities appeared to be along the lower Nushagak River and Nushagak Peninsula.

No data were available to assess marten, mink or weasel population trends. Trapper reports indicate that these species are common in suitable habitat and that marten populations have expanded their range in recent years.

Muskrats remained scarce throughout the unit during this reporting period. In spite of intensive human use of area waterways, observations of muskrats are rare. The only portions of the unit with viable populations appeared to be the Weary and Igushik River drainages.

MORTALITY

HARVEST

Season and Bag Limit.

Beaver season was 10 November–31 March, and from 15 April–31 May firearms could be used to take up to 2 beaver per day for food. There is no season bag limit. Beaver harvests during this reporting period were 249 in 2003–04; 186 in 2004–05; and 301 in 2005–06, in general lower than the mean annual harvest for the previous 5 years (1998-99 through 2002-03, $\bar{x}$ = 291) (Table 1). Trappers indicated the main reasons for the reduced harvest were low fur prices and high transportation costs, affecting the number of trappers afield (Table 2). The percentage of kits in the harvest remained relatively consistent with past seasons (Table 1). In the past snares and traps were equally important methods of trapping beavers in Unit 17, but in recent years most trappers report using traps (usually Conibear-type body gripping traps) (Table 2).

Marten, mink, and weasel seasons were open 10 November–28 February with no bag limit. Wolverine trapping season was open 10 November–31 March, and wolverine could be hunted 1 September through 31 March. There was a bag limit of 1 wolverine per season with a hunting license, but no bag limit for trapping. Harvests were 88 in 2003–04; 55 in 2004–05; and 45 in 2005–06, in general higher than the mean annual harvest for the previous 5 years (1998-99 through 2002-03, $\bar{x}$ = 30) (Table 1). Trapping was the most common method of harvest, followed by shooting (Table 3).

Coyote, arctic fox, red fox, and lynx seasons were open 10 Nov–31 March. There was no bag limit. The number of lynx caught this reporting period was similar to previous years, with 12 reported in 2003–04; 3 in 2004–05; and 4 in 2005–06. The average annual harvest from the previous 5 years (1998-9 through 2002-03) was 5 (Table 1). Most lynx taken in the past 5 years have been trapped (Table 4).

Land otter season was open 10 Nov–31 March with no bag limit. Until the past several years, most of the otters trapped were probably taken incidental to beaver trapping. During this reporting period, prices in excess of $100 for otters were paid, resulting in considerable trapping effort directed towards otters. Reported harvests of otters were 81 in 2003–04; 132 in 2004–05; and 124 in 2005–06; these otter harvest numbers are comparable to those years when a considerable number of otters were taken incidental to active beaver trapping. The average annual harvest for the previous 5 years (1998/9–2002/03) was 47 (Table 1). During the past 5 years the sex ratio of the harvest has remained relatively even (Table 5). Traps (probably Conibears) are the most common method used by successful trappers, followed by snares and firearms (Table 5).

Muskrat season was open 10 Nov—28 Feb, with a bag limit of 2 per season.

Harvest data on furbearers that are not sealed are sketchy at best. Fur export and acquisition reports provide only minimum harvest levels because many furs are used locally during periods of low fur prices.

Board of Game Actions and Emergency Orders. During its March 2003 meeting the Board of Game opened beaver trapping season 10 October, and eliminated the bag limit. The Board also extended the wolverine trapping season in Unit 17 through March 31. No emergency orders affecting trapping were issued during this reporting period.

Permit Hunts. Permits for trapping nuisance beavers were issued each fall during this reporting period to remove beavers that were plugging culverts on local roads in the Dillingham area.

Hunter Residency and Success. Data on trapper residency and success have not been specifically analyzed. Individuals from villages within Unit 17 account for most of the harvest. Trappers residing in adjacent units (Nondalton, Iliamna, and Kuskokwim river villages) also take some furbearers in Unit 17. A few trappers from outside of the area have flown into Subunit 17B to harvest wolverines. Several wolverines were taken each year by nonresidents during the fall while hunting for moose or caribou.

Transport Methods. Snowmachines were typically the most common means of access used by successful trappers in Unit 17 (Tables 6–9). During most years snowmachines allow reliable access to most of the unit from late December to March. With the beaver trapping season opening in October, some trappers used boats to access beaver trapping areas.

Harvest Chronology. Beaver harvest chronology is dependent on weather conditions. Fluctuations noted on Table 10 should be viewed with caution. Many trappers did not keep close track of when their beavers were trapped during the course of the season. The relatively few lynx harvested during this reporting period do not provide any meaningful information on harvest chronology (Table 11). Otters were caught throughout the trapping season with most of the harvest occurring during the period when most of the beaver trapping occurs (January and February) (Table 12). Wolverine harvests were historically highest in February, though with the present later season March has become an important month when they are reported taken. (Table 13).

OTHER MORTALITY

Beaver and an occasional otter are sometimes caught in gillnets during the summer fishing season. The total number caught unitwide is probably less than 50 per year. These incidental catches are rarely reported, and carcasses are either used for food or discarded. Natural mortality of beavers can be high in the Bristol Bay area during winters of low temperatures and low snowfall, when beaver caches in shallow areas become ice-bound. High mortality rates can also occur for beavers along major rivers during severe spring breakup periods. There were no reported cases of rabid foxes in Unit 17 during this reporting period.

HABITAT

ASSESSMENT

No formal habitat monitoring programs were conducted in Unit 17. Furbearer habitat along the Nushagak, Mulchatna, and Togiak Rivers, and along the lower reaches of the major tributaries to those rivers, appeared to be in very good to excellent condition. Although there was evidence of heavy browsing, willow stands on gravel bars were abundant.

ENHANCEMENT

No human-caused habitat enhancement activities have been documented in Unit 17. Because of the relative inaccessibility of most of the unit and the occurrence of natural enhancement, human-caused habitat enhancement is neither practical nor necessary at this time.

NONREGULATORY PROBLEMS/NEEDS:

Supposed conflicts with beavers and spawning salmon along streams are periodically reported from throughout the unit. Permits are issued each year to the Alaska Department of Transportation and Public Facilities to remove beavers that are impacting road culverts in the Dillingham area.

CONCLUSIONS

Most furbearer populations in Unit 17 appear to be healthy and stable. Low prices paid for most pelts, coupled with high fuel prices, have reduced trapping pressure on beavers in many areas. An increase in value of otter pelts led to increased otter trapping effort, but probably didn't negatively impact the unitwide population. Local trappers are generally satisfied with current beaver and otter seasons and bag limits.

Wolverine harvests have been relatively consistent with fluctuations likely reflecting changes in trapper effort due to traveling conditions. Reinstatement of the March portion of the trapping season seemed to increase the harvest to levels of previous years. Many wolverine pelts are used by local fur sewers, and prices have remained consistently high.

Lynx populations have rebounded from the low levels first noted in 1987–88 and peaked in 1994–95. Liberal seasons have probably had little effect on the recovery of the lynx population because most trappers in the unit catch lynx incidentally in fox and wolverine sets.

Red fox populations remained relatively stable during this reporting period. If the fox population cycle is driven by periodic endemic rabies outbreaks, there are probably few practical measures the department can implement to achieve the objective of maintaining a population that will support a harvest of 400 foxes per year.

Reasons for the low muskrat population in Unit 17 remain a mystery. However, this seems to be a statewide phenomenon. More research into the historic abundance and distribution of this species in the Bristol Bay area is needed.

PREPARED BY:
James D. Woolington
Wildlife Biologist III

SUBMITTED BY:
Gino Del Frate
Management Coordinator

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TABLE 1 Reported harvest of furbearers in Unit 17, 1956–57 through 2005–06 (sealing record data)

Regulatory	Beaver		Lynx		Land Otter				Wolverine			
year	% Kits	Total	% Kits	Total	Male	Female	Unk	Total	Male	Female	Unk	Total
1956–57	22.9	367	---	---	---	---	---	---	---	---	---	---
1957–58	19.1	3165	---	---	---	---	---	---	---	---	---	---
1958–59	19.6	3245	---	---	---	---	---	---	---	---	---	---
1959–60	24.3	3721	---	---	---	---	---	---	---	---	---	---
1960–61	23.1	2849	---	---	---	---	---	---	---	---	---	---
1961–62	29.5	1903	---	---	---	---	---	---	---	---	---	---
1962–63	23.3	2172	---	---	---	---	---	---	---	---	---	---
1963–64	28.4	1766	---	---	---	---	---	---	---	---	---	---
1964–65	22.1	957	---	---	---	---	---	---	---	---	---	---
1965–66	25.2	1424	---	---	---	---	---	---	---	---	---	---
1966–67	25.3	2711	---	---	---	---	---	---	---	---	---	---
1967–68	25.7	3158	---	---	---	---	---	---	---	---	---	---
1968–69	N/A	1750[a]	---	---	---	---	---	---	---	---	---	---
1970–71	27.5	824	---	---	---	---	---	---	---	---	---	---
1971–72	20.5	762	---	---	---	---	---	---	---	---	---	---
1972–73	23.9	1849	---	---	---	---	---	---	10	5	6	21
1973–74	23.9	1681	---	---	---	---	---	---	27	18	0	45
1974–75	15.8	929[b]	---	---	---	---	---	---	14	7	1	22
1975–76	22.2	637[b]	---	---	---	---	---	---	50	25	3	78
1976–77	17.7	766[b]	---	---	---	---	---	---	37	12	2	51
1977–78	23.5	802[b]	11.1	36	52	49	7	108	32	14	3	49
1978–79	20.5	959	26.7	30	70	54	9	133	26	14	3	43
1979–80	27.7	1478	32.0	25	68	62	9	139	28	19	0	47
1981–82	20.9	1693	11.8	17	94	83	1	178	28	10	0	38
1982–83	12.8	1824	12.0	25	100	72	31	203	34	17	1	52
1983–84	18.7	1360	8.3	12	94	63	3	160	10	4	0	14
1984–85	22.9	1661	27.6	29	105	94	20	219	39	16	2	57

TABLE 1 Continued

Regulatory	Beaver	Lynx		Land Otter				Wolverine				
Year	% Kits	Total	% Kits	Total	Male	Female	Unk	Total	Male	Female	Unk	Total
1985–86	15.9	1452	12.5	8	49	46	6	101	13	8	2	23
1986–87	20.1	2817	21.4	14	87	90	11	188	31	9	0	40
1987–88	21.8	3048	0	1	133	133	1	267	22	20	2	44
1988–89	18.8	965	0	1	66	57	19	142	21	16	7	44
1989–90	19.7	1245	0	1	67	46	3	116	14	7	5	26
1990–91	20.2	1092	50.0	2	68	71	10	149	19	19	8	46
1991–92	21.8	1183	0	5	40	45	18	103	25	23	3	51
1992–93	29.9	455	13.3	15	38	36	9	83	8	2	0	10
1993–94	20.0	676[c]	13.3	15	46	40	10	96	18	10	1	29
1994–95	23.3	1091	14.3	28	63	50	21	134	32	21	5	58
1995–96	26.2	439	0	7	43	40	0	83	22	12	0	34
1996–97	20.0	869	14.3	7	75	95	24	194	28	14	8	50
1997–98	24.4	382	21.4	14	40	43	3	86	29	18	0	47
1998–99	27.5	436	11.1	9	23	22	5	50	20	6	1	27
1999–00[d]	43.7	215	0	12	14	18	10	42	21	9	0	30
2000–01	18.4	326	33	3	20	26	21	67	20	12	1	33
2001–02	25.1	219	0	2	15	12	2	29	30	14	3	47
2002–03	17.1	258	0	1	28	20	2	50	11	4	0	15
2003-04	22.5	249	0	12	45	35	1	81	58	29	1	88
2004-05	16.7	186	0	3	73	56	3	132	39	16	0	55
2005-06	24.3	301	0	4	56	47	21	124	36	9	0	45

[a] No harvest records available, estimates only

[b] Beaver trapping season closed in units 17A and 17C.

[c] Beaver trapping season in unit 17A extended by one month by emergency regulation.

[d] Beaver trapping season changed to November 10–March 31 unitwide, with April 15–May 31 season when 2 beaver/day could be taken with a firearm.

TABLE 2 Unit 17 beaver harvest, 1992–93 through 2005–06

Regulatory	Reported harvest			Method of take			Successful
year[a]	Kits[b] (%)	Adults (%)	Total	Trap (%)	Snare (%)	Unk.	Trappers
1992–93	136 (29.9)	319 (70.1)	455	218 (47.9)	213 (46.8)	24	45
1993–94	135 (20.0)	541 (80.0)	676	345 (51.0)	320 (47.3)	11	57
1994–95	254 (23.3)	837 (76.7)	1091	564 (51.7)	517 (47.4)	10	90
1995–96	115 (26.2)	324 (73.8)	439	244 (55.6)	195 (44.4)	0	44
1996–97	174 (20.0)	695 (80.0)	869	311 (35.8)	558 (64.2)	0	65
1997–98	90 (23.6)	289 (75.7)	382	177 (46.3)	179 (46.9)	26	38
1998–99	120 (27.5)	316 (72.5)	436	187 (42.9)	212 (48.6)	37	43
1999–00	94 (43.7)	121 (56.3)	215	98 (45.6)	108 (50.2)	9	25
2000–01	50 (15.3)	266 (81.6)	326	132 (40.5)	179 (54.9)	15	26
2001–02	55 (25.1)	164 (74.9)	219	78 (35.6)	136 (62.1)	5	21
2002–03	44 (17.1)	214 (82.9)	258	166 (64.3)	75 (29.1)	17	24
2003-04	56 (22.5)	193 (77.5)	249	132 (53.0)	106 (42.6)	9	27
2004-05	31 (16.7)	155 (83.3)	186	162 (87.1)	24 (12.9)	1	17
2005-06	73 (24.3)	223 (74.1)	301	252 (83.7)	39 (13.0)	10	29

[a] Season dates: 1992/93–96/97 Unit 17A: 1 Jan–31 Jan 20 per season
Units 17B & 17C: 1 Jan–28 Feb 20 per season
1993–94 Unit 17A season extended to 1 Jan–28 Feb by emergency regulation.
1999–2000 Unitwide season extended to 10 November–31 March, and 15 April–31 May, when 2 beaver/day can be taken with a firearm. 40 per season

[b] Juveniles < 52"

TABLE 3 Unit 17 wolverine harvest, 1992–93 through 2005–06

Regulatory Year[a]	Reported harvest				Method of take				Successful Trappers
	Males (%)	Females (%)	Unk.	Total	Trap (%)	Snare (%)	Shot (%)	Unk.	
1992–93	8 (80.0)	2 (20.0)	0	10	8 (80.0)	0 (---)	2 (20.0)	0	10
1993–94	18 (62.1)	10 (34.5)	1	29	7 (24.1)	1 (3.4)	21 (72.4)	0	20
1994–95	32 (55.2)	21 (36.2)	5	58	44 (75.9)	1 (1.7)	13 (22.4)	0	29
1995–96	22 (64.7)	12 (35.3)	0	34	25 (73.5)	1 (2.9)	8 (23.5)	0	17
1996–97	28 (56.0)	14 (28.0)	8	50	36 (72.0)	1 (2.0)	13 (26.0)	0	24
1997–98	29 (61.7)	18 (38.3)	0	47	37 (78.7)	0 (---)	10 (21.3)	0	18
1998–99	20 (74.1)	6 (22.2)	1	27	15 (55.6)	1 (37.0)	10 (37.0)	1	27
1999–00	21 (70.0)	9 (30.0)	0	30	13(43.3)	0 (---)	17 (56.7)	0	22
2000–01	20 (60.6)	12 (36.4)	1	33	11 (33.3)	0 (---)	20 (60.6)	2	22
2001–02	30 (63.8)	14 (29.8)	3	47	34 (72.3)	0 (---)	13 (27.7)	0	25
2002–03	11 (73.3)	4 (26.7)	0	15	8 (53.3)	0 (---)	7 (46.7)	0	14
2003-04[b]	58 (65.9)	29 (33.0)	1	88	68 (77.3)	1 (1.1)	18 (20.5)	1	34
2004-05	39 (70.9)	16 (29.1)	0	55	43 (78.2)	1 (1.8)	10 (18.2)	1	24
2005-06	36 (80.0)	9 (20.0)	0	45	33 (73.3)	2 (4.4)	10 (22.2)	0	27

[a] Trapping season dates: 1992/93–present Unit 17 10 Nov–28 Feb No limit

[b] Trapping season dates: 1992/93–present Unit 17 10 Nov–28 Feb No limit

Hunting season dates: 1992/93–present Unit 17 1 Sep–31 Mar 1 wolverine

TABLE 4 Unit 17 lynx harvest, 1992–93 through 2005–06

Regulatory Year[a]	Reported harvest						Method of take			Successful Trappers
	Males (%)	Females (%)	Unk.	Juveniles[b] (%)	Adults (%)	Total	Trap/Snare (%)	Shot (%)	Unk.	
1992–93	5 (55.6)	4 (44.4)	6	2 (13.3)	13 (86.7)	15	13 (86.7)	2(13.3)	0	4
1993–94	5 (41.7)	7 (58.3)	3	2 (13.3)	13 (86.7)	15	14 (93.3)	1 (6.7)	0	11
1994–95	10 (40.0)	15 (60.0)	3	4 (14.3)	24 (85.7)	28	28 (100)	0 (---)	0	14
1995–96	2 (28.6)	5 (71.4)	0	0 (---)	7 (100)	7	6 (85.7)	1(14.3)	0	6
1996–97	1 (20.0)	4 (80.0)	2	1 (14.3)	5 (71.4)	7	6 (85.7)	0 (---)	1	7
1997–98	8 (57.1)	6 (42.9)	0	3 (21.4)	11 (78.6)	14	9 (64.3)	5(35.7)	0	9
1998–99	3 (42.9)	4 (57.1)	2	1 (11.1)	8 (88.9)	9	9 (100)	0 (---)	0	7
1999–00	3 (27.3)	8 (72.7)	1	0 (---)	12 (100)	12	11 (91.7)	1 (8.3)	0	4
2000–01	0 (---)	0 (---)	3	1 (33.3)	2 (66.7)	3	3 (100)	0 (---)	0	1
2001–02	0 (---)	0 (---)	2	0 (---)	2 (100)	2	2 (100)	0 (---)	0	2
2002–03	0 (---)	0 (---)	1	0 (---)	1 (100)	1	0 (---)	1 (100	0	1
2003-04	6 (50.0)	6 (50.0)	0	0 (---)	12 (100.0)	12	11 (91.7)	1 (8.3)	0	8
2004-05	1 (50.0)	1 (50.0)	1	0 (---)	2 (66.7)	3	2 (66.7)	1 (33.3)	0	3
2005-06	3 (75.0)	1 (25.0)	0	0 (---)	4 (100)	4	4 (100)	0 (---)	0	4

[a] Trapping season dates: 1992/93–1996/97 Unit 17 10 Nov–28 Feb No limit
1997/98–present Unit 17 10 Nov–31 Mar No Limit
Hunting season dates: 1992/93–present Unit 17 10 Nov–28 Feb 2 lynx

[b] Juveniles < 34" in length

TABLE 5 Unit 17 otter harvest, 1992–93 through 2005–06

Regulatory Year[a]	Reported harvest				Method of take				Successful Trappers
	Males (%)	Females (%)	Unk.	Total	Trap (%)	Snare (%)	Shot (%)	Unk.	
1992–93	38 (51.4)	36 (48.6)	9	83	60 (72.3)	20 (24.1)	1 (1.2)	2	29
1993–94	46 (53.5)	40 (46.5)	10	96	62 (64.6)	21 (21.9)	6 (6.3)	7	33
1994–95	63 (55.8)	50 (44.2)	21	134	122 (91.0)	12 (9.0)	0 (---)	0	41
1995–96	43 (51.8)	40 (48.2)	0	83	68 (81.9)	8 (9.6)	3 (3.6)	4	24
1996–97	75 (44.1)	95 (55.9	24	194	118 (60.8)	64 (33.0)	6 (3.1)	6	51
1997–98	40 (48.2)	43 (51.8)	3	86	57 (66.3)	19 (22.1)	10 (11.6)	0	30
1998–99	23 (51.1)	22 (48.9)	5	50	28 (56.0)	18 (36.0)	4 (8.0)	0	16
1999–2000	14 (43.8)	18 (56.2)	10	42	30 (71.4)	3 (7.1)	1 (2.4)	8	19
2000–01	20 (43.5)	26 (56.5)	21	67	56 (83.6)	8 (11.9)	3 (4.5)	0	14
2001–02	15 (55.6)	12 (44.4)	2	29	23 (79.3)	4 (13.8)	1 (3.4)	1	12
2002–03	28 (58.3)	20 (41.7)	2	50	41 (82.0)	3 (6.0)	6 (12.0)	0	15
2003-04	45 (56.3)	35 (43.7)	1	81	69 (85.2)	7 (8.6)	4 (4.9)	1	24
2004-05	73 (56.6)	56 (43.4)	3	132	112 (84.9)	8 (6.1)	7 (5.3)	5	25
2005-06	56 (54.4)	47 (45.6)	21	124	120 (96.8)	1 (0.8)	1 (0.8)	2	29

[a] Season dates: 1992/93–1996/97 Unit 17 10 Nov–31 Mar No limit
1997/98–1998/99 Unit 17 10 Nov–28 Feb No limit
1999/2000–present Unit 17 10 Nov–31 Ma No limit

TABLE 6 Unit 17 beaver harvest percentage by transport method, 1992–93 through 2005–06

Regulatory year	Percent of harvest								
	Airplane	Dogsled	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Unknown	Total
1992–93	---	---	---	---	96.3	---	---	3.7	455
1993–94	1.3	---	---	---	96.4	---	---	2.2	676
1994–95	0.4	1.3	---	---	98.2	---	0.2	---	1091
1995–96	0.9	2.7	---	---	96.4	---	---	---	439
1996–97	1.5	---	---	---	98.4	0.1	---	---	869
1997–98	---	---	---	6.3	84.0	---	1.8	6.8	382
1998–99	0.5	2.3	---	---	88.8	---	---	8.5	436
1999–00	0.5	---	0.5	---	93.0	---	---	6.0	215
2000–01	---	---	2.8	---	89.0	---	4.0	4.3	326
2001–02	---	---	---	---	98.6	---	0.5	0.9	219
2002–03	---	---	22.5	9.3	49.2	---	14.3	4.7	258
2003-04	1.6	---	11.7	2.0	80.7	---	0.4	3.6	249
2004-05	---	---	29.0	---	69.4	---	---	1.6	186
2005-06	---	---	22.9	3.3	71.1	---	2.3	0.3	301

TABLE 7 Unit 17 lynx harvest percentage by transport method, 1992–93 through 2005–06

Regulatory Year	Percent of harvest								
	Airplane	Dogsled	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Unknown	Total
1992–93	---	---	---	---	100	---	---	---	15
1993–94	---	---	6.7	---	80.0	---	---	13.3	15
1994–95	3.6	---	---	---	96.4	---	---	---	28
1995–96	42.9	---	---	---	57.1	---	---	---	7
1996–97	---	---	---	---	85.7	---	---	14.3	7
1997–98	---	---	---	7.1	64.3	---	---	28.6	14
1998–99	---	---	22.2	---	77.8	---	---	---	9
1999–00	---	---	---	---	100	---	---	---	12
2000–01	---	---	---	---	100	---	---	---	3
2001–02	---	---	---	---	100	---	---	---	2
2002–03	---	---	100	---	---	---	---	---	1
2003-04	8.3	---	---	---	91.7	---	---	---	12
2004-05	---	---	---	---	100	---	---	---	3
2005-06	---	---	---	---	100	---	---	---	4

TABLE 8 Unit 17 otter harvest percentage by transport method, 1992–93 through 2005–06

Regulatory year	Percent of harvest								
	Airplane	Dogsled	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Unknown	Total
1992–93	---	---	6.0	---	91.6	---	---	2.4	83
1993–94	---	---	10.4	---	80.2	---	---	9.4	96
1994–95	---	---	---	---	99.3	---	---	0.7	134
1995–96	---	---	---	---	86.7	---	1.2	12.0	83
1996–97	---	---	---	---	94.8	---	---	5.2	194
1997–98	---	---	---	7.0	93.0	---	---	---	86
1998–99	---	---	---	---	100	---	---	---	50
1999–00	---	---	16.7	---	50.0	---	---	33.3	42
2000–01	11.9	---	---	---	80.6	---	7.5	---	67
2001–02	---	---	---	---	96.6	---	---	3.4	29
2002–03	---	---	30.0	---	52.0	---	6.0	12.0	50
2003-04	---	---	12.4	2.5	70.4	---	11.1	3.7	81
2004-05	---	---	8.3	---	86.4	---	---	5.3	132
2005-06	---	---	0.8	1.6	95.2	---	0.8	1.6	124

TABLE 9 Unit 17 wolverine harvest percentage by transport method, 1992–93 through 2005–06

Regulatory Year	Percent of harvest								
	Airplane	Dogsled	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Unknown	Total
1992–93	---	---	---	---	100.0	---	---	---	10
1993–94	17.2	---	---	---	79.3	---	---	3.4	29
1994–95	13.8	---	---	---	86.2	---	---	---	58
1995–96	52.9	---	---	---	41.2	---	---	5.9	34
1996–97	38.0	---	---	---	62.0	---	---	---	50
1997–98	46.8	---	---	---	51.1	---	---	2.1	47
1998–99	37.0	---	---	---	55.6	---	---	7.4	27
1999–00	16.7	---	6.7	---	73.3	---	---	3.3	30
2000–01	24.2	---	3.0	---	63.6	---	3.0	6.1	33
2001–02	15.0	---	4.3	---	76.6	---	---	4.3	47
2002–03	40.0	---	26.7	---	33.3	---	---	---	15
2003-04	22.7	---	---	---	71.6	---	---	5.7	88
2004-05	9.1	---	1.8	---	83.6	---	---	5.5	55
2005-06	17.8	---	2.2	---	80.0	---	---	---	45

TABLE 10 Unit 17 beaver harvest chronology percentage by month, 1992–93 through 2005–06

Regulatory Year	Month November	December	January	February	March	April	Other/Unk	Total
1992–93	---	---	71.2	27.9	---	---	0.9	455
1993–94	---	---	45.4	51.6	---	---	3.0	676
1994–95	---	---	43.9	51.6	3.0	---	1.5	1091
1995–96	---	0.5	43.3	56.0	---	---	0.2	439
1996–97	---	0.1	55.5	44.4	---	---	---	869
1997–98	1.1	15.2	54.2	27.0	1.6	---	---	382
1998–99	10.1	18.8	40.4	24.3	---	---	6.4	436
1999–2000	5.1	5.6	70.2	13.0	4.2	---	1.9	215
2000–01	8.3	14.4	34.4	18.1	18.7	0.3	5.8	326
2001–02	10.5	15.5	44.3	18.7	8.7	---	2.3	219
2002–03	9.7	25.6	24.0	33.7	---	3.9	3.1	258
2003-04	6.4	12.9	26.5	36.6	4.4	---	13.3	249
2004-05	3.8	11.8	25.8	24.2	2.2	---	32.3	186
2005-06	3.3	20.9	28.9	19.6	1.3	1.0	24.9	301

TABLE 11 Unit 17 lynx harvest chronology percentage by month, 1992–93 through 2005–06

Regulatory Year	Month						
	November	December	January	February	March	Other/Unknown	Total
1992–93	13.3	46.7	---	40.0	---	---	15
1993–94	8.3	33.3	13.3	53.3	---	---	15
1994–95	---	25.0	35.7	35.7	3.6	---	28
1995–96	---	28.6	57.1	14.3	---	---	7
1996–97	---	14.3	28.6	42.9	---	14.3	7
1997–98	---	21.4	35.7	7.1	---	35.7	14
1998–99	11.1	11.1	11.1	44.4	11.1	11.1	9
1999–2000	---	8.3	66.7	16.7	8.3	---	12
2000–01	---	66.7	33.3	---	---	---	3
2001–02	---	50.0	50.0	---	---	---	2
2002–03	100	---	---	---	---	---	1
2003-04	---	---	83.3	16.7	---	---	12
2004-05	---	---	---	33.3	66.7	---	3
2005-06	---	---	25.0	50.0	25.0	---	4

TABLE 12 Unit 17 otter harvest chronology percentage by month, 1992–93 through 2005–06

Regulatory Year	Month					Other/Unknown	Total
	November	December	January	February	March		
1992–93	8.4	10.8	59.0	20.5	---	1.2	83
1993–94	14.6	24.0	34.4	18.8	1.0	7.3	96
1994–95	5.2	18.7	47.0	24.6	3.0	1.4	134
1995–96	1.2	10.8	32.5	55.4	---	---	83
1996–97	1.0	2.6	46.9	43.3	3.6	2.6	194
1997–98	3.5	29.1	39.5	26.7	---	1.2	86
1998–99	10.0	14.0	36.0	38.0	---	2.0	50
1999–2000	4.8	9.5	35.7	19.1	7.1	23.8	42
2000–01	13.4	10.5	40.3	28.4	7.5	---	67
2001–02	10.3	17.2	34.5	24.1	10.3	3.4	29
2002–03	18.0	28.0	20.0	34.0	---	---	50
2003-04	14.8	25.9	33.3	22.2	3.7	---	81
2004-05	15.9	18.9	31.8	29.6	3.0	0.8	132
2005-06	16.9	41.1	16.9	17.7	4.8	2.4	124

TABLE 13 Unit 17 wolverine harvest chronology percentage by month, 1992–93 through 2005-06

Regulatory Year	Month						
	November	December	January	February	March	Other/Unknown	Total
1992–93	---	10.0	40.0	50.0	---	---	10
1993–94	---	10.3	13.8	51.7	3.4	20.7	29
1994–95	---	13.8	36.2	41.4	5.2	3.4	58
1995–96	14.7	8.8	20.6	38.2	---	17.6	34
1996–97	---	20.0	42.0	28.0	8.0	2.0	50
1997–98	---	6.4	51.1	38.3	---	4.3	47
1998–99	---	11.1	29.6	40.7	---	18.5	27
1999–2000	3.3	10.0	20.0	36.7	10.0	20.0	30
2000–01	---	6.1	9.1	51.5	3.0	30.3	33
2001–02	---	12.8	14.9	29.8	25.5	17.0	47
2002–03	13.3	6.7	26.7	13.3	6.7	33.3	15
2003-04	---	3.4	15.9	44.3	23.9	12.5	88
2004-05	1.8	7.3	25.5	30.9	29.1	5.5	55
2005-06	4.4	6.7	8.9	24.4	40.0	15.6	45

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 18 (42,000 mi^2)

GEOGRAPHIC DESCRIPTION: Yukon–Kuskokwim Delta

BACKGROUND

Furbearers are abundant throughout Unit 18, and extensive areas of suitable habitat support large populations of red fox and aquatic furbearers, such as mink, river otter, muskrat and beaver. Less extensive habitats suitable for lynx, marten, arctic fox, squirrel, wolverine and coyote occur in Unit 18 and are occupied by these furbearers.

Fur harvests are well below desirable levels and are far below the historic highs of the 1930s. Historically, approximately one-third of the fur sealed in the state originated in Unit 18 and the sale of furs provided an important financial boost to the mixed subsistence/cash economy. However, in recent years the number of trappers and the harvest of fur have declined with minor fluctuations driven by fur prices and travel conditions.

MANAGEMENT DIRECTION

MANAGEMENT GOALS

Management goals for furbearers in Unit 18 include: reducing adverse interactions between furbearers and the public, maintaining populations at healthy levels, and monitoring population status and harvest.

MANAGEMENT OBJECTIVES

- Furbearer populations in Unit 18 range from healthy to overabundant and can support significantly higher harvests. We encourage trappers to become more active through liberal seasons and bag limits for all furbearers in Unit 18 and through informal means of communication.

- Beavers and foxes have great potential for adverse interactions with the public. We encourage trappers to target these species through broad educational efforts.

- Our harvest assessment depends on fur sealers, fur buyers, and trappers who export fur from Alaska. Fur sealers receive a dollar for every fur they seal, fur buyers are required to fill out a report of acquisition of furs and hides, and trappers sending furs out of Alaska are required to fill out a raw fur export permit. Our objectives include maintaining these programs for harvest assessment.

- Compliance with trapping regulations in general and harvest reporting in particular is poor in Unit 18. We use public communication and broad educational efforts to address this problem.

METHODS

We collected furbearer information in Unit 18 by interviewing local trappers and other residents; estimated harvest through sealing certificates and fur acquisition reports; submitted public service announcements and newspaper articles to several media sources to provide information about trapping and trapping regulations; distributed trapper questionnaires; contacted fur sealers regarding proper procedures for sealing pelts; and made incidental observations of furbearer species during fieldwork for other species.

We conducted an aerial beaver cache survey along Reindeer River between Pilot Station and Marshall following a route modified from a 1984 survey. All of the lodges along the river (not including adjacent oxbow lakes) were mapped and classified as vacant or occupied based on the presence or absence of feed caches, and the findings were compared to those from 1984.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

Beaver — Beavers range from abundant to overabundant throughout the unit in all suitable habitats. Trapper questionnaire results show moderately high values for both abundance and trend for the 2 years for which we have data. Villagers have complained since at least the early 1980s that beaver numbers have increased to the point that they are ruining favored fish habitats. Certainly, beaver dams are inconvenient when they are built across sloughs and rivers commonly used for boat travel, and beavers are regularly removed from the right of way along village roadways.

Coyote — Only anecdotal population information is available for coyotes, and we agree with trappers that the population is probably stable at low levels.

Arctic Fox — Arctic foxes are present in Unit 18 along the coast and on Nunivak Island. The population there is generally stable at moderate levels according to trapper questionnaire responses and interviews with muskox hunters and trappers on Nunivak and Nelson Islands.

Red Fox — Red foxes are abundant throughout Unit 18. They are commonly seen during aerial surveys for other species; are routinely seen in the villages, including Bethel; and trappers consistently answered the questionnaire stating that fox numbers were moderate-to-high and

stable-to-increasing. During this and the previous reporting period, foxes are known to have tested positive for rabies, which is consistent with a large population.

Lynx — During this reporting period it appears that lynx numbers are stable or increasing. Numerous lynx and lynx tracks have been seen during winter moose surveys, there has been an increase in the number of lynx sealed, and good numbers of kittens have been sealed.

Marten —Marten numbers are stable at low levels. The limited marten habitat in Unit 18 is not conveniently accessed by village residents, so only small numbers of trappers target them directly. This limited harvest pressure does not influence marten population levels.

Mink — Mink are plentiful throughout the extensive habitats available to them but they are rarely seen and appear to have low abundance. During a November moose survey mink sign was evident in wide areas with fresh snow and many open holes in the ice that allowed mink access to the surface. Normal levels for mink abundance in the Yukon-Kuskokwim Delta are generally higher than elsewhere but may not be perceived as exceptional by area trappers who are accustomed to mink being abundant.

Muskrat — Trappers report that muskrat numbers are stable at moderate levels. Trappers don't target muskrats as deliberately as in the past, when spring camps were established expressly for hunting muskrats. Their numbers are independent of trapping pressure.

River Otter — As with mink, river otters are found throughout the extensive habitats available to them. Otters are probably targeted more directly by Unit 18 trappers than any other furbearer because they have maintained their value. Trappers expect about $100 per pelt. Even with more interest in otter trapping, large areas of Unit 18 remain untrapped. During surveys for other species, we normally see otter tracks and have noted that otters appear to be more abundant than during the previous reporting period.

Red Squirrel — As with marten, red squirrel habitat is limited in Unit 18 and squirrel numbers are stable at low levels. Trappers rarely target red squirrels except when they are being a nuisance, and their population is independent of trapping pressure.

Arctic Ground Squirrel — Arctic ground squirrels are abundant in the habitats available to them. As with muskrats, trappers don't target ground squirrels as deliberately as in the past, when spring "parky squirrel" camps were established to collect squirrel furs for parkas. Arctic ground squirrel numbers are stable and independent of trapping pressure.

Ermine (Weasel) — Weasel numbers are not influenced by trapping because trappers rarely target them unless they are a nuisance around home or field camps.

Wolverine — Wolverine numbers are moderate to low but are probably increasing in Unit 18 as greater numbers of caribou, moose and wolves provide prey and carrion.

Population Composition

The only furbearers for which sex composition of the harvest is collected during sealing are otters and wolverines. During this reporting period, male otters outnumber females in the harvest

by a ratio of about 7:5 and male wolverines outnumber females by about 5:3. This probably does not reflect the composition of the population. Rather, it reflects the tendency for males of both species to be more vulnerable to trapping than females.

Distribution and Movements

The distribution of furbearers in Unit 18 is reflected by the distribution of their habitats. The aquatic furbearers (beavers, mink, otters, and muskrats) are particularly abundant along the Yukon and Kuskokwim rivers and within the wet tundra environments between the main rivers. They are also found along the tributaries and distributaries throughout the unit.

Red foxes are abundant along riparian corridors throughout Unit 18. They are less abundant but still present in the Kilbuck Mountains, the Andreafsky Mountains, and along the coast where arctic foxes are also found.

Good lynx habitat can be found around Kusilvak Mountain, along the Yukon and Kuskokwim rivers, along the larger tributaries of the main rivers, and in the Kilbuck and Andreafsky Mountains. They are occasionally found elsewhere in Unit 18 as lynx seek out scattered pockets of hares.

Martens and red squirrels can be found in the limited forested areas of Unit 18. These occur along the upper portions of the Kisaralik, Fog, and Tuluksak rivers in eastern Unit 18; in the upper portions of the Atchuelinguk, Andreafsky, and East Fork Andreafsky rivers; and north of the Yukon River upriver from Marshall.

Arctic ground squirrels are found in the upland areas of the Kilbuck Mountains and the Andreafsky Mountains. These are the only areas of suitable habitat available to them in Unit 18.

Ermine are ubiquitous in Unit 18. When we hear of ermine, it is usually because they are causing problems at a fish camp, cabin, or home.

Wolverines are found in the Kilbuck and Andreafsky mountains, with fewer animals found along riparian habitats throughout the unit. The wolverine population is probably growing and its distribution roughly parallels that of caribou, moose, and wolves.

Coyotes remain rare and they are found mostly in the upland areas north of the Yukon River and in the Kilbuck Mountains south and east of the Kuskokwim River. During the previous reporting period they were taken in the Andreafsky River drainage, the Goodnews River drainage, the Kwethluk River drainage, and in the Fog River drainage.

MORTALITY

Harvest

Seasons and Bag Limit. Trapping and hunting seasons and bag limits were as follows:

2003–2004, 2004–2005, 2005–2006

Species	Trapping season	Trapping bag limit	Hunting season	Hunting bag limit

Beaver	1 Jul–30 Jun	No limit	1 Jul–30 Jun	No limit
Coyote	10 Nov–31 Mar	No limit	1 Sep–30 Apr	2
Lynx	10 Nov–31 Mar	No limit	10 Nov–31 Mar	2
Marten	10 Nov–31 Mar	No limit	N/A	N/A
Mink & Weasel[b]	10 Nov–31 Jan	No limit	N/A	N/A
Muskrat	10 Nov–10 Jun	No limit	N/A	N/A
Arctic Fox	10 Nov–31 Mar	No limit	1 Sep–30 Apr	2
Red Fox	10 Nov–31 Mar	No limit	1 Nov–15 Feb	10[a]
River Otter	10 Nov–31 Mar	No limit	N/A	N/A
Wolverine	10 Nov–31 Mar	No limit	1 Sep–31 Mar	1

[a] However, no more than 2 may be taken before 1 Oct.
[b] The mink and weasel changed for the 2005-2006 season to 10 Nov–31 Mar.

Board of Game Actions and Emergency Orders. During the fall 2005 Board of Game meeting, the Unit 18 mink and weasel seasons changed to 10 Nov–31. Either the meat or the fur must be salvaged; the sealing requirement was eliminated; and shooting was made a legal method of harvest year-round. These regulations took effect at the beginning of this reporting period.

Human-Induced Harvest. Coffing (2000) estimated that from about 5% to 100% of furbearers caught in Akiachak were sold, depending on the species. Those that are not sold are used domestically for crafts and garments and are rarely reported, so harvest report data in Unit 18 should be viewed as minimum estimates.

Otter harvest grew during this reporting period (Table 2) as interest followed fur prices. The average otter pelt price had risen to more than $120 by the end of the previous reporting period. We suspect that if prices remain that high harvest will remain the same or increase.

Lynx harvest (Table 2) increased through this reporting period, following typical lynx population cycles. We anticipate that lynx numbers and harvest will decline in next 5 years.

Wolverine harvest from sealing data has stayed fairly consistent with a low of 22 in 2004–2005 (Table 2). Wolverine ruffs are prized locally and some fur sewers prefer the stiffer hides derived from home tanning to those commercially tanned. As a result, many wolverines are not sealed. In the past 5 years more wolverine have been sealed than in previous years. Part of this may result from more trappers wanting to seal their wolverine fur, but it may also reflect a higher wolverine population that may exist along with higher populations of wolves, moose and caribou.

Mink are harvested along with otters in sets using a *taluyaq* (funnel type trap), and even though otters are also targeted directly using 330 Conibear or similar quick-kill traps, mink are taken indirectly by otter trappers, making otter harvest a reasonable index of mink harvest. Because otter harvest increased during this reporting period, mink harvest probably increased as well,

Red foxes are particularly abundant, but the interest in trapping them is low and the harvest is well below the potential. With fox prices averaging about $30, the harvest is not likely to increase.

Coyote, arctic fox, marten, ermine, and red squirrel are all peripheral species to trappers in Unit 18. Even during years when trapping interest is high, the harvest of these species will be low.

Muskrat harvest remains low. Traditionally, trappers would hunt muskrats after the ice went out, but spring muskrat camp is uncommon today. The spring camp tradition remains, but it is abbreviated and directed mostly at waterfowl with muskrats being incidental to that activity.

Arctic ground squirrels were at one time hunted in the spring from camps established expressly for that purpose. They are still occasionally taken for home use and new parkas made from parky squirrel pelts are occasionally seen, but ground squirrel harvest is low.

Permit Hunts. No special permits were required to trap or hunt furbearers in Unit 18 during the reporting period.

Hunter Residency and Success. All of the trappers who sealed Unit 18 furs were Alaska residents.

No direct measure of trapper success is available. Very few trappers are full-time trappers with most being recreational trappers who trap in their spare time. The amount of time a trapper spends per week varies widely and probably has more to do with success than any other factor.

Harvest Chronology. The trapping season generally begins on 10 November. However, the commencement of trapping is largely dictated by travel conditions around that date. According to interviews with trappers and fur buyers, if travel conditions allow mink and otter trappers to reach trapping areas, they will begin trapping earlier than 10 November. Likewise, travel conditions can remain poor for weeks after the official start of the trapping season.

This early part of the season provides the best opportunity to deploy *taluyat*, and most mink are harvested during the first few weeks of the season. Otters and muskrats are also caught in these mink traps. Even though otters are caught in *taluyat*, there is no early spike in otter harvest since otters are targeted throughout the season and are also caught in beaver sets. The spike in muskrat harvest is tempered as well because muskrats are also harvested in the spring.

Beavers are typically taken under the ice after travel conditions allow for safe travel and ice conditions permit safe trapping near lodges. While trappers may take a few beavers throughout the season for food and early in the season for bait, the most common time for trappers to target beavers is from the middle of February through the end of March, when fur quality is high; food caches are depleted so beavers respond to bait; and longer days make for more pleasant trapping conditions. Beavers are also taken after the ice goes out, incidental to other outdoor activities.

Other furbearers are harvested throughout the season when snow conditions permit travel by snowmachine. In Unit 18 snow conditions can be quite variable. Travel conditions were

generally good during the entire 2003–2004 season, poor during at least part of the 2004–2005 season, and good for the entire 2005–2006 season.

Transport Methods. Trappers used snowmachines to take nearly all of the furbearers sealed in Unit 18 during this reporting period.

Other Mortality

The large furbearer populations of most species in Unit 18 have negative effects on furbearer health and furbearer habitats. Beaver and red fox show these effects readily, but populations larger than ideal are likely affecting other furbearer populations as well.

The high beaver population forces dispersing beavers to establish lodges in marginal habitats. During survey flights for other species, we commonly find old, vacant beaver ponds with dams overflowing and unrepaired. Often we will find a ring around these ponds devoid of woody vegetation. These marginal habitats support beavers for only a few years before the food supply is exhausted.

Rabies is a concern, especially with the large red fox population. Since 1997, 91 animals have been tested for rabies in Unit 18 including 30 positive cases. During this reporting period, 3 arctic foxes, 3 dogs, and 11 red foxes tested positive. With the high population of foxes in Unit 18 and low fur prices, the threat of rabies will continue.

HABITAT

Assessment

Habitats for all furbearers are extensive and healthy throughout Unit 18, though some are overused. The only portions of the unit that have been disturbed are the areas around the villages.

Enhancement

Unit 18 furbearers are currently underutilized. Enhancement aimed at increasing furbearer populations is not necessary or contemplated.

NONREGULATORY MANAGEMENT PROBLEMS/NEEDS

There were no nonregulatory problems or needs identified for furbearers in Unit 18 during the reporting period.

CONCLUSIONS AND RECOMMENDATIONS

Trapping has traditionally been very important in Unit 18 as fur offered the only source of income during the winter for many trappers, and it is still one of the few resources of economic value produced in this area. However, due to low fur prices, the incentive to trap is diminished, and as a result, the economic importance of trapping is fading.

The tradition of trapping is fading, and the average age of trappers responding to the trapper questionnaire is increasing each year. The trappers in Unit 18 follow this statewide pattern, with only a few local trappers younger than 20.

Furbearers are still widely used in traditional ways. Fur garments, including parkas, mittens, mukluks, and hats, are ubiquitous and most are homemade. Beaver fur is the favored material for hats in the inland portions of the unit, while seal is the fur of choice along the coast. Parkas are made from a variety of furs, including beaver, seal, otter, and arctic ground squirrel. Ruffs are generally made from wolf or wolverine fur, and children often have arctic fox fur ruffs. Other furs, such as ermine and red squirrel, are used for trim. Active skin sewers create a steady demand for local fur.

Probably more than anywhere else in Alaska, furbearers in Unit 18 are regularly used for food with beaver, otter, mink, arctic ground squirrels, muskrats, and lynx being common table fare. The pattern of preferences varies from village to village, but meat from these species is rarely discarded, even if it is only saved for dog food. For some species, the prime motivation for trapping them is the meat, and occasionally the fur is not used. The Board of Game recognized this when it adopted beaver regulations that permit beavers to be taken strictly for the meat.

Furbearers are often harvested opportunistically during other outdoor pursuits. For example, moose hunters occasionally shoot beavers for camp meat, spring duck hunters take muskrats, and caribou hunters will shoot foxes, lynx, or wolverines if they have the opportunity.

Furbearer harvest information is poor for most species. This is partly because they're not sealed when home-tanned and used in the home, taken primarily for meat, or taken opportunistically with little planning. Poor harvest information is also due to poor understanding of the regulations, the tedium of compliance, occasional poor access to fur sealers, and the low risk of consequences for failing to comply.

Poor harvest information is an administrative shortcoming as well. Fur sealers only receive $1 per fur for every fur sealed, and compensation is declining with the harvest. Now that the requirement to seal beavers has been eliminated, compensation has declined even further. Without greater incentive, it will continue to be difficult to recruit and retain fur sealers, and fur harvest information will suffer.

The fur acquisition reports and the raw fur export permits are currently dysfunctional as tools for harvest assessment. We should implement these reports as they were designed or abandon them and devise a different method to track harvest for those species that are not sealed.

Foxes and beavers were once highly valued but are now largely thought of as nuisance wildlife. Red fox numbers are high and the threat of rabies remains an issue; both red and arctic foxes prey on waterfowl eggs and nestlings, and the threatened spectacled eider is among their prey species. Beaver numbers are high and are blamed for disrupting fish movements and impeding boat traffic.

It would take a profound increase in fur prices to entice trappers to harvest any furbearer in Unit 18 to the point that there is a conservation concern. Previous high harvests provide some context. In 1988–1989, 4686 beavers were sealed. In the early 1980s more than 700 otters per year were taken. In the 1940s an average of 16,000 mink were taken and in one year during that decade, over 60,000 were taken. Clearly, with current harvests well below these levels, furbearers in Unit 18 are severely underutilized.

LITERATURE CITED

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PREPARED BY:

Phillip Perry____
Wildlife Biologist III

SUBMITTED BY:

Peter Bente
Survey-Inventory Coordinator

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TABLE 1 Comparison of the 2002 and 1984 beaver cache surveys along the Reindeer River. The Reindeer River extended area includes the river and the riparian area along both sides of the river to a total width of approximately 5 miles.

Year	Area	Active lodges	Inactive lodges	Unknown	Total
1984	Reindeer River	2	1		3
1984	Reindeer River extended	34	8		42
2002	Reindeer River	32	18	2	52
2002	Reindeer River extended*	104	32	13	149

*Includes only those beaver lodges seen on a single transect following the Reindeer River and represents a minimum count.

TABLE 2 Furbearer harvest from sealing records 2000–2001 through 2005–2006

Species	2000–2001	2001–2002	2002–2003	2003-2004	2004-2005	2005-2006
Lynx	84	53	41	73	121	121
River otter	191	138	410	336	426	339
Wolverine	13	22	12	32	22	34

TABLE 3 Otter harvest per trapper, 1997–1998 through 2005–2006

Year	Nr. trappers	Otter harvest	Otters/trapper	Trappers with > 10 otters	Highest catch
1997–1998	79	447	5.7	5	29
1997–1998	43	167	3.9	2	16
1997–1998	21	61	2.9	0	9
2000–2001	40	191	4.8	4	18
2001–2002	24	138	5.8	4	32
2002–2003	43	410	9.5	10	43
2003-2004	40	336	8.4	12	41
2004-2005	47	426	9.1	13	44
2005-2006	48	339	7.1	13	26

WILDLIFE MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. Box 115526
Juneau, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006[1]

LOCATION

GAME MANAGEMENT UNITS: 19, 21A, and 21E (59,756 mi^2) (55,303* mi^2)

* Does not include the upper Nowitna River drainage, which will be excluded from Unit 21A beginning 1 July 2006.

GEOGRAPHIC DESCRIPTION: Unit 19, all drainages into the Kuskokwim River upstream from a straight line drawn between Lower Kalskag and Paimiut. Unit 21A, the Innoko River drainage upstream from and including the Iditarod River drainage; and the Nowitna River drainage upstream from the confluence of the Little Mud and Nowitna Rivers (beginning 1 July 2006, Unit 21A will no longer include the upper Nowitna drainage). Unit 21E, the Yukon River drainage from Paimiut upstream to, but not including, the Blackburn Creek drainage, and the Innoko River drainage downstream from the Iditarod River drainage.

BACKGROUND

Furbearers historically have contributed to the economic base in western Interior Alaska and have been an integral part of the subsistence lifestyle in the region. Native people relied on furbearers for garments, food, and trade goods. The quest for furs prompted early Russian settlement in the area. During the middle part of the 20th century, miners in the area were largely unemployed during winter and supplemented their income by trapping and selling fur. Local economies are still influenced by income from the sale of wild pelts. However, despite the fact that snowmachines and airplanes have enabled longer traplines, the economic incentive for furs has fluctuated with foreign markets.

Furbearer seasons and bag limits have varied dramatically since original regulations were adopted in the early 20th century. Several factors influence the annual harvest of various

[1] At the discretion of the reporting biologist, this unit report may contain data collected outside the report period.

furbearer species. These include population levels, snow conditions, climate, pelt prices, availability of alternate income, fuel prices, and regulations.

MANAGEMENT DIRECTION

Furbearer management is designed to annually assess populations, maintain or enhance those populations, and develop regulations to encourage sustainable harvests.

MANAGEMENT GOALS

- Protect, maintain, and enhance furbearer populations in concert with other components of the ecosystem.

- Provide for continued use of furbearers by local residents who have customarily and traditionally depended on these populations.

MANAGEMENT OBJECTIVES

Unit 19

- Manage furbearer populations to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses.

Units 21A and 21E

- Maintain populations of furbearers that will support a minimum level of harvest equal to the mean of the harvest of each species over the last 10 regulatory years.

MANAGEMENT ACTIVITIES

Units 19, 21A and 21E

1. Seal furs of selected species to monitor harvest levels and trends.

2. Conduct trapper questionnaires and interviews to determine the status of various furbearer populations.

3. Monitor furbearer population trends and annual harvest using sealing documents, fur acquisition reports, and fur export reports.

4. Monitor trends in the McGrath area beaver populations by conducting beaver cache surveys.

METHODS

Total harvest, harvest chronology, sex, method of take, and transportation were summarized by regulatory year (RY) which begins 1 July and ends 30 June (e.g., RY04 = 1 Jul 2004 through 30 Jun 2005) based on sealing certificates. Additionally, the Alaska Department of Fish and Game's Trapper Questionnaire statewide annual reports for regulatory years 2001–2002 through 2004–2005 were used (the 2005–2006 Trapper Questionnaire Statewide Annual Report was not

available). Pelt prices were based on the average prices paid at the North American Fur Auction in February.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Beaver

Whitman (1998) estimated beaver densities were high in the late 1980s but noted a small decline in the early 1990s. There is less suitable habitat in Units 19B and 19C than in Units 19A and 19D. However, even marginal habitat was frequently occupied. A beaver cache survey was conducted in November 2002 in 3 trend areas in the McGrath area. Results indicated that the local population had remained stable since 1997, when the last survey was conducted. The number of caches counted in the Wilson's trend area in 1997 was 27, compared with 26 in 2002; in the Vinasale trend area, 22 versus 19 caches were located; and in the lower Takotna trend area, 10 caches were located in 1997, compared with 8 in 2002.

Results of the trapper questionnaires indicated that beavers were abundant in Units 19, 21A and 21E during RY01 through RY04 (Peltier and Scott 2003; Peltier 2004; Peltier 2005; Blejwas 2006). Beginning in RY02 beavers harvested in Units 19, 21A, and 21E were no longer required to be sealed and those harvest data are more limited.

Lynx

Trappers reported that lynx were common in RY01, but scarce in RY02–RY04 in Units 19, 21A, and 21E (Peltier and Scott 2003; Peltier 2004; Peltier 2005; Blejwas 2006). Reports of lynx being common in RY01 coincide with general reports of high lynx populations throughout Interior Alaska (Peltier and Scott 2003) and are supported by sealing records.

River Otter

River otters were reported as common to abundant in all areas during RY02–RY04 (Peltier and Scott 2003; Peltier 2004; Peltier 2005; Blejwas 2006).

Wolverine

Wolverines were reported by trappers as common during RY01–RY04 in Units 19, 21A, and 21E (Peltier and Scott 2003; Peltier 2004; Peltier 2005; Blejwas 2006).

Marten

Trappers indicated that martens were common to abundant during RY01–RY04 in Units 19, 21A, and 21E (Peltier and Scott 2003; Peltier 2004; Peltier 2005; Blejwas 2006).

During winter 2003–2004, 362 marten carcasses were collected from Unit 19 trappers from Big, Middle Hoholitna, and North Fork Kuskokwim Rivers. Sex ratios ranged from 58% to 69% males in the harvest. The young of the year:adult female ratio ranged from 2.7:1 to 4:1. A minimum of 60% males in the harvest is considered beneficial for long-term sustainability and young of the year:adult female ratios of 4:1 are considered adequate to ensure sufficient recruitment into the population (J. Whitman, ADF&G, personal communication).

Mink

Mink were reported as common in Units 19, 21A, and 21E during RY01–RY04 (Peltier and Scott 2003; Peltier 2004; Peltier 2005; Blejwas 2006).

Muskrat

Historically, muskrat populations were high in suitable habitat, and spring shooting of muskrats was a widespread pursuit. However, populations had declined by about 1975 (Whitman 1998). Populations have not rebounded since that time. Founder populations still exist, but production and/or survival of kits has not been sufficient to cause population increases. Perhaps predation (by northern pike, in particular), diseases, parasites, or changes in weather or habitat are factors that singly, or in combination, have acted to keep populations low (Whitman 1998). Trapper observations were mixed and they reported that muskrats were scarce to abundant in Units 19, 21A, and 21E during RY01–RY04 (Peltier and Scott 2003; Peltier 2004; Peltier 2005; Blejwas 2006).

Red Fox

Trappers reported that red fox were common during RY01–RY04 (Peltier and Scott 2003; Peltier 2004; Peltier 2005; Blejwas 2006).

MORTALITY

Harvest

Trapping Seasons and Bag Limits, RY03–RY05.

Species	Season	Bag limit
Beaver	1 Nov–10 Jun	No limit
Coyote	1 Nov–31 Mar	No limit
Lynx	1 Nov–28 Feb	No limit
Marten	1 Nov–28 Feb	No limit
Mink and Weasel	1 Nov–28 Feb	No limit
Muskrat	1 Nov–10 Jun	No limit
Red fox (Unit 19)	1 Nov–31 Mar	No limit
Red fox (Units 21A and 21E)	1 Nov–28 Feb	No limit
River otter	1 Nov–15 Apr	No limit
Wolverine	1 Nov–31 Mar	No limit

Hunting Seasons and Bag Limits, RY03–RY05.

Species	Season	Bag limit
Coyote		
RY03 (Unit 19)	10 Aug–30 Apr	10
RY04–RY05 (Unit 19)	10 Aug–30 Apr	10/day
RY03–RY05 (Units 21A and 21E)	10 Aug–30 Apr	10
Red fox	1 Sep–15 Mar	10 (no more than 2 before 1 Oct)
Lynx	1 Nov–28 Feb	2
Wolverine	1 Sep–31 Mar	1

Alaska Board of Game Actions and Emergency Orders. During the March 2004 board meeting, the hunting bag limit for coyote in Unit 19 was increased from 10 coyotes to 10 coyotes per day.

Trapper Harvest, Residency, and Chronology.

Beaver — Whitman (1998) concluded that beaver harvests have fluctuated widely and generally declined since the mid 1960s, and that low harvests reflect low pelt prices rather than low populations. Beginning in RY02 sealing was no longer required for beaver and harvest data during RY03–RY05 were limited.

Beaver pelt prices reached their highest value in RY05 at $33, but averaged $21 from RY01–RY04 (Table 1).

Lynx — Lynx harvest peaked at 122 in RY01, and reached a low in RY04 (Table 2) coinciding with the low in the lynx population cycle. Most lynx were taken using traps (Table 3) and prices ranged from $93–$295 (Table 1). Lynx were primarily harvested in December, January, and February (Table 4), when the rivers and lakes were frozen and access was easier. Snowmachines were the primary method of transport (Table 5).

River Otter — River otter harvest varied from 25 to 61 animals per year (Table 2) during the past 5 years with most being harvested using traps (Table 3). Prices paid at auction varied from $76 to $143 (Table 1). The greatest percentage of the harvest occurred in December through February (Table 4), and most trappers used snowmachines for access (Table 5).

Wolverine — Wolverine harvest ranged from 63 to 99 animals (Table 2), and they were harvested primarily with traps (Table 3). The number of wolverine harvested per successful trapper was consistent, ranging from 1.9 to 2.3. Prices varied from a low of $154 in RY04, to a high of $255 in RY01 (Table 1). Harvest of wolverines was highest in January through March (Table 4) and trappers used both aircraft and snowmachines (Table 5).

Marten — Marten are the most sought after and valuable furbearer species and pelt prices reached a high of $95 in RY05 (Table 1).

Mink — Market demand for wild-caught mink was low although prices reached a high of $32 in RY05 (Table 1). Consequently, few trappers targeted them and harvest was largely incidental to marten trapping efforts.

Muskrat — Poor pelt prices and low population density combined to make muskrats one of the least valuable furbearer species in the area (Whitman 1998). There is some harvest by shooting in the spring, and most pelts are used in domestically produced hats.

Ermine and Red Squirrel — These species have little recreational or economic value in the region. Most harvest occurs incidentally to other trapping.

Red Fox — Red fox were also generally captured incidentally to other species. Prices increased in RY05 to $31 per pelt.

Harvest and Transportation Methods. The most frequently used method of take for all sealed species during RY01–RY05 was trapping, followed by snaring (Table 3). Transportation was dominated by snowmachines, although skis/snowshoes for lynx and aircraft for wolverines were also commonly used (Table 5).

CONCLUSIONS AND RECOMMENDATIONS

Trapper questionnaire results indicated that, in general, most of the furbearer populations in the area were stable or increasing. Pelt prices declined significantly over the years, with occasional increases for some species. The most notable increase that resulted in increased trapper participation was the substantial increase in marten prices during RY04 and RY05. Marten prices declined in RY06. Although we do not have quantitative data on furbearer populations, pelt prices and harvest will probably remain low in the foreseeable future. This indicates that existing regulations are adequate, and we can continue to provide substantial opportunities to harvest furbearers. For the next report period the management objective for Units 21A and 21E will be the same as for Unit 19: to manage furbearer populations to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses. For the next reporting period, the second goal will be changed slightly to reflect the mobility of trappers using the area and there will be one objective for Units 19, 21A and 21E:

MANAGEMENT GOAL 2:

- Provide for continued use of furbearers by Alaska residents who have customarily and traditionally depended on these populations.

MANAGEMENT OBJECTIVE:

- Manage furbearer populations to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses.

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PREPARED BY:

Joshua M. Peirce
Wildlife Biologist I

SUBMITTED BY:

Doreen I. Parker McNeill
Assistant Management Coordinator

REVIEWED BY:

Craig L. Gardner
Wildlife Biologist III

Laura A. McCarthy
Publications Technician II

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TABLE 1 Average North American furbearer pelt prices (U.S. dollars), regulatory years 2001–2002 through 2005–2006

Species	Regulatory year				
	2001–02[a]	2002–03[b]	2003–04[c]	2004–05[d]	2005–06[e]
Beaver	19	21	22	22	33
Marten	38	36	42	49	95
Mink	11	11	15	15	32
Red fox	32	30	22	20	31
Lynx	93	105	158	295	158
River otter	76	121	104	106	143
Wolverine	255	179	178	154	158

[a] Prices from 17 Feb 2002 sale.
[b] Prices from 26 Feb 2003 sale.
[c] Prices from 25 Feb 2004 sale.
[d] Prices from 14 Feb 2005 sale.
[e] Prices from 13 Feb 2006 sale.

TABLE 2 Units 19, 21A, and 21E furbearer harvest by subunit, regulatory years 2001–2002 through 2005–2006

Species/ Regulatory year	Unit 19A	19B	19C	19D	19Z	21A	21E	Total
Lynx								
2001–2002	10	39	8	22	1	32	10	122
2002–2003	3	7	7	16	0	15	9	57
2003–2004	5	11	16	9	0	0	8	49
2004–2005	1	0	5	4	0	12	5	27
2005–2006	2	2	36	9	1	14	9	73
River Otter								
2001–2002	3	3	0	4	0	1	14	25
2002–2003	23	1	0	8	0	15	1	48
2003–2004	34	5	0	8	0	10	4	61
2004–2005	20	5	3	14	0	3	4	49
2005–2006	20	1	0	12	0	1	22	56
Wolverine								
2001–2002	15	40	10	5	4	4	12	90
2002–2003	4	29	9	19	0	7	8	76
2003–2004	19	22	6	3	0	7	6	63
2004–2005	10	26	9	15	0	7	3	70
2005–2006	36	19	7	18	0	11	8	99

TABLE 3 Units 19, 21A and 21E furbearer reported harvest by sex, and method of take, regulatory years 2001–2002 through 2005–2006

Regulatory year	Reported harvest: Sex M	F	Unk	Method of take: Shot	Trap	Snare	Unk	Total harvest	Successful trappers/ hunters
Lynx									
2001–2002	0	0	122	3	111	8		122	36
2002–2003	0	0	57	5	47	5		57	27
2003–2004	0	0	49		42	7		49	26
2004–2005	0	0	27	2	22	3		27	12
2005–2006	0	0	73	2	66	3	2	73	22
River Otter									
2001–2002	13	4	8	1	15	7	2	25	12
2002–2003	22	19	7		32	12	4	48	11
2003–2004	18	23	20	1	36	19	5	61	17
2004–2005	22	21	6	3	38	8		49	17
2005–2006	22	14	20	2	34	20		56	18
Wolverine									
2001–2002	57	27	6	8	64	13	5	90	40
2002–2003	47	25	4	6	56	12	2	76	39
2003–2004	42	18	3	10	42	10	1	63	34
2004–2005	52	17	1	9	41	13	7	70	30
2005–2006	68	31	0	7	75	17		99	48

TABLE 4 Units 19, 21A and 21E furbearer harvest chronology by month, regulatory years 2001–2002 through 2005–2006

Regulatory year	Harvest periods							
	Sep	Nov	Dec	Jan	Feb	Mar	Apr	Unk
Lynx								
2001–2002	1	19	26	43	30	3	0	0
2002–2003	2	5	9	22	18	1	0	0
2003–2004	0	1	11	15	18	4	0	0
2004–2005	0	2	9	10	6	0	0	0
2005–2006	0	5	29	13	26	0	0	0
River Otter								
2001–2002	0	3	9	2	2	9	0	0
2002–2003	0	3	1	21	15	2	6	0
2003–2004	0	5	14	10	21	10	1	0
2004–2005	0	1	9	22	11	6	0	0
2005–2006	0	8	11	9	7	15	6	0
Wolverine								
2001–2002	3	11	12	16	15	30	1	2
2002–2003	5	4	7	13	17	28	0	2
2003–2004	7	2	9	13	18	13	1	0
2004–2005	8	7	3	3	25	24	0	0
2005–2006	4	2	18	30	21	24	0	0

TABLE 5 Units 19, 21A, and 21E furbearer harvest by transport method, regulatory years 2001–2002 through 2005–2006

Species/ Regulatory year	Harvest by transport method									Total harvest
	Airplane	Dogsled	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Skis or snowshoes	Unknown	
Lynx										
2001–2002	4	30	0	0	56	0	2	30	0	122
2002–2003	2	0	2	4	39	0	2	8	0	57
2003–2004	1	2	0	1	36	0	0	9	0	49
2004–2005	1	0	0	0	19	0	0	7	0	27
2005–2006	7	2	0	0	52	0	0	12	0	73
River Otter										
2001–2002	0	0	0	0	23	0	0	0	2	25
2002–2003	13	0	0	1	30	0	0	0	4	48
2003–2004	2	0	0	0	54	0	0	0	5	61
2004–2005	0	1	0	0	43	0	0	3	2	49
2005–2006	1	1	0	0	53	0	1	0	0	56
Wolverine										
2001–2002	33	1	0	1	41	0	0	7	7	90
2002–2003	29	0	0	2	37	0	0	5	3	76
2003–2004	15	2	1	2	41	0	0	1	1	63
2004–2005	30	0	6	1	24	0	1	1	7	70
2005–2006	24	4	1	2	58	0	0	8	2	99

WILDLIFE MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. Box 115526
Juneau, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006[1]

LOCATION

GAME MANAGEMENT UNITS: 20A, 20B, 20C, 20F, and 25C (44,760 mi^2)

GEOGRAPHIC DESCRIPTION: Central and lower Tanana Valley and middle Yukon River drainage

BACKGROUND

The fur trade is one of Alaska's oldest industries. Trapping remains an important use of wildlife resources today for many people and can be significant to the economies of rural areas because alternative sources of income are limited. Furbearers provide food and clothing for personal use and cash income. Nonconsumptive use of furbearers is also important, because many people enjoy watching furbearers or finding evidence of their activities.

Little is known about factors limiting furbearer populations. Most furbearers are difficult to study because of their secretive habits. Information has come primarily from harvest data. Trapper questionnaires have been used annually since 1965 to collect information on trapper activities and the relative abundance of furbearers. Furbearer investigations in the last 35 years in Interior Alaska have included research on 1) lynx population dynamics (Nava 1970; Berrie 1973; O'Connor 1984; Stephenson 1988); 2) beaver population ecology (Boyce 1974, 1981); 3) the effects of fire on furbearers (Stephenson 1984; Magoun and Vernam 1986); and 4) development of techniques to survey furbearer populations using track counts (Golden 1987; Schwartz et al. 1988; Stephenson 1988).

MANAGEMENT DIRECTION

MANAGEMENT GOALS

- Provide the greatest sustained opportunity for harvesting furbearers.
- Provide an opportunity for education, viewing, and photography of beaver on the lower Chena River and Badger Slough.

[1] At the discretion of the reporting biologist, this unit report may contain data collected outside the report period.

- Minimize problems caused by nuisance beaver with the aid of public harvest.

MANAGEMENT OBJECTIVES

Beaver

- Manage beaver in the lower Chena River portion of Unit 20B for an annual fall beaver colony density of 0.2 to 0.5 colonies/km of river.

Lynx

- Manage lynx according to a tracking harvest strategy.

Wolverine

- Manage for a 3-year mean annual harvest of >50% males by subunit for the Fairbanks area.

MANAGEMENT ACTIVITIES

Beaver

- Conduct annual fall beaver cache surveys in the lower Chena River to estimate colony density, identify cache locations, and direct harvest.
- Issue nuisance beaver permits to remove problem beavers.
- Coordinate with the Alaska Trappers Association (ATA) to incorporate their youth trapper mentoring program into the nuisance beaver permitting system.
- Coordinate with Department of Transportation and Public Facilities (DOT&PF) to minimize dammed culverts and flooded roads.

Lynx

- Estimate the annual sex and age of harvested lynx by examining carcasses from Units 20A and 20B.
- Conduct aerial track surveys in Units 20A and 20B to provide indices to trends in lynx and hare populations

Wolverine

- Estimate the annual sex ratio of harvested wolverine from sealing records.

METHODS

We conducted beaver cache surveys from a riverboat in 2003, 2005, and 2006 during late September–early October to determine fall beaver colony density in the lower Chena River (downstream from the confluence with the Little Chena River). We estimated beaver colony density by dividing the number of beaver caches by the linear miles of river over which the survey was conducted. We mitigated problems arising from beaver activity by issuing nuisance

or registration permits to trappers and by coordinating with the public and DOT&PF highway crews to minimize dammed culverts and flooded property. We continued to administer the program we initiated in 1999 through which ATA members served as mentors to local youth, teaching ethical and responsible trapping practices along this stretch of river.

We maintained accurate records of harvest by compiling data from the required sealing documents for beavers (until July 2002), lynx, river otters, and wolverines. After July 2002 we kept accurate records of beaver taken under nuisance and ATA permits through a permit condition that required harvest reporting. A Uniform Coding Unit was assigned to each pelt sealed to monitor distribution of harvest. Sealing data provided minimum harvest estimates because some pelts were used domestically and were not reported. Harvest data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY03 = 1 Jul 2003 through 30 Jun 2004). Fur prices were compiled from data provided by North American Fur Exchange. Prices were the averages from January and February sales and sections of fur most closely representing Alaska grade fur.

We sent questionnaires to 100–150 area trappers per year to get information regarding their trapping activities and their opinions on furbearer population levels and trends.

In 1987 the Board of Game adopted a "tracking harvest strategy" to manage lynx trapping seasons in the road-connected game management units of Interior and Southcentral Alaska. Under that strategy, lynx seasons are reduced when lynx populations are low and liberalized when lynx are abundant. As part of the tracking harvest strategy, lynx track survey transects were established in Units 20A and 20B in 1995, but inadequate snow conditions often precluded surveys which limited usefulness of data for year-to-year trend information. However, when track survey data were combined with harvest numbers, proportions of kittens in the harvest, and pregnancy rates, important trends could be identified. Mark McNay (ADF&G, Fairbanks) analyzed data from Unit 20A and 20B lynx carcasses purchased from trappers since April 1995 to estimate pregnancy rates, litter sizes, and percentage of kittens in the harvest.

We conducted lynx track surveys in Unit 20A during February or March 2004–2006; and in Unit 20B during 2005. We flew east–west transects every 6 miles (township lines) in fixed-wing aircraft (Bellanca Scout or Aeronca Champ) at an altitude of 200–300 feet and a speed of 70–90 mph. We recorded the distance from the end point of the transect to each lynx track seen. We analyzed track data by calculating the percentage of 1-mile segments observed to contain lynx tracks and the number of lynx tracks per mile of transect.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Beaver

Cache surveys indicated beaver colony density in the lower Chena River varied from 0.5 caches/km to 0.7 caches/km of river between 1999 and 2003 (Table 1). Boyce (1981) concluded that 0.5 colonies/km was a saturation density for beaver in Interior Alaska. During RY03–RY05, colony density observed in the lower Chena River exceeded the high end of our objective of 0.2 to 0.5 colonies/km (Table 1).

Density was highest in the Fort Wainwright area of the Chena River survey area. Boyce (1974) reported a mean of 5 beavers per colony along Interior Alaska rivers, but long-established colonies often contain as many as 10 beavers. Since many of the colonies along the lower Chena were long established, the mean number of beaver per colony may have been closer to 8. Thus, approximately 145–232 beaver inhabited the lower Chena River during RY03–RY05.

Lynx

The 2004–2006 lynx track survey results were difficult to interpret. During March 2004 and 2005, tracks per mile and percentage of mile segments with lynx tracks present (Table 2) were high but coincided with low kitten production and low harvest (Table 3). Furthermore, the RY03-RY04 lynx track survey data does not correlate with the expected low and initial recovering phase of the population cycle indicated by decreased harvest and the low percentage of kittens in the harvest (Table 4). One possible explanation was that most of the lynx track survey data are from northcentral Unit 20A, where lynx remained in relatively high numbers since the population peak in 2000. Continued high harvest in Unit 20A during the shorter season, trapper observations, and biologist observations support this inference that lynx remained in relatively high numbers in Unit 20A during RY03–RY05. The small portion of track data from Unit 20B does correlate with harvest, kitten production, and a normal rise and fall in the population.

MORTALITY

Harvest

Seasons and Bag Limits. Seasons and bag limits varied among species, subunits, and over time (Tables 5–8).

Alaska Board of Game Actions and Emergency Orders. During the March 2004 meeting, the Board of Game extended the beaver season in Unit 20B to 25 September–31 May and repealed the requirement for trappers to mark traps and snares set in the Fairbanks Management Area with the trapper's permanent driver's license number or name and address. During the March 2006 meeting, the board applied the 25 September–31 May beaver season in Unit 20B to Units 20A, 20C, 20F, and 25C and lifted the prohibition on shooting of beaver in the more rural units (Units 20A, 20C, 20F, and 25C).

Hunter/Trapper Harvest.

Beaver — Low demand for beaver pelts due to depressed fur prices (Table 9) contributed to low trapping effort for this species during RY03–RY05. Beaver harvested in the Fairbanks area were not required to be sealed after 1 July 2002. Since this change, harvest records have been recorded only for beaver taken under nuisance and ATA permits, via a reporting condition of the permit. Since RY99, ATA representatives have served as mentors to teach local youth ethical and responsible beaver trapping principles. The program has been well accepted by the local public. The program serves the educational needs of youth well, but does not harvest a sufficient number of beaver to eliminate the need to issue nuisance permits in the lower Chena River (Table 10).

Lynx — The reported lynx harvest was substantially lower during RY03–RY05 (Table 3), compared to the most recent population high during RY98-RY01. The primary factor influencing

lynx harvest is abundance; however, other factors that influence lynx harvests include 1) changes in season lengths, 2) pelt value, and 3) environmental conditions affecting trapping effort.

Carcass necropsy data and harvest data all suggest lynx were at a low in the population cycle throughout RY03–RY05. Information about hares, a primary food item for lynx, from the trapper questionnaires, ADF&G surveys, and observations indicates they were increasing throughout RY03–RY05. With the increasing hare densities, lynx kitten production and survival should increase, resulting in a rapidly increasing lynx population. As the lynx density increases the season will be lengthened according to the lynx harvest tracking strategy. Harvest, necropsy, and survey data indicate that hares and lynx numbers may peak near RY09.

Postseason lynx track surveys have been employed since 1995 to help track the lynx cycle. Through the high in RY00, they correlated loosely with harvest. During RY03–RY05 they provided highly variable results. We should continue to collect lynx track data for another population cycle, and explore new ways to analyze the data before we make a decision on its usefulness.

Wolverine — The percentage of males in the harvest was 58–80% annually during RY03–RY05 (Table 11). Male wolverines have larger home ranges (Gardner 1985; Magoun 1985), are more prone to disperse long distances than females (Magoun 1985), and are more susceptible to trapping. Long-term trends of <50% male wolverines in the harvest could indicate unsustainable harvest rates and should trigger more in-depth analysis of the population, including the population and harvest model developed by Gardner et al. (1993) and Golden et al. (2007) and a more thorough inventory of refugia areas.

Magoun (1985) stated that factors responsible for long-term wolverine population declines could include 1) widespread declines in food resources, particularly the demise or shift in range of large ungulate populations; 2) widespread habitat destruction; and 3) heavy harvests over large areas. Recent work has found that human-caused mortality is mostly additive and conserving refugia areas may be important to maintain sustainable harvests of wolverine (Krebs et al. 2004; Golden et al. 2007).

Other Furbearers — Because there are no sealing requirements for coyote, ermine, marten, mink, muskrat, red fox, or red squirrel, population trends for these species were monitored using the trapper questionnaire report, biologist observations, and personal conversations with trappers. Based on these indices, foxes remained low throughout RY03–RY05, while coyotes achieved moderate densities in localized areas along the Tanana River. Marten and weasel densities tended to be moderate to high during RY03–RY05. Anecdotal observations also suggested that muskrat populations were slowly rising from a long-term low and are beginning to occupy habitats that haven't been occupied since the 1970s.

Method of Take and Transportation. Methods of take and transportation were typical for Interior Alaska, with snowmachines used by most trappers to gain access to most species (Table 12).

CONCLUSIONS AND RECOMMENDATIONS

The Chena River beaver population remained above 0.7 caches/km of river during RY03–RY05; therefore, the management objective was not met. Further efforts to reduce the number of beaver and reduce the number of nuisance permits issued should be investigated. One possibility would be to solicit local residents to trap beaver during the regular season in chronic nuisance areas. Badger Slough could be excluded from the permit area because most chronic nuisance areas are on Badger Slough, and it is used mainly by private landowners, compared to the Chena River, which receives a high level of use from the general public.

The objectives of using nuisance beaver permits to remove problem beavers and coordinating with DOT&PF to minimize dammed culverts and flooded roads were met.

The lynx management objective was met. We managed lynx seasons using the tracking harvest strategy and recommend no changes for the next reporting period. We estimated the annual sex and age of harvested lynx by examining carcasses from Units 20A and 20B. We conducted aerial track surveys in Units 20A and 20B to provide indices to trends in lynx population.

The wolverine management objective was met. Trappers and hunters harvested more than 50% male wolverines every year during RY03–RY05.

For other furbearer species, we did not detect any problems requiring management changes; therefore, we recommend no regulatory action at this time. Trappers will continue to be an important source of information. Communication with the trappers should be improved by 1) expanding the trapper questionnaire, 2) visiting traplines, 3) writing articles about furbearer research and management projects for the Alaska Trapper's Association magazine, 4) soliciting input regarding management issues, and 5) keeping trappers informed about issues affecting them.

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PREPARED BY:

C. Tom Seaton
Wildlife Biologist II

SUBMITTED BY:

Doreen I. Parker McNeill
Assistant Management Coordinator

REVIEWED BY:

Craig L. Gardner
Wildlife Biologist III

Laura A. McCarthy
Publications Technician II

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TABLE 1 Unit 20B fall beaver cache surveys in the lower Chena River, downstream from the confluence with the Little Chena River, 1999–2006

Year	Caches	Stream distance (km)	Density (caches/km)
1999	24	40	0.6
2000	20	40	0.5
2001	22	40	0.6
2002	24	40	0.6
2003	29	40	0.7
2005	29	40	0.7
2006	29	40	0.7

TABLE 2 Postseason lynx track count data, Units 20A and 20B combined, regulatory years 1994–1995 through 2005–2006[a]

Regulatory year	Month	Miles	Lynx tracks observed	Tracks per mile	Percent of 1-mile segments with lynx tracks
1994–1995	Feb	134	32	0.24	38
1995–1996	Feb	405	69	0.17	13
1995–1996	Mar	405	97	0.24	19
1998–1999	Mar	399	137	0.34	22
2000–2001	Mar	442	170	0.38	26
2003–2004	Mar	265	116	0.44	26
2004–2005	Mar	557	440	0.79	34
2005–2006	Mar	134	35	0.26	13

[a] Lack of adequate weather conditions precluded surveys in some years.

TABLE 3 Number of pelts sealed from selected furbearers in portions of Units 20A, 20B, 20C, 20F, and 25C, regulatory years 1997–1998 through 2005–2006

Regulatory	Lynx						River otter						Wolverine					
year	20A	20B	20C	20F	25C	Total	20A	20B	20C	20F	25C	Total	20A	20B	20C	20F	25C	Total
1997–1998	168	251	186	50	29	684	0	27	9	2	0	38	10	10	17	1	4	42
1998–1999	260	371	173	29	2	835	4	12	4	1	0	21	11	9	4	1	2	27
1999–2000	440	388	135	56	43	1062	20	6	6	0	0	32	22	10	7	3	0	42
2000–2001	628	527	267	84	18	1524	16	27	4	1	0	48	9	18	15	8	1	51
2001–2002	295	299	156	18	8	776	16	19	14	0	0	49	15	7	16	4	2	44
2002–2003	118	48	83	44	3	296	7	10	13	1	0	31	11	16	5	2	0	34
2003–2004	116	49	48	30	11	254	6	15	15	0	0	36	11	14	11	10	2	48
2004–2005	98	40	65	40	3	246	4	35	5	3	0	47	6	8	10	3	0	27
2005–2006	116	57	68	50	0	291	6	32	3	1	0	42	6	4	11	9	2	32

TABLE 4 Number of carcasses examined and percentages of kittens, and pregnancy, Units 20A and 20B, regulatory years 1997–1998 through 2005–2006

	Regulatory year								
Category	1997–1998	1998–1999	1999–2000	2000–2001	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Carcasses	130	208	250	365	197	31	27	31	77
Kittens	33%	25%	20%	19%	8%	0%	0%	30%	34%
Adult females	28%	27%	33%	37%	42%	52%	56%	29%	31%
Pregnant females	19%	14%	14%	19%	19%	19%	33%	16%	26%
Adult males	39%	48%	46%	45%	50%	48%	44%	41%	35%
Pregnancy rate	69%	54%	43%	51%	46%	38%	60%	42%	52%

TABLE 5 Trapping seasons and bag limits for river otter, wolverine, coyote, marten, mink, weasel, fox, and muskrat within the Fairbanks area (Units 20A, 20B, 20C, 20F, and 25C), regulatory years 1983 through 2005[a]

Species	Season dates	Season length (days)	Regulatory years[a]	Bag limit
River otter	1 Nov–15 Apr	167	1983–2005	No limit
Wolverine	1 Nov–31 Mar	152	1983–1986	No limit
	1 Nov–28 Feb	121	1987–2005	No limit
Coyote	1 Nov–31 Mar	152	1983–2005	No limit
Marten, Mink	1 Nov–28 Feb		1983–2005	No limit
Weasel, Fox, and Muskrat	1 Nov–10 Jun	223	1983–2005	No limit

[a] Regulatory year = 1 July through 30 June (e.g., regulatory year 1983 begins 1 Jul 1983 and ends 30 Jun 1984).

TABLE 6 Hunting seasons and bag limits for lynx, wolverine, red fox, coyote, and squirrel within the Fairbanks area (Units 20A, 20B, 20C, 20F, and 25C), regulatory years 1983–1984 through 2005–2006

Species	Season dates	Season length (days)	Regulatory year(s)	Bag limit
Lynx	1 Nov–31 Mar	152	1983–1986	2
	1 Nov–31 Dec	61 (Unit 20A)	1987	2
	1 Nov–15 Jan	76 (Units 20B, 20C, 20F, and 25C)	1987	2
	15 Dec–15 Jan	31	1988–1989	2
	1 Dec–31 Jan	62	1990–2005	2
Wolverine	1 Sep–31 Mar	213	1983–2005	1
Red fox	1 Nov–15 Feb	117	1983–1990	2
	1 Sep–15 Mar	197	1991–2005	10
Coyote	1 Sep–30 Apr	243	1983–2001	2
	10 Aug–30 Apr	265	2002–2005	10
Squirrel	No closed season	365	1983–2005	No limit

[a] Regulatory year = 1 July through 30 June (e.g., regulatory year 1983 begins 1 Jul 1983 and ends 30 Jun 1984).

TABLE 7 Trapping seasons and bag limits for beaver within the Fairbanks area (Units 20A, 20B, 20C, 20F, and 25C), regulatory years 1983–2005[a,b]

Unit	Season dates	Season length (days)	Regulatory years	Bag limit
20A	1 Feb–15 Apr	75	1983–1991	25
	1 Nov–15 Apr	167	1992–1997	25
	1 Nov–15 Apr	167	1998–2005	No limit
20B[a]	1 Feb–15 Apr	75	1983–1984	25
	1 Nov–15 Apr	167	1985–1997	25
	1 Nov–15 Apr	167	1998–2003	No limit
	25 Sep–31 May	250	2004–2005	No limit
20C	1 Nov–15 Apr	167	1983–1997	25
	1 Nov–15 Apr	167	1998–2005	No limit
20F	1 Nov–15 Apr	167	1983–1987	25
	1 Nov–15 Apr	167	1988–1997	50
	1 Nov–15 Apr	167	1998–2005	No limit
25C	1 Nov–15 Apr	167	1983–1997	25
	1 Nov–15 Apr	167	1998–2005	No limit

[a] A portion of the lower Chena River and Badger Slough has been closed to trapping without a permit since 1983.
[b] Regulatory year = 1 July through 30 June (e.g., regulatory year 1983 begins 1 Jul 1983 and ends 30 Jun 1984).

TABLE 8 Trapping seasons and bag limits for lynx within the central (Units 20A, 20B, and 20C east of Teklanika) and remote (remainder of Unit 20C, Units 20F, 25C) portions of the Fairbanks area, regulatory years 1995–1996 through 2005–2006

Regulatory year(s)[a]	Portion of Fairbanks area	Season length	Season dates	Bag limit
1995–1996	central	31	15 Dec–15 Jan	No limit
1997	central	77	1 Dec–15 Feb	No limit
1998–1999	central	91	1 Dec–28 Feb	No limit
2000–2001	central	121	1 Nov–28 Feb	No limit
2002–2003	central	62	1 Dec–31 Jan	No limit
2004	central	31	1 Dec–31 Dec	No limit
2005	central	47	15 Dec–31 Jan	No limit
1995–1996	remote	62	1 Dec–31 Jan	No limit
1997–2005	remote	121	1 Nov–28 Feb	No limit

[a] Regulatory year = 1 July through 30 June (e.g., regulatory year 1995 begins 1 Jul 1995 and ends 30 Jun 1996).

TABLE 9 Average furbearer pelt prices (U.S. dollars), compiled from North American Fur Auctions, regulatory years 2000–2001 through 2006–2007[a,b]

Species	Regulatory year													
	2000–2001		2001–2002		2002–2003		2003–2004		2004–2005		2005–2006		2006–2007	
Beaver Western	20	(17)	17	(14)	15	(13)	19	(16)	17	(14)	31	(26)	24	(20)
Marten Section I	30	(26)	33	(28)	35	(30)	38	(32)	46	(39)	92	(78)	59	(50)
Mink Section I	13	(11)	11	(9)	11	(9)	15	(13)	15	(13)	32	(27)	21	(18)
Red fox Section I	26	(22)	29	(25)	26	(22)	22	(19)	20	(17)	26	(22)	25	(21)
Lynx Section I	54	(46)	76	(65)	105	(89)	158	(134)	133	(113)	158	(134)	109	(93)
River Otter all	68	(58)	70	(60)	121	(103)	104	(88)	107	(91)	143	(122)	48	(41)
Wolverine all	175	(149)	211	(179)	166	(141)	165	(140)	155	(132)	158	(134)	232	(197)

[a] Average of January and February sales.

[b] Eighty-five percent of auction averages in parentheses. Trappers pay about 15% in sales commissions and shipping when shipping to an auction.

TABLE 10 Beaver taken by permit in the Fairbanks area during regulatory years 1999–2000 through 2006–2007

Regulatory year	Take in lower Chena area[a]		Take outside lower Chena area
	Nuisance	ATA[b]	Nuisance
1999–2000	Unk	27	Unk
2000–2001	Unk	13	9
2001–2002	6	11	21
2002–2003	10	6	12
2003–2004	9	7	50
2004–2005	17	0	18
2005–2006	22	0	11
2006–2007	10	23	32

[a] Lower Chena area is the Chena River downstream from its confluence with the Little Chena River and Badger Slough downstream from Plack Road.
[b] Alaska Trappers Association's mentoring program for local youth.

TABLE 11 Wolverine harvest (number of pelts sealed) and percentage of males in the harvest, Units 20A, 20B, 20C, 20F, and 25C, regulatory years 1989–1990 through 2005–2006

Regulatory year	Sealed[a]	Males	% Males[a]
1989–1990	17	10	59
1990–1991	22	13	59
1991–1992	44	26	59
1992–1993	23	18	78
1993–1994	42	35	83
1994–1995	32	17	53
1995–1996	14	12	86
1996–1997	37	21	57
1997–1998	40	24	60
1998–1999	23	18	78
1999–2000	41	31	76
2000–2001	52	39	75
2001–2002	41	29	71
2002–2003	31	24	77
2003–2004	45	27	60
2004–2005	26	15	58
2005–2006	35	28	80

[a] Excludes wolverines of unknown sex.

TABLE 12 Percent method of take and transportation used to harvest furbearers from Units 20A, 20B, 20C, 20F, and 25C, regulatory years 2003–2004 through 2005–2006

	Method of take				Method of transportation			
Regulatory year/Species	Ground shooting	Trapping	Snaring	Other/ Unk	Airplane	Dogsled/ snowshoe/skis	Snowmachine	Other/Unk/ Highway
2003–2004								
River Otter	0	56	25	19	0	6	61	33
Lynx	1	79	15	4	5	4	78	13
Wolverine	4	79	17	0	6	4	88	2
2004–2005								
River Otter	0	91	9	0	2	6	83	9
Lynx	2	74	21	4	0	6	88	6
Wolverine	7	74	19	0	7	11	81	0
2005–2006								
River Otter	2	83	14	0	0	14	74	12
Lynx	1	87	10	1	0	14	75	11
Wolverine	9	81	9	0	0	16	66	19

WILDLIFE MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 PO Box 115526
Juneau, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006[1]

LOCATION

GAME MANAGEMENT UNIT: 20D (5633 mi^2)

GEOGRAPHIC DESCRIPTION: Central Tanana Valley near Delta Junction

BACKGROUND

Furbearers are important natural resources in Unit 20D. Species include beaver, coyote, lynx, marten, mink, muskrat, river otter, red fox, red squirrel, weasel, wolverine, and wolf. Wolves are discussed in a separate management report. Competition for traplines and furbearers is intense. Much of the area is easily accessible from the road system and/or major rivers.

MANAGEMENT DIRECTION

MANAGEMENT GOALS

- Provide for an optimal harvest of furbearers.
- Provide the greatest opportunity to participate in hunting and trapping furbearers.

MANAGEMENT OBJECTIVES AND ACTIVITIES

- Manage furbearer populations to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses.
  - Seal furs as they are harvested and presented for sealing and analyze harvest patterns.
  - Conduct trapper questionnaires and interviews as a basis for determining the status of various furbearer populations.
  - Monitor furbearer population trends and annual harvest using sealing documents, fur acquisition reports and fur export reports.

[1] At the discretion of the reporting biologist, this unit report may contain data collected outside the report period.

- ❖ Monitor trends in abundance of furbearer prey species by establishing snowshoe hare and small mammal trend surveys.

- ❖ Conduct snowshoe hare surveys to monitor prey abundance.

- ➢ Manage lynx harvest with a tracking harvest strategy whereby seasons are most liberal when lynx are abundant and most conservative when lynx are scarce.

  - ❖ Purchase lynx carcasses from trappers and examine them for reproductive status as needed.

  - ❖ Adjust lynx season dates and bag limits annually to reflect current population trend.

METHODS

We collected harvest data for lynx, river otter, and wolverine by requiring trappers to have their furs sealed. Additional information collected at the time of sealing included: name of trapper; harvest location and date; pelt measurements for lynx and river otter; sex of the furbearer; method of take; and method of transportation used.

We mailed questionnaires to trappers in Unit 20D through the Statewide Furbearer Management Program. Trappers were asked to rate species abundance as scarce, common, or abundant. They were also asked to rate species population trends as fewer, same, or more than the previous year.

We purchased lynx carcasses from trappers for $10 each. Carcasses were kept frozen until they could be examined to determine age, sex, and reproductive status of females.

A summer snowshoe hare population trend index was completed in conjunction with a nongame breeding bird survey. The breeding bird survey was conducted by surveying the Richardson Highway from Milepost 256.2 to 230.4. It required the surveyor to stop at ½-mile intervals for 3 minutes at each stop. The survey was begun ½-hour before sunrise (approximately 3:00 AM) in late June or early July. All hares seen during the survey were counted.

Data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY03 = 1 Jul 2003 through 30 Jun 2004).

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Four lynx carcasses were acquired in RY04 and 9 in RY06 (Table 1). All 4 samples from RY04 were adult females with 1, 4, and 4 recent (that year) placental scars. The RY06 carcasses were 5 males (4 adults; 1 kitten) and 4 females (3 adults; 1 kitten). The number of recent placental scars for the adult females were 0 (as expected for the yearling), 2, and 2.

Counts of snowshoe hares along the Donnelly Dome breeding bird survey route increased from a low of 2 hares in 2003 to 129 in 2006, the highest level recorded since the survey began

(Table 2). This indicates that the hare population had an increasing trend during this time period which should benefit furbearers that prey upon hares.

Furbearer and prey population abundance and trends based on responses to trapper questionnaires during RY03 and RY04 of this reporting period were reviewed and discussed in Peltier (2005) and Blejwas (2006).

Population Size

Population size was unknown for furbearers in Unit 20D.

Population Composition

Population composition was unknown for furbearers in Unit 20D.

Distribution and Movements

No work was performed to determine furbearer distribution and movements during this report period.

MORTALITY

Harvest

Season and Bag Limit. Unit 20D furbearer seasons and bag limits are listed in Table 3.

Alaska Board of Game Actions and Emergency Orders. The lynx trapping season was adjusted annually by emergency orders issued by the department as part of a lynx harvest tracking system (Table 3).

Hunter–Trapper Harvest.

Lynx — Lynx harvest increased this reporting period from 19 in RY03 to 76 in RY05 (Table 4). Although this harvest was substantially below the peak harvest of 257 in RY00, it does indicate, in combination with the increasing hare population, that the population was in its increasing stage. Based on harvest trend and on lynx carcass data collected from adjacent Unit 20A, the lynx population and harvest are expected to peak in RY09–RY11.

River Otter — River otter harvest during RY03–RY05 was 7–8/year (Table 4). River otter harvest in Unit 20D is typically low ($\bar{x}$ = 2.9 during RY86–RY00; Table 4) but trapper interest appeared to be somewhat higher during RY01–RY05, based on higher annual harvests ($\bar{x}$ = 7.2).

Wolverine — Wolverine harvest during RY03–RY05 was variable, ranging from 6 to 15/year and did not vary greatly from previous years (Table 4).

Harvest Chronology. Lynx were primarily captured during December and January which coincided with the legal trapping season (Tables 3 and 5).

River otter and wolverine were captured throughout the legal trapping season, and most harvest occurred from December through February (Table 5).

Method of Take. Traps and snares were the most commonly used method for capturing all furbearers in Unit 20D during RY03–RY05 (Table 4).

Transport Methods. Snowmachines continued to be the most commonly used means of transportation for lynx, river otter, and wolverine trappers in Unit 20D (Table 6), however, river otter trappers commonly used boats for transportation during some years.

Other Mortality

Rates of natural mortality were unknown for furbearers in Unit 20D.

HABITAT

Assessment and Enhancement

No habitat assessment or enhancement were specifically directed toward furbearers during this reporting period. However, large portions of Unit 20D north of the Tanana River were burned by wildfire during RY03–RY05 and should eventually benefit furbearers by creating quality habitat for microtines and hares, major food sources for many of the furbearer species.

CONCLUSIONS AND RECOMMENDATIONS

Furbearer management objectives were met by monitoring population trends and harvest through sealing selected furs and conducting trapper questionnaires. Lynx harvest increased in RY03–RY05. The trend in snowshoe hare population size increased during this reporting period. Reported harvest of river otters and wolverines was variable. No changes in furbearer trapping or hunting regulations are recommended at this time other than annual adjustments in the lynx season via the harvest tracking strategy.

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PREPARED BY:

Stephen D. DuBois
Wildlife Biologist III

SUBMITTED BY:

Doreen I. Parker McNeill
Assistant Management Coordinator

REVIEWED BY:

Craig L. Gardner
Wildlife Biologist III

Laura A. McCarthy
Publications Technician II

Please cite any information taken from this section, and reference as:

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TABLE 1 Unit 20D lynx carcass data, regulatory years 1994–1995 through 2006–2007

Regulatory year	No. male (%)	No. female (%)	No. adult (%)	No. kittens (%)	$\bar{x}$ Age of adults	$\bar{x}$ No. kittens per adult females	*n*
1994–1995	4 (50)	4 (50)	7 (88)	1 (13)	4	4.0	8
1995–1996	5 (56)	4 (44)	6 (75)	2 (25)	n/a	n/a	8
1996–1997	0 (0)	0 (0)	0 (0)	0 (0)	n/a	n/a	0
1997–1998	17 (49)	18 (51)	19 (54)	16 (46)	2.3	2.2	35
1998–1999	34 (55)	28 (45)	48 (77)	14 (23)	1.4	1.9	62
1999–2000	47 (57)	35 (43)	61 (74)	21 (26)	1.5	2.8	82
2000–2001	51 (45)	63 (55)	114 (87)	17 (13)	2.3	0.3	131
2001–2002	36 (51)	34 (49)	70 (100)	0 (0)	2.3	0.0	70
2002–2003	10 (71)	4 (29)	14 (100)	0 (0)	2.9	0.0	14
2003–2004	1 (25)	3 (75)	4 (100)	0 (0)	n/a	n/a	4
2004–2005	1 (25)	3 (75)	4 (100)	0 (0)	n/a	n/a	4
2005–2006	0 (0)	0 (0)	0 (0)	0 (0)	0	0	0
2006–2007	5 (56)	4 (44)	7 (78)	2 (22)	–[a]	1.3	9

[a] Data not yet available.

TABLE 2 Snowshoe hare numbers seen during the Donnelly Dome breeding bird survey, Unit 20D, 1995–2006

Year	Number of hares
1995	4
1996	24
1997	46
1998	73
1999	85
2000	43
2001	6
2002	2
2003	2
2004	11
2005	57
2006	129

TABLE 3 Furbearer trapping and hunting seasons in Unit 20D, regulatory years 2003–2004 through 2005–2006

Species/	Trapping		Hunting	
Regulatory year	Trapping season	Bag limit	Hunting season	Bag limit
Coyote				
2003–2004	1 Nov–31 Mar	No limit	1 Sep–30 Apr	2
2004–2005	1 Nov–31 Mar	No limit	1 Sep–30 Apr	10, no more than 2 before 1 Oct
2005–2006	1 Nov–31 Mar	No limit	10 Aug–30 Apr	10
Lynx				
2003–2004	1 Nov–28 Feb	No limit	1 Dec–31 Jan	2
2004–2005	1 Dec–31 Dec	No limit	1 Dec–31 Jan	2
2005–2006	15 Dec–31 Jan	No limit	15 Dec–31 Jan	2
Marten				
2003–2004	1 Nov–28 Feb	No limit	No open season	
2004–2005	1 Nov–28 Feb	No limit	No open season	
2005–2006	1 Nov–28 Feb	No limit	No open season	
Mink				
2003–2004	1 Nov–28 Feb	No limit	No open season	
2004–2005	1 Nov–28 Feb	No limit	No open season	
2005–2006	1 Nov–28 Feb	No limit	No open season	
Muskrat				
2003–2004	1 Nov–10 Jun	No limit	No open season	
2004–2005	1 Nov–10 Jun	No limit	No open season	
2005–2006	1 Nov–10 Jun	No limit	No open season	
River Otter				
2003–2004	1 Nov–15 Apr	No limit	No open season	
2004–2005	1 Nov–15 Apr	No limit	No open season	
2005–2006	1 Nov–15 Apr	No limit	No open season	

Species/	Trapping		Hunting	
Regulatory year	Trapping season	Bag limit	Hunting season	Bag limit
Red Fox				
2003–2004	1 Nov–28 Feb	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
2004–2005	1 Nov–28 Feb	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
2005–2006	1 Nov–28 Feb	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
Red Squirrel				
2003–2004	No closed season	No limit	No closed season	No limit
2004–2005	No closed season	No limit	No closed season	No limit
2005–2006	No closed season	No limit	No closed season	No limit
Weasel				
2003–2004	1 Nov–28 Feb	No limit	No open season	
2004–2005	1 Nov–28 Feb	No limit	No open season	
2005–2006	1 Nov–28 Feb	No limit	No open season	
Wolverine				
2003–2004	1 Nov–28 Feb	No limit	1 Sep–31 Mar	1
2004–2005	1 Nov–28 Feb	No limit	1 Sep–31 Mar	1
2005–2006	1 Nov–28 Feb	No limit	1 Sep–31 Mar	1

TABLE 4 Unit 20D lynx, river otter, and wolverine harvest, regulatory years 1994–1995 through 2005–2006

Regulatory year	Reported harvest: Sex M	F	Unk	Age: Juv	Adults	Unk	Method of take: Trap/snare	Shot	L&S[a]	Unk	Total harvest
Lynx											
1994–1995				7	26	2	33	0	0	2	35
1995–1996				12	14	0	26	0	0	0	26
1996–1997				6	37	4	46	0	0	1	47
1997–1998				52	91	1	143	1	0	0	144
1998–1999				22	86	14	122	0	0	0	122
1999–2000				37	120	3	145	4	0	11	160
2000–2001				55	190	12	234	11	0	12	257
2001–2002				29	164	23	202	11	0	3	216
2002–2003				3	32	0	35	0	0	0	35
2003–2004				1	17	1	17	0	0	2	19
2004–2005				3	22	1	26	0	0	0	26
2005–2006				17	58	1	72	3	0	1	76
River Otter											
1994–1995	2	1	2				5	0	0	0	5
1995–1996	0	2	0				2	0	0	0	2
1996–1997	0	1	1				2	0	0	0	2
1997–1998	3	0	1				4	0	0	0	4
1998–1999	0	0	4				4	0	0	0	4
1999–2000	0	1	2				3	0	0	0	3
2000–2001	1	0	1				2	0	0	0	2
2001–2002	4	1	1				6	0	0	0	6
2002–2003	0	0	7				7	0	0	0	7
2003–2004	4	0	4				8	0	0	0	8
2004–2005	0	0	7				4	0	0	3	7
2005–2006	5	1	1				7	0	0	0	7
Wolverine											
1994–1995	5	7	0				12	0	0	0	12
1995–1996	0	2	0				2	0	0	0	2
1996–1997	3	2	1				6	0	0	0	6
1997–1998	7	5	1				13	0	0	0	13
1998–1999	3	0	0				3	0	0	0	3
1999–2000	3	3	0				6	0	0	0	6
2000–2001	11	7	4				21	1	0	0	22
2001–2002	5	2	1				7	1	0	0	8
2002–2003	5	3	0				6	2	0	0	8
2003–2004	1	1	6				5	2	0	1	8
2004–2005	4	1	10				13	2	0	0	15
2005–2006	1	2	3				6	0	0	0	6

[a] L&S (land and shoot) refers to animals taken by hunters the same day hunters were airborne.

TABLE 5 Unit 20D beaver, lynx, river otter, and wolverine harvest chronology percent by month(s), regulatory years 1994–1995 through 2005–2006

Species/	Harvest chronology percent by month(s)							
Regulatory year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unk
Lynx								
1994–1995	0	0	54	46	0	0	0	0
1995–1996	0	0	50	50	0	0	0	0
1996–1997	0	6	53	34	0	0	0	6
1997–1998	0	1	35	39	24	2	0	0
1998–1999	0	0	24	31	45	0	0	0
1999–2000	0	0	36	33	31	0	0	0
2000–2001	0	21	32	29	18	0	0	1
2001–2002	1	18	32	33	16	1	0	1
2002–2003	0	0	69	29	3	0	0	0
2003–2004	0	0	47	47	5	0	0	0
2004–2005	0	0	92	4	4	0	0	0
2005–2006	0	1	39	61	0	0	0	0
River Otter								
1994–1995	0	0	40	40	0	0	20	0
1995–1996	0	0	0	0	100	0	0	0
1996–1997	0	0	50	0	50	0	0	0
1997–1998	0	25	0	25	0	50	0	0
1998–1999	0	50	25	25	0	0	0	0
1999–2000	0	0	67	33	0	0	0	0
2000–2001	0	50	50	0	0	0	0	0
2001–2002	0	0	17	0	83	0	0	0
2002–2003	0	0	43	43	0	0	14	0
2003–2004	0	0	25	50	25	0	0	0
2004–2005	0	14	57	0	0	29	0	0
2005–2006	0	0	57	29	14	0	0	0
Wolverine								
1994–1995	0	0	17	42	42	0	0	0
1995–1996	0	0	0	33	67	0	0	0
1996–1997	0	0	17	0	67	17	0	0
1997–1998	0	0	15	23	54	8	0	0
1998–1999	0	0	0	67	33	0	0	0
1999–2000	0	0	50	17	17	17	0	0
2000–2001	5	5	5	3	50	0	0	0
2001–2002	0	0	0	13	75	13	0	0
2002–2003	0	0	13	0	63	25	0	0
2003–2004	13	13	25	25	13	0	0	13
2004–2005	7	7	13	27	47	0	0	0
2005–2006	0	17	67	17	0	0	0	0

TABLE 6 Unit 20D harvest percentage by transport method[a], regulatory years 1994–1995 through 2005–2006

Species/ Regulatory year	Harvest percent by transport method									
	Airplane	Dogsled	Boat	3- or 4-Wheeler	Snowmachine	ORV	Highway vehicle	Skis, Snowshoes	Other	Unk
Lynx										
1994–1995	0	0	0	0	63	0	26	9		3
1995–1996	0	4	0	0	92	0	0	4		0
1996–1997	0	2	0	2	64	0	28	4		0
1997–1998	0	1	0	0	85	0	14	1	0	0
1998–1999	0	0	0	0	75	0	21	3	0	0
1999–2000	3	0	0	0	81	0	10	1	5	0
2000–2001	4	0	0	0	66	4	14	3	7	0
2001–2002	1	0	0	0	74	2	14	7	3	0
2002–2003	0	0	0	3	57	0	31	9	0	0
2003–2004	0	0	0	0	84	0	11	0	5	0
2004–2005	0	0	0	0	69	0	15	15	0	0
2005–2006	0	4	0	5	75	0	4	4	48	0
River Otter										
1994–1995	0	0	20	80	0	0	0	0		
1995–1996	0	0	0	0	100	0	0			
1996–1997	0	0	0	0	100	0	0			
1997–1998	0	0	0	0	75	0	0	25	0	0
1998–1999	0	0	0	0	50	0	25	25	0	0
1999–2000	0	0	67	0	33	0	0	0	0	0
2000–2001	0	0	0	0	100	0	0	0	0	0
2001–2002	0	0	0	0	100	0	0	0	0	0
2002–2003	0	0	0	0	100	0	0	0	0	0
2003–2004	0	0	0	0	100	0	0	0	0	0
2004–2005	0	0	57	0	43	0	0	0	0	0
2005–2006	0	0	71	0	14	0	14	0	0	0

Species/ Regulatory year	Harvest percent by transport method									
	Airplane	Dogsled	Boat	3- or 4-Wheeler	Snowmachine	ORV	Highway vehicle	Skis, Snowshoes	Other	Unk
Wolverine										
1994–1995	17	8	0	0	75	0	0	0		0
1995–1996	0	0	0	0	100	0	0	0		0
1996–1997	0	0	0	0	100	0	0	0		0
1997–1998	0	0	0	0	100	0	0	0	0	0
1998–1999	0	0	0	0	67	0	33	0	0	0
1999–2000	0	0	0	0	100	0	0	0	0	0
2000–2001	5	0	0	0	96	0	0	0	0	0
2001–2002	0	0	0	0	100	0	0	0	0	0
2002–2003	0	0	0	0	63	25	13	0	0	0
2003–2004	13	0	0	0	63	13	0	0	0	13
2004–2005	0	0	0	7	67	0	27	0	0	0
2005–2006	0	0	0	0	50	50	0	0	0	0

[a] Transportation codes were revised in 1989; however, some errors may exist due to use of some old sealing certificates.

WILDLIFE MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 PO Box 115526
Juneau, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006[1]

LOCATION

GAME MANAGEMENT UNIT: 21B, 21C, and 21D (25,067 mi^2)

GEOGRAPHIC DESCRIPTION: Yukon River drainage above Blackburn to Tozitna River including Koyukuk River to Dulbi Slough

BACKGROUND

Furbearers have traditionally been important resources in Unit 21. They supply food, clothing, and trade items. Fur populations have always been sufficient to meet local needs but are subject to cycles of abundance or scarcity primarily due to fluctuations in small mammal and gallinaceous bird populations. The innumerable lakes, rivers, and streams found in Units 21B, 21C, and 21D support a large number of water-dependent furbearers such as beaver, mink, river otter, and muskrat. The following species found in the area are listed in the order of their economic importance: marten, beaver, lynx, wolverine, wolf, red fox, mink, river otter, and muskrat. Wolves are discussed in detail in a separate management report. Coyotes are rare. Weasels and red squirrels are common but not usually targeted by trappers.

MANAGEMENT DIRECTION

Data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY05 = 1 Jul 2005 through 30 Jun 2006).

MANAGEMENT GOALS

- Protect, maintain, and enhance the furbearer populations and their habitats in concert with other components of the ecosystem.

- Provide for continued use of furbearers by local Alaska residents who have customarily and traditionally depended on these populations.

[1] At the discretion of the reporting biologist, this unit report may contain data collected outside the report period.

MANAGEMENT OBJECTIVE

- Maintain populations of furbearers that will support a minimum level of harvest equal to the mean of the harvest of each species from RY89 through RY99.

MANAGEMENT ACTIVITIES

- Monitor harvest through fur sealing records, fur acquisition reports, and fur export permits.

- Monitor furbearer populations by reconnaissance surveys, trapper questionnaires, and trapper interviews.

METHODS

We monitored harvest through sealing records, fur export reports, fur acquisition reports, and personal interviews. We tracked furbearer abundance by interviewing trappers, reviewing trapper questionnaires, and gathering incidental data during surveys of other species and other field activities.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

During RY03–RY05, beavers and river otters were found throughout the area in suitable habitat. Based on incidental observations and trapper reports, beaver populations were high and stable.

Muskrat numbers were still low at the beginning of this report period. The increase in the number of push-ups observed beginning in RY02 did not signal a substantial change in muskrat numbers through RY05. Numerous hypotheses were suggested for the initial decline, including loss of habitat as a result of pond succession, predation by pike, and disease. River otters were common throughout the area, and their numbers appear stable.

Lynx were in the low phase of their 10-year cycle during the RY04–RY05 seasons. Snowshoe hare numbers began increasing in RY06, but ptarmigan numbers appeared to decline throughout RY03–RY05. Red foxes were numerous throughout the area and appeared stable or slightly increasing. Coyotes were rare in Units 21B, 21C, and 21D, with only a few observations and incidental harvest. Coyotes were reported near the communities of Ruby, Galena, and Nulato.

Marten populations were moderate in Units 21B and the western and southern portion of Unit 21D but low in the northern portion of Unit 21D and in Unit 21C during RY03–RY05. Most trappers reported that marten were found in pockets of habitat at various times during the trapping season. These apparent absences were temporary and were likely caused either by local migrations or by restricted movement of the animals. Overall, marten numbers were stable in the area during RY03–RY05. Mink populations were low in the area and were probably associated with numbers of muskrats. Weasels occur throughout the area but at relatively low numbers.

Distribution and Movements

All furbearer species were found throughout Units 21B, 21C, and 21D in the areas of suitable habitat.

MORTALITY

Harvest

Trapping Seasons and Bag Limits during RY03–RY05.

Species	Season	Bag limit
Beaver	1 Nov–10 Jun	No limit
Coyote	1 Nov–31 Mar	No limit
Lynx	1 Nov–28 Feb	No limit
Marten	1 Nov–28 Feb	No limit
Mink and Weasel	1 Nov–28 Feb	No limit
Muskrat	1 Nov–10 Jun	No limit
Red fox	1 Nov–28 Feb	No limit
River otter	1 Nov–15 Apr	No limit
Wolverine	1 Nov–31 Mar	No limit

Hunting Seasons and Bag Limits during RY03–RY05.

Species	Season	Bag limit
Coyote	10 Aug–30 Apr	10
Red fox	1 Sep–15 Mar	10, no more than 2 before 1 Oct
Lynx	1 Nov–28 Feb	2
Wolverine	1 Sep–31 Mar	1

Alaska Board of Game Actions and Emergency Orders. Since RY86, trapping seasons and bag limits have remained the same for marten, coyote, lynx, fox, mink, muskrat, otter, and wolverine. In RY02 the requirement for sealing beaver was eliminated. At the March 2006 meeting, the Board of Game allowed for the harvest of beaver using firearms in Units 21B and 21D, provided the meat was salvaged for human consumption.

Trapper Harvest.

Beaver — Beaver harvest is unknown because sealing was no longer required beginning RY02. Harvest is often for personal use either as food or to make the fur into garments. Many of the pelts never enter the fur market and are not recorded through fur acquisition and export permits. Elimination of the sealing requirement for beavers in Units 21B, 21C, and 21D resulted in harvest being not well documented through fur acquisition and export reports. However, in the past, kit harvest was low even though total beaver harvest was relatively high (Tables 1 and 2) because experienced trappers used snares with large diameter openings and placed their sets outside food caches, away from lodges. Historically, harvest was greatest during February and March (Table 3).

Lynx — Lynx populations reached the low point of their 10-year cycle during RY04–RY05 (Tables 1 and 2). The value of lynx pelts increased substantially in RY03–RY05 compared to RY00–RY02, but trapper effort did not appear to increase. Harvest was low in November, but increased slightly and remained steady during the remainder of the lynx trapping season (Table 3).

River Otter — Although river otters were abundant in Units 21B, 21C, and 21D, harvest remained relatively low throughout the trapping season (Tables 1–3). Pelt prices for river otters harvested in Interior Alaska improved beginning in RY02, but trapping effort was still minimal through RY03–RY05. Most harvest occurred when river otters were incidentally taken in beaver sets, and therefore, harvest levels are consistent with beaver trapping efforts.

Wolverine — Harvest of wolverines was stable (Tables 1 and 2) throughout RY03–RY05, although total harvest was slightly higher in February and March than other months (Table 3). Wolverine fur prices were stable at a reasonably high level during RY03–RY05.

Other Species — Marten harvest during the mid 1990s was greatly reduced due to low trapping effort and low prices. Pelt prices for marten were strong throughout RY03–RY05 and resulted in increased trapper effort and consistently good levels of harvest (Table 4). Fox populations were high; however, pelt prices were low and trappers had little incentive to pursue this species. Coyotes were scarce, and very few were caught each year. Wolves were abundant, and wolf predation on coyotes may keep coyote numbers low. Mink occur at low densities and furthermore, pelt prices for mink harvested in Interior Alaska were low, so few trappers targeted them.

Trapping Conditions. Weather was moderate for the 3 years of the reporting period. Snowfall was normal and access was not limited, except in RY04, when some trappers complained that trail conditions were too rough due to low snowfall. Overall, trapping conditions were adequate for most trappers.

CONCLUSIONS AND RECOMMENDATIONS

With the exception of coyotes, mink, and muskrats, furbearer populations throughout Units 21B, 21C, and 21D were stable or increasing and were at moderate-to-high levels. We were not aware of any areas with excessive harvest. Marten fur prices were high during RY03–RY05 but overall, fur prices remain depressed and it is doubtful any significant increases in harvest will occur for any of the species. I recommend continuing the present seasons and bag limits. Marten and lynx seasons should be reviewed annually, but overharvest is unlikely as fur prices appear to be declining for these species. Population trend information for all species can be gathered from trapper questionnaires, discussions with local Fish and Game advisory committees, and trapper interviews.

The goals to 1) protect, maintain, and enhance the furbearer populations and their habitats in concert with other components of the ecosystem, and 2) provide for continued use of furbearers by local Alaska residents who have customarily and traditionally depended on these populations, were met.

The objective to maintain populations of furbearers that will support a minimum level of harvest equal to the mean of the harvest of each species from RY89 through RY99 was met. Mean harvest during the RY03–RY05 report period fluctuated, but none of the furbearer populations declined to levels that would not allow for those minimal levels of harvest. The objective for the next report period will be to maintain populations of furbearers that will support a minimum level of harvest equal to the mean of the harvest of each species over the last 10 regulatory years.

PREPARED BY:

Glenn W. Stout
Wildlife Biologist III

SUBMITTED BY:

Doreen I. Parker McNeill
Assistant Management Coordinator

REVIEWED BY:

Craig L. Gardner
Wildlife Biologist III

Laura A. McCarthy
Publications Technician II

Please cite any information taken from this section, and reference as:

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TABLE 1 Units 21B, 21C, and 21D reported harvest of sealed furbearer species, regulatory years 1995–1996 through 2005–2006

Regulatory year	Species			
	Beaver[a]	Lynx	Otter	Wolverine
1995–1996	218	4	22	11
1996–1997	564	35	49	31
1997–1998	508	30	25	22
1998–1999	263	31	10	18
1999–2000	268	78	16	27
2000–2001	272	121	8	34
2001–2002	290	106	26	25
2002–2003	27	56	38	38
2003–2004		21	13	22
2004–2005		35	30	35
2005–2006		25	13	37

[a] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

TABLE 2 Units 21B, 21C, and 21D beaver, lynx, otter, and wolverine harvest, regulatory years 1995–1996 through 2005–2006

Regulatory year	Reported harvest						Estimated harvest		Method of take					Successful trappers/hunters
	M	F	Unk	Juv[a]	Adults	Unk	Unreported	Illegal	Trap/Snare	Shot	(L&S)	Unk	Total	
Beaver														
1995–1996	--	--	--	10	207	11	0	0	176	31	--	21	228	23
1996–1997	--	--	--	26	537	1	0	0	564	0	--	0	564	45
1997–1998	--	--	--	10	498	0	0	0	508	0	--	0	508	45
1998–1999	--	--	--	25	238	0	0	0	253	0	--	10	263	25
1999–2000	--	--	--	35	233	0	0	0	251	0	--	17	268	27
2000–2001	--	--	--	13	257	2	0	0	189	33	--	50	272	19
2001–2002	--	--	--	13	237	40	0	0	288	2	--	0	290	23
2002–2003[b]	--	--	--	0	27	0	0	0	27	0	--	0	27	4
Lynx														
1995–1996	--	--	--	0	3	1	0	0	4	0	--	0	4	6
1996–1997	--	--	--	6	27	2	0	0	34	1	--	0	35	13
1997–1998	--	--	--	2	28	0	0	0	30	0	--	0	30	12
1998–1999	--	--	--	1	30	0	0	0	30	1	--	0	31	10
1999–2000	--	--	--	24	54	0	0	0	76	2	--	0	78	22
2000–2001	--	--	--	8	90	23	0	0	119	2	--	0	121	26
2001–2002	--	--	--	7	85	14	0	0	105	0	--	1	106	28
2002–2003	--	--	--	0	44	12	0	0	52	3	--	1	56	23
2003–2004	--	--	--	4	17	0	0	0	21	0	--	0	21	9
2004–2005	--	--	--	4	31	0	0	0	33	1	--	1	35	13
2005–2006	--	--	--	1	24	0	0	0	23	2	--	0	25	8
Otter														
1995–1996	5	4	10	--	--	--	0	0	19	0	--	0	19	15
1996–1997	24	13	12	--	--	--	0	0	44	0	--	5	49	24
1997–1998	11	5	9	--	--	--	0	0	25	0	--	0	25	17
1998–1999	3	1	6	--	--	--	0	0	10	0	--	0	10	7
1999–2000	3	3	10	--	--	--	0	0	14	1	--	1	16	8
2000–2001	1	5	2	--	--	--	0	0	8	0	--	0	8	3
2001–2002	14	7	5	--	--	--	0	0	24	1	--	1	26	11
2002–2003	16	13	9	--	--	--	0	0	35	3	--	0	38	14
2003–2004	9	4	0	--	--	--	0	0	13	0	--	0	13	5
2004–2005	23	2	5	--	--	--	0	0	27	3	--	0	30	9
2005–2006	5	4	4	--	--	--	0	0	12	1	--	0	13	5

Regulatory year	Reported harvest						Estimated harvest		Method of take					Successful trappers/hunters
	M	F	Unk	Juv[a]	Adults	Unk	Unreported	Illegal	Trap/Snare	Shot	(L&S)	Unk	Total	
Wolverine														
1995–1996	7	4	0	--	--	--	10	0	6	5	--	10	21	15
1996–1997	21	9	1	--	--	--	10	0	20	3	--	18	41	17
1997–1998	17	3	2	--	--	--	10	0	22	0	--	10	32	17
1998–1999	14	3	1	--	--	--	10	0	17	1	--	10	28	13
1999–2000	14	10	3	--	--	--	10	0	25	2	--	10	37	17
2000–2001	18	10	6	--	--	--	10	0	27	6	--	11	44	20
2001–2002	14	5	6	--	--	--	10	0	20	2	--	13	35	16
2002–2003	24	10	4	--	--	--	10	0	34	2	--	12	48	19
2003–2004	12	9	1	--	--	--	10	0	22	0	--	0	32	13
2004–2005	22	12	1	--	--	--	10	0	34	1	--	0	45	18
2005–2006	22	13	2	--	--	--	10	0	36	0	--	1	47	18

[a] Juveniles: beavers <52" (length + width); lynx <34" in length.
[b] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

TABLE 3 Units 21B, 21C, and 21D beaver, lynx, otter, and wolverine harvest chronology by month, regulatory years 1995–1996 through 2005–2006

Regulatory year	Harvest chronology by month							
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Beaver								
1995–1996	10	4	1	36	79	44	34	0
1996–1997	0	39	45	121	346	13	0	0
1997–1998	5	45	13	189	220	13	0	0
1998–1999	7	18	21	47	167	3	0	0
1999–2000	43	1	2	69	145	2	0	0
2000–2001	0	4	35	123	88	0	--	--
2001–2002	25	21	32	101	109	2	--	--
2002–2003[a]	0	1	0	20	0	6	--	--
Lynx								
1995–1996	0	3	1	0	--	--	--	--
1996–1997	0	15	0	17	3	--	--	--
1997–1998	0	4	1	18	7	--	--	--
1998–1999	0	13	10	7	1	--	--	--
1999–2000	1	21	19	36	1	--	--	--
2000–2001	6	46	26	43	0	--	--	--
2001–2002	6	20	45	33	1	--	--	--
2002–2003	0	8	30	16	0	--	--	--
2003–2004	1	4	10	5	1	--	--	--
2004–2005	1	8	12	10	0	--	--	--
2005–2006	2	11	2	10	0	--	--	--
River otter								
1995–1996	1	8	0	3	6	1	--	--
1996–1997	2	17	9	7	11	0	--	--
1997–1998	2	6	2	2	13	0	--	--
1998–1999	2	2	2	0	4	0	--	--
1999–2000	1	5	3	5	0	0	--	--
2000–2001	0	0	1	4	3	0	--	--
2001–2002	2	4	5	5	7	0	--	--
2002–2003	2	2	22	4	1	7	--	--
2003–2004	3	2	1	1	2	3	--	--
2004–2005	7	7	4	5	3	4	--	--
2005–2006	0	1	3	8	0	0	--	--
Wolverine								
1995–1996	2	3	1	5	5	--	--	--
1996–1997	4	9	1	7	10	--	--	--
1997–1998	4	2	5	3	8	--	--	--
1998–1999	2	3	2	7	3	--	--	--
1999–2000	1	7	0	12	7	--	--	--
2000–2001	1	3	3	21	5	0	--	--

Regulatory year	Harvest chronology by month							
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2001–2002	4	1	2	1	15	2	--	--
2002–2003	2	4	6	17	6	1	--	--
2003–2004	3	2	2	10	4	0	--	--
2004–2005	3	8	7	9	8	0	--	--
2005–2006	5	8	6	7	10	0	--	--

[a] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

TABLE 4 Units 21B, 21C, and 21D estimated harvest[a] of unsealed furbearer species regulatory years 1995–1996 through 2005–2006

Regulatory year	Species					
	Beaver[b]	Coyote	Marten	Mink	Muskrat	Red fox
1995–1996		0	385	7	0	4
1996–1997		1	2072	100	33	37
1997–1998		0	231	2	0	11
1998–1999		0	256	0	0	18
1999–2000		0	778	0	0	16
2000–2001		1	964	3	2	28
2001–2002		0	921	4	0	9
2002–2003	67	0	535	8	2	18
2003–2004	9	1	373	2	6	9
2004–2005	92	0	287	0	5	17
2005–2006	33	0	490	0	0	1

[a] Estimates derived from Fur Acquisition Reports and Fur Export Permits.
[b] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 22 (25,230 mi^2)

GEOGRAPHIC DESCRIPTION: Seward Peninsula and the adjacent mainland drained by all streams flowing into Norton Sound

BACKGROUND

Furbearers found in Unit 22 include beaver, red fox, arctic fox, lynx, marten, mink, muskrat, river (land) otter, wolverine and wolves. Wolves are discussed in a separate survey and inventory report.

Furbearers are most abundant in the eastern portion of Unit 22, which is characterized by extensive spruce forests and riparian willow habitat. Densities of furbearers have fluctuated widely over the years, generally in response to natural factors. Hunting and trapping activity has at times reduced furbearer densities in close proximity to Unit 22 villages.

Harvest activity is partly related to densities of furbearers. When population densities are high, the number of hunters and trappers increases. However, most of the furbearer harvest in Unit 22 is by subsistence and recreational users or is done opportunistically by local residents while engaged in other activities. Very few individuals in Unit 22 trap as their sole winter occupation (Persons 2001).

MANAGEMENT DIRECTION

MANAGEMENT GOALS

- Maintain viable numbers of furbearers, recognizing that populations will fluctuate in response to environmental factors.

MANAGEMENT OBJECTIVES

- Monitor harvest through the fur sealing program, annual hunter/trapper questionnaires and Community-based Harvest Assessments conducted annually in selected Unit 22 villages.

- Assess population status and trends using sealing records, hunter/trapper interviews and questionnaires, Community-based Harvest Assessments and observations by staff and the public.

- Maintain license vendors and sealing agents in all Unit 22 villages.

- Improve compliance with current sealing requirements through public communication and education.

- Minimize conflicts between furbearers and the public.

METHODS

Information regarding distribution and abundance of furbearers is obtained from observations reported by the staff and the public. Harvest information for beavers, lynx, river otters and wolverines is collected annually from fur sealing certificates, hunter/trapper questionnaires and village harvest surveys.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Information was collected regarding the status of Unit 22 furbearer populations from observations made while conducting surveys of other species and from information provided by interested local residents. Since 1998, Unit 22 has participated in the statewide trapper survey program which has provided useful impressions about furbearer abundance from hunter/trappers throughout the unit (Persons 2001).

Population Size

Beaver—During this reporting period staff observations and reports from the public indicate beavers were abundant and trapper survey respondents reported beaver numbers to be stable or increasing in Units 22A, 22B, 22C and 22D. In Unit 22E beaver numbers are believed to be increasing in the Serpentine River drainage. Harvest pressure throughout the unit has been minimal in recent years.

Many unit residents are dismayed by the proliferation of beavers on the western Seward Peninsula over the last 25 years and regard beavers as nuisances. Complaints are common; for example: beavers have blocked culverts along the road system, forcing the Alaska Department of Transportation and Public Facilities to destroy a number of dams and kill nuisance beavers; recreational boaters complain about the blockage of waterways; there is concern that beaver dams are preventing salmon from returning to their spawning grounds; and precautions must now be taken to prevent giardia infection when drinking from local streams (Persons 2001).

Lynx—In Unit 22A lynx and hares, their primary food source, continued to be common during this reporting period and reports indicate lynx numbers were stable. During a March 2003 moose census, lynx were noted to be particularly abundant in the southern portion of the Unalakleet River drainage. In Unit 22B observations and harvest data indicate lynx numbers increased

significantly during this reporting period and survey respondents reported lynx were common. In Units 22C and 22D lynx were scarce, but probably increasing in response to increasing numbers of hares.

River Otter—Otters are found throughout most of the major drainages of the unit. Hunter/trappers who responded to our trapper surveys indicated otters in Units 22A, 22B, 22C and 22D were common and their numbers stable. We have no information about otters in Unit 22E.

Wolverine—Observations and trapper questionnaires indicate wolverines were common throughout the unit and their numbers were thought to be generally stable or perhaps down slightly in some areas since the 2003–2004 regulatory year. During a March 2004 moose census in western Unit 22B, wolverine tracks were noted to be unusually numerous, indicating an abundance of wolverine in the Fish River drainage in spring 2004. Suitable habitat and food resources are thought to be the primary factors determining population density in Unit 22, although hunting pressure around Nome in Unit 22C can be an important factor regulating population density.

Fox—During the reporting period red foxes were noted to be common throughout much of the unit. The Norton Sound Health Corporation's Office of Environmental Health now handles all specimens suspected of rabies infection in the Norton Sound area. In 2003–2004 the office reported 3 foxes in Unit 22 villages were suspected of having rabies and were burned. In 2004–2005 no rabid foxes were reported, and in 2005–2006 five foxes tested positive for rabies. Arctic fox were found along the Seward Peninsula coastline and coastal shore-fast sea ice during the reporting period. Arctic fox harvest is not recorded, but subsistence crab fisherman commonly trapped arctic fox near their crab pots within 2 miles of the coast near Nome.

Mink/Marten—Most of the suitable marten habitat occurs in Units 22A and 22B. During the previous reporting period marten were reported to be abundant in Unit 22A. During this reporting period several trappers reported decreasing numbers of marten in parts of Units 22A and 22B which they correlated with increasing lynx numbers. Mink were noted to be abundant in some river drainages in Unit 22C. Little else is known about the status of mink and marten populations in Unit 22.

Population Composition

There were no activities to determine furbearer population composition in Unit 22 during the reporting period.

Distribution and Movements

There were no activities to determine furbearer distribution and movements in Unit 22 during the reporting period.

MORTALITY

Harvest

Hunting Seasons and Bag Limits. In 2004 the hunting season for beaver in Unit 22 was changed to "no closed season" and the bag limit was changed to "no limit." Other furbearer seasons and bag limits remained unchanged.

Species	Season	Bag Limit
2003–2004		
Beaver	1 Aug–10 Jun	20 beavers per season
Fox, Arctic	1 Sep–30 Apr	2 foxes
Fox, Red	1 Sep–15 Mar	10 foxes, only 2 before 1 Oct
Lynx	1 Nov–15 Apr	2 lynx
Wolverine	1 Sep–31 Mar	1 wolverine
2004–2005, *2005–2006*		
Beaver	No closed season	No limit
Fox, Arctic	1 Sep–30 Apr	2 foxes
Fox, Red	1 Sep–15 Mar	10 foxes, only 2 before 1 Oct
Lynx	1 Nov–15 Apr	2 lynx
Wolverine	1 Sep–31 Mar	1 wolverine

Trapping Seasons and Bag Limits. In 2004 the trapping season for beaver was changed to "no closed season," however from 11 June–31 October taking beaver by any means other than a firearm was prohibited. The beaver bag limit was changed to "no limit." Other furbearer seasons and bag limits remained unchanged. There was no difference between resident and nonresident seasons and bag limits.

Species	Season	Bag Limit
2003–2004		
Beaver	1 Nov–10 Jun	50 per season
Coyote	1 Nov–15 Apr	No limit
Fox, Arctic	1 Nov–15 Apr	No limit
Fox, Red	1 Nov–15 Apr	No limit
Lynx	1 Nov–15 Apr	No limit
Marten	1 Nov–15 Apr	No limit
Mink	1 Nov–31 Jan	No limit
Muskrat	1 Nov–10 Jun	No limit
Otter	1 Nov–15 Apr	No limit
Wolverine	1 Nov–15 Apr	No limit
2004–2005, 2005–2006		
Beaver	No closed season	No limit
Coyote	1 Nov–15 Apr	No limit
Fox, Arctic	1 Nov–15 Apr	No limit
Fox, Red	1 Nov–15 Apr	No limit
Lynx	1 Nov–15 Apr	No limit
Marten	1 Nov–15 Apr	No limit
Mink	1 Nov–31 Jan	No limit

Muskrat	1 Nov–10 Jun	No limit
Otter	1 Nov–15 Apr	No limit

Board of Game Actions and Emergency Orders. In November 2003 the Board of Game changed beaver hunting and trapping regulations in Unit 22 by adopting a "no closed season" and a "no limit" bag limit. Under a trapping license beaver can only be taken by firearm from 11 June–31 October to avoid the taking of non-target species.

Human-Induced Harvest. The number of hunter/trappers sealing lynx, otter and wolverine increased slightly during this reporting period but it is not known if this is the result of increased hunter effort or better compliance with sealing requirements. Accurate harvest data are lacking for all furbearer species found in Unit 22, even for those species that are sealed. Many furs from the unit are home tanned and used locally for clothing, so there is little incentive to have them sealed. The fur sealing data provide only minimum estimates of harvest. Additional harvest information was obtained from trapper surveys, and information about wolverine harvest was provided by community-based harvest surveys conducted in several Unit 22 villages. Harvest surveys conducted for regulatory years 2003–2004 and 2004–2005 in St Michael, Shaktoolik, Koyuk and Unalakleet documented an additional harvest of 21 wolverines in these villages.

Beaver—The number of beavers harvested during the reporting period in Unit 22 is unknown. In October 1999 the Board of Game eliminated the sealing requirement for beaver in Unit 22 and harvest is no longer reported. Trapper surveys from 2004–2005 and 2005–2006 reported a harvest of 126 beaver; 28 from 22A, 20 from 22B and 78 from 22C. Five trappers reported that beaver were 1 of their 3 most important target species.

Lynx—In Unit 22A reported lynx harvest has been increasing since the mid 1990s and peaked in 2005–2006 when 75 lynx were reported taken (Table 1). In Unit 22B lynx harvest increased substantially during this reporting period with 117 lynx sealed compared to 16 lynx sealed during the previous reporting period. The reported harvest in Unit 22C was 6 lynx, up from 0 lynx in the previous reporting period. No harvest was reported in Units 22D or 22E.

River Otter—An average of 8 otter per year were sealed in Unit 22 during the reporting period, varying from a high of 12 in 2003–2004, to a low of 3 in 2005–2006 (Table 2.) In 2004–2005 9 otters were sealed. During this reporting period only 3 trappers indicated otters were an important target species for them.

Wolverine—The number of wolverines sealed during this reporting period ranged from an all time high of 74 in 2003–2004 to 44 in 2005–2006 (Table 3). In 2004–2005, 49 wolverines were sealed. The reported sex composition for the reporting period was 66% males and 34% females. Trapper questionnaires indicated wolverines are an important target species among Unit 22 trappers. Wolverines taken from all subunits were sealed with a distribution as follows: Unit 22A, 43%; Unit 22B, 25%; Unit 22C, 15%; Unit 22D, 8%; and Unit 22E, 9%.

Permit Hunts. No special permits were required to trap or hunt furbearers in Unit 22 during the reporting period.

Hunter Residency and Success. During this reporting period all but 8 of the hunter/trappers who harvested furbearers in Unit 22 were local residents. Six nonresident hunter/trappers harvested lynx, and 2 harvested wolverines. Success is difficult to accurately measure because most individuals take furbearers on an opportunistic basis. Frequently, they are out doing other things and not specifically hunting or trapping furbearers (Persons 2001).

Harvest Chronology. Travel conditions are an important component in timing of furbearer harvest. Snow conditions dictate the timing of harvest for beaver, red fox, arctic fox, lynx, marten, mink, otter, and wolverine in Unit 22. Beavers are also harvested by boat in late spring during breakup or in the fall in some parts of the unit.

Transport Methods. Snowmachines were the primary means of transportation for hunter/trappers taking furbearers within Unit 22. Sealing certificate data from the reporting period (July 2003 through June 2005) show that 92% of the furbearer harvest occurred by snowmachine, 4% by skis or snowshoes and the remaining 4% occurred by airplane, 4-wheeler, boat or by unknown transport.

Other Mortality

There were no observations of other mortality to furbearers in Unit 22 during the reporting period.

HABITAT

Assessment

We did no habitat assessment projects in Unit 22 during the reporting period.

Enhancement

We did no habitat enhancement projects in Unit 22 during the reporting period.

NONREGULATORY MANAGEMENT PROBLEMS/NEEDS

During this reporting period conflicts arose between trappers and the public when dogs and other non-target species were caught in traps within Nome city limits. The city allows trapping within city limits to suppress fox numbers and reduce the likelihood of rabid fox encounters. Department staff worked with the city and the trappers to develop signs advising the public of active trapping trails within city limits.

CONCLUSIONS AND RECOMMENDATIONS

We lack quantitative data on furbearer population status in Unit 22. However, observations, reports from unit residents, and harvest data indicate that furbearer populations are generally stable or increasing in most parts of the unit. Although a significant portion of furbearer harvest is unreported, we believe reporting has increased throughout the unit in recent years. The actual harvest and its impact on furbearer populations are unknown.

In 1998 Region 5 began participating in the statewide trapper survey program. The annual surveys are sent to people who trap furs in the region. We have had good cooperation from fur

harvesters, and the comments and information provided by Unit 22 hunter/trappers have given us important harvest information and a better and more timely picture of changes in furbearer abundance in different parts of the unit.

The most effective means of collecting harvest information in unit villages is through household harvest surveys, which we began in spring 1999 in selected Unit 22 villages. However, these surveys focus on big game, and only wolf and wolverine data are collected.

Trapper surveys and Community-based Harvest Assessments give us some additional harvest information, but the accuracy of furbearer harvest data still needs to be improved. Increased contact between local hunter/trappers and biologists is desirable to encourage harvest reporting and to gain information about harvest and furbearer abundance.

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PREPARED BY:

Kate Persons
Wildlife Biologist III

Tony Gorn
Wildlife Biologist II

SUBMITTED BY:

Peter Bente
Survey-Inventory Coordinator

Please cite any information taken from this section, and reference as:

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TABLE 1 Unit 22 lynx harvest reported on sealing certificates, 1988–1989 through 2005–2006

Species	Reported harvest							Percent Male Harvest	Method of harvest, %			Nr. hunters
	22A	22B	22C	22D	22E	Unk	Total	(unknown removed)	Shot	Trap/snar	Unk	trapper
Lynx												
1988–1989	1	2	0	1	0	0	4	67	50	50	0	4
1989–1990	0	2	1	0	0	0	3	50	67	33	0	3
1990–1991	2	0	0	0	0	0	2	0	0	100	0	1
1991–1992	4	0	0	0	1	0	5	40	40	0	60	4
1992–1993	4	2	4	0	0	0	10	0	10	80	10	4
1993–1994	2	0	0	0	0	0	2	0	50	50	0	1
1994–1995	3	1	0	0	0	0	4	0	25	75	0	2
1995–1996	0	1	0	0	0	0	1	0	100	0	0	1
1996–1997	5	0	0	0	0	0	5	0	40	60	0	2
1997–1998	2	0	0	0	0	0	2	100	0	100	0	1
1998–1999	6	0	0	0	1	0	7	43	14	86	0	3
1999–2000	27	1	0	0	0	0	28	85	4	96	0	5
2000–2001	56	0	0	0	0	0	56	79	5	82	13	9
2001–2002	64	5	0	0	0	0	69	46	3	94	3	9
2002–2003	35	11	0	5	0	0	51	47	14	86	0	9
2003–2004	28	33	1	0	0	0	62	46	30	70	0	16
2004–2005	52	44	4	0	0	0	100	45	11	87	2	16
2005–2006	75	40	1	0	0	0	116	61	5	95	0	23

TABLE 2 Unit 22 river otter harvest reported on sealing certificates, 1988–1989 through 2005–2006

Species	Reported harvest							Percent Male Harvest	Method of harvest, %			Nr. hunters/
	22A	22B	22C	22D	22E	Unk	Total	(unknown removed)	Shot	Trap/snar	Unk	Trapper
River otter												
1988–1989	0	0	0	0	0	0	0	0	0	0	0	0
1989–1990	1	1	0	0	0	0	2	0	100	0	0	1
1990–1991	2	1	0	1	0	0	4	0	0	100	0	2
1991–1992	2	0	2	0	0	0	4	0	0	100	0	2
1992–1993	6	1	0	4	1	0	12	25	50	50	0	5
1993–1994	9	0	4	4	0	1	18	0	22	78	0	6
1994–1995	11	8	0	2	1	0	22	30	9	82	9	4
1995–1996	1	0	0	0	0	1	2	0	100	0	0	1
1996–1997	6	0	1	3	2	0	12	66	83	17	0	4
1997–1998	4	3	3	1	1	0	12	80	0	75	25	8
1998–1999	2	4	0	1	0	2	9	33	11	67	22	5
1999–2000	3	0	1	0	0	2	6	75	17	50	33	4
2000–2001	4	8	3	0	0	1	16	69	38	50	12	9
2001–2002	5	0	1	0	0	0	6	100	0	100	0	2
2002–2003	0	4	4	0	0	0	8	38	0	100	0	6
2003–2004	4	2	6	0	0	0	12	73	58	42	0	7
2004–2005	3	1	3	1	1	0	9	67	33	67	0	8
2005–2006	1	1	1	0	0	0	3	50	0	100	0	3

Table 3 Unit 22 wolverine harvest reported on sealing certificates, 1988–1989 through 2005–2006

Species	Reported harvest 22A	22B	22C	22D	22E	Unk	Total	Percent Male Harvest (unknown removed)	Method of harvest, % Shot	Trap/snar	Unk	Nr. hunters trapper
Wolverine												
1988–	16	3	6	4	3	0	32	0	63	37	0	13
1989–	23	9	4	2	8	0	46	59	30	70	0	14
1990–	33	6	14	9	4	0	66	0	64	36	0	23
1991–	31	10	9	8	4	0	62	69	58	42	0	17
1992–	26	3	14	6	2	1	52	68	62	35	4	17
1993–	24	4	9	3	4	4	48	0	71	29	0	20
1994–	13	7	5	1	0	0	26	77	77	23	0	13
1995–	9	0	8	0	1	0	18	0	78	22	0	7
1996–	24	1	12	4	2	4	47	46	63	33	4	22
1997–	13	26	0	2	1	0	42	70	31	55	14	16
1998–	10	10	1	0	4	0	25	76	29	71	0	12
1999–	5	11	5	8	6	1	36	80	63	27	10	24
2000–	17	29	7	9	9	0	71	74	44	42	14	35
2001–	9	14	7	6	4	0	40	56	40	60	0	18
2002–	7	17	2	7	0	0	33	70	50	50	0	20
2003–	42	19	7	3	3	0	74	69	23	70	7	35
2004–	16	12	9	5	7	0	49	62	12	37	0	23
2005–	13	11	9	6	5	0	44	70	42	58	0	31

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 23

GEOGRAPHIC DESCRIPTION: Kotzebue Sound and Western Brooks Range

BACKGROUND

Furbearers inhabiting Unit 23 include beaver (*Castor canadensis*), lynx (*Lynx canadensis*), marten (*Martes americana*), mink (*Mustela vison*), muskrat (*Ondatra zibethicus*), river (land) otter (*Lutra canadensis*), red fox (*Vulpes vulpes*), white (arctic) fox (*Alopex lagopus*), wolverine (*Gulo gulo*) and wolf (*Canis lupus*). We report the status of wolves in a separate survey and inventory report. All other species are reported here.

The Inupiat traditionally harvested furbearers for subsistence in Unit 23 and traded inland furs for coastal marine mammal products (Anderson et al. 1977). Unlike trappers in Interior regions, Unit 23 trappers did not maintain individual traplines. Instead, hunters and trappers operated within community hunting areas they fiercely defended (Erlich and Magdanz 1994).

Harvest of furbearers in Unit 23 was probably greatest in the 1940s and 1950s, when demand and prices for fur were high. The sale of furs was one of the few sources of cash available to the region's residents during this time. Today furbearer harvest in Unit 23 is by subsistence and recreational users, and by 1 or 2 professional trappers. Furbearer harvests provide materials for locally manufactured garments and, except for the professional trappers, generate limited income. Most pelts remain in the region. Harvest of many furbearers occurs on an opportunistic basis by local residents while they are engaged in other activities.

MANAGEMENT DIRECTION

MANAGEMENT GOALS

Management goals for furbearers are to maintain populations capable of sustaining 1986–1997 harvest levels, recognizing that populations fluctuate in response to environmental factors.

MANAGEMENT OBJECTIVES

Management objectives for furbearers are to:

- Seal furs and maintain harvest records to evaluate harvest patterns.

- Provide for subsistence, commercial and recreational uses of furbearers.

METHODS

We gathered information regarding the population status of beaver, lynx, marten, river otter, and wolverine from fur sealing certificates, conversations with local residents, responses to the statewide trapper questionnaire from residents of Unit 23, and opportunistic observations of furbearers and their tracks during other wildlife surveys. We do not report beaver harvests because sealing became voluntary in 2000 and few people have sealed their pelts.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

Beaver — Beaver numbers remained high in the Selawik and Kobuk River drainages. In these drainages beavers have fully occupied high-quality habitat and now widely occur in marginal areas as well. Residents of Selawik are concerned about beavers damming streams important for subsistence fishing and about the threat of giardia in their drinking water. Beavers continued to expand their range north and west in Unit 23. Beavers now occur as far north as the upper Kugururuk River and as far west as Rabbit Creek and in the vicinity of Point Hope near the Chukchi Sea coast.

Fox —Red foxes were abundant during each year of this reporting period. During the winter of 2006-2007 numerous red foxes were observed throughout Kotzebue. The city police and animal control officer killed several of these foxes: all were negative for rabies. Willow ptarmigan have been scarce near Kotzebue for several years and an icing event in December 2006 may have made it difficult for foxes to catch microtines. I suspect these foxes came into Kotzebue to scavenge garbage and steal dog food.

No foxes were submitted for rabies testing during the winter of 2001–2002, and only 1 red fox found dead near the Red Dog Mine was submitted during 2002–2003 (this fox was rabid). In 2003-2004, 3 red foxes from Kotzebue and the surrounding area tested positive for rabies during August 2003, and 2 more tested positive during April 2004. Three additional foxes killed within the city limits of Kotzebue during November 2003 were negative for rabies.

Lynx — Snowshoe hare (*Lepus americanus*) numbers peaked at very high densities and then crashed in parts of Unit 23, e.g. the Selawik and upper Noatak drainages, during winter and spring 1999–2000 and 2000–2001 (Dau 2004). As a result, by March 2001 lynx numbers reached very high levels and peaked in the lower Tagagawik River drainage, a major tributary of the Selawik River.

By 2002 hares in the Selawik drainage had crashed and, based on reports from the public and my opportunistic observations, lynx moved into the Kobuk drainage, especially its delta, and the Buckland and Kiwalik drainages. They persisted in these areas at high to moderate densities

through 2005–2006. Harvests remained high, by recent standards, through 2003–2004, but substantially declined thereafter (Table 1). Localized areas of high snowshoe hare density have persisted in portions of the Noatak drainage, through the winter of 2006–2007, and some lynx have survived there. However, general numbers of lynx appear to have substantially declined from 2001 levels.

Mink and Marten — Mink and marten numbers fluctuate locally, making it difficult to monitor population trends. Although snow characteristics and the presence of spruce forests are generally suitable for mink and marten in the upper Kobuk drainage, the hard-packed snow conditions characteristic of most of the remainder of Unit 23 may limit the distribution of these species.

The best marten habitat in Unit 23 occurs in the upper Kobuk River drainage. From roughly 1990–1999 marten appeared to be expanding their range in Unit 23 westward. During this expansion, marten occurred in low-to-moderate numbers as far west as the lower Noatak River and became locally abundant in the Hockley Hills and upper Squirrel River drainage. Marten numbers were low in the western coastal portion of the unit throughout this reporting period.

Mink occur throughout Unit 23 but little is known about their abundance or population trend.

Muskrat — Muskrats occur throughout Unit 23. We have no information regarding their abundance, population trend or harvest levels. Spring muskrat hunting used to be an important subsistence activity in Unit 23. Although a few families still practice spring muskrat hunting, harvests are low compared to years prior to 1970.

Wolverine — Opportunistic sightings by staff and reports from local residents suggest wolverine numbers were high during 2003–2004 and low the subsequent 2 regulatory years. Local hunters intensively pursue wolverines for their fur and the prestige associated with taking them. The price of unleaded gasoline increased dramatically during 2005–2006. My observations of relatively few snowmachine tracks >15-25 mi from most communities within Unit 23 during 2005–2006 and 2006–2007 suggest gas prices (and fuel shortages for some communities, e.g. Ambler) may have reduced local effort to take wolverines.

Population Composition

For the 3 furbearer species required to be sealed in Unit 23, slightly more males were harvested than females. This may be because males of all 3 species tend to move more and have larger ranges than females; thus the higher take reflects male vulnerability to harvest rather than a skewed sex ratio in these populations.

Distribution and Movements

There were no activities to determine furbearer distribution and movements in Unit 23 during the reporting period.

MORTALITY

Harvest

Hunting Season and Bag Limits.

2003–2004, 2004–2005, 2005–2006

Species	Season	Bag Limit
Beaver	No closed season	No limit
Coyote	1 Sep-30 Apr	2 coyotes
Fox, Arctic	1 Sep–30 Apr	2 foxes
Fox, Red	1 Sep–15 Mar	10 foxes, only 2 before 1 Oct
Lynx	1 Nov–15 Apr	2 lynx
Wolverine	1 Sep–31 Mar	1 wolverine

Trapping Seasons and Bag Limits.

2003–2004, 2004–2005, 2005–2006

Species	Season	Bag Limit
Beaver	No closed season	No limit
Coyote	1 Nov–15 Apr	No limit
Fox, Arctic	1 Nov–15 Apr	No limit
Fox, Red	1 Nov–15 Apr	No limit
Lynx	1 Nov–15 Apr	No limit
Marten	1 Nov–15 Apr	No limit
Mink	1 Nov–31 Jan	No limit
Muskrat	No closed season	No limit
River Otter	1 Nov–15 Apr	No limit
Wolverine	1 Nov–15 Apr	No limit

Board of Game Actions and Emergency Orders. There were no Board of Game actions or emergency orders issued for furbearers during this reporting period.

Human-Induced Harvest. Compliance with sealing requirements for all furbearers remained low during this reporting period. Therefore, the harvests reported here represent minimum levels and probably do not reflect spatial or temporal patterns of harvests.

Lynx — Trappers capitalized on high lynx numbers during the 2003–2004 season but then harvests declined to pre-peak levels in 2004–2005 and 2005–2006 as lynx abundance declined.

River Otter — Harvests of river otters during this reporting period were low compared to previous years (Table 2). Most otters were taken by recreational trappers.

Wolverine — The wolverine harvest during 2003–2004 was higher than in any year since 1986–1987 (Table 3). Harvest data suggest that trappers are better able to capitalize on years of high wolverine abundance than hunters. Almost all wolverines were taken using snowmachines for transportation.

Permit Hunts. No special permits were required to hunt or trap furbearers in Unit 23 during the reporting period.

Hunter Residency and Success. Almost all furbearers were taken by residents of Unit 23.

Harvest Chronology. In the past, most furbearers were taken during March when days are long and temperatures have moderated from the deep cold of winter. During this reporting period harvests were more evenly distributed from December through March. This may be because more individuals are trapping now than in the past.

Transport Methods. As in past years, snow machines were the primary form of transport for hunters and trappers for taking furbearers in Unit 23 (Table 4). In the past most local residents have shot furbearers rather than trapped them. Much of the region is tundra and is conducive to ground shooting using a snowmachine. In recent years, however, more people are trapping furbearers than in the past.

Other Mortality

We think fox numbers are affected primarily by rabies and occasionally distemper rather than by harvest. Brown bears and wolves kill wolverines occasionally, but human harvests probably affect population levels more than natural mortality. Lynx are a classic example of a predator being linked to the abundance of its primary prey, snowshoe hares. In Unit 23, where trapping is not intense, it may be unnecessary to restrict hunting and trapping regulations for lynx during low periods of their population oscillations.

HABITAT

Assessment

We did no habitat assessment projects in Unit 23 during the reporting period.

Enhancement

We did no habitat enhancement projects in Unit 23 during the reporting period.

NONREGULATORY MANAGEMENT PROBLEMS/NEEDS

There were no nonregulatory problems or needs identified for furbearers in Unit 23 during the reporting period.

CONCLUSIONS AND RECOMMENDATIONS

- Simplify hunting and trapping regulations for fur animals when possible. Establishing consistent hunting and trapping regulations would substantially reduce regulatory complexity.

- Encourage the public to vaccinate their dogs against rabies and distemper and improve communication with Maniilaq Association regarding these viruses in animals.

- Continue to encourage hunters and trappers to have their furs sealed in a timely fashion.

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PREPARED BY:
Jim Dau
Wildlife Biologist III

SUBMITTED BY:
Peter Bente
Survey-Inventory Coordinator

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TABLE 1 Harvest and method of take for lynx sealed in Unit 23, 1977–1978 through 2005–2006

Year	Total harvest	Method of take			
		Shot	Trapped	Snared	Unknown
1977–1978	230	0	223	5	2
1978–1979	385	2	341	3	39
1979–1980	407	14	378	3	12
1980–1981	306	3	254	1	48
1981–1982	483	7	444	0	32
1982–1983	277	6	265	1	5
1983–1984	98	3	93	0	2
1984–1985	26	3	23	0	0
1985–1986	45	7	37	0	1
1986–1987	16	2	13	1	0
1987–1988	0	0	0	0	0
1988–1989	0	0	0	0	0
1989–1990	0	0	0	0	0
1990–1991	0	0	0	0	0
1991–1992	1	0	1	0	0
1992–1993	0	0	0	0	0
1993–1994	5	0	5	0	0
1994–1995	1	0	1	0	0
1995–1996	3	2	1	0	0
1996–1997	4	0	0	0	4
1997–1998	0	0	0	0	0
1998–1999	0	0	0	0	0
1999–2000	6	3	3	0	0
2000–2001	8	1	7	0	0
2001–2002	71	1	50	0	20
2002–2003	33	0	33	0	0
2003-2004	36	0	36	0	0
2004-2005	4	0	4	0	0
2005-2006	2	0	2	0	0

TABLE 2 Harvest and method of take for river otters sealed in Unit 23, 1977–1978 through 2005–2006

Year	Total harvest	Method of take			
		Shot	Trapped	Snared	Unknown
1977–1978	12	1	11	0	0
1978–1979	15	2	13	0	0
1979–1980	19	10	9	0	0
1980–1981	29	0	27	2	0
1981–1982	9	0	9	0	0
1982–1983	7	1	5	0	1
1983–1984	8	1	7	0	0
1984–1985	5	0	5	0	0
1985–1986	5	1	4	0	0
1986–1987	12	0	12	0	0
1987–1988	24	1	12	0	0
1988–1989	7	0	7	0	0
1989–1990	16	1	4	0	11
1990–1991	11	1	6	0	4
1991–1992	3	1	2	0	0
1992–1993	2	2	0	0	0
1993–1994	1	0	0	0	1
1994–1995	6	0	6	0	0
1995–1996	0	0	0	0	0
1996–1997	7	1	5	1	0
1997–1998	10	3	6	0	1
1998–1999	7	2	3	0	2
1999–2000	9	1	6	0	2
2000–2001	9	1	5	0	3
2001–2002	5	0	4	1	0
2002–2003	10	0	10	0	0
2003-2004	3	0	3	0	0
2004-2005	1	0	0	0	1
2005-2006	1	0	1	0	0

TABLE 3 Percent males (excluding unknown sex) and method of take for wolverines sealed in Unit 23, 1977–1978 through 2005–2006

YEAR	Total harvest	Males (%)	Method of take			
			Shot	Trapped	Snared	Unknown
1977–1978	75	67	26	49	0	0
1978–1979	45	73	9	34	0	2
1979–1980	26	63	12	14	0	0
1980–1981	18	76	11	7	0	0
1981–1982	48	75	13	35	0	0
1982–1983	37	67	16	20	1	0
1983–1984	46	59	17	27	1	1
1984–1985	37	61	19	15	2	3
1985–1986	35	77	7	27	1	0
1986–1987	64	56	28	28	1	7
1987–1988	40	72	11	28	1	0
1988–1989	39	56	8	31	0	0
1989–1990	18	82	3	13	1	1
1990–1991	27	65	14	11	0	2
1991–1992	37	68	14	23	0	0
1992–1993	36	69	16	20	0	0
1993–1994	19	58	14	4	0	1
1994–1995	16	71	7	8	0	1
1995–1996	29	70	12	13	1	3
1996–1997	40	63	19	21	0	0
1997–1998	19	50	4	15	0	0
1998–1999	13	100	3	7	1	2
1999–2000	31	60	15	9	1	6
2000–2001	39	62	4	31	0	4
2001–2002	29	78	2	11	0	16
2002–2003	19	80	7	12	0	0
2003-2004	44	49	1	41	0	2
2004-2005	15	73	2	6	1	6
2005-2006	3	100	3	0	0	0

Table 4 Harvest and method of transportation used to harvest furbearers and fur animals in Unit 23, 1994–1995 through 2005–2006

Species/year	Harvest	Method of transportation				
		Snowmachine	Boat	Airplane	Other	Unknown
Lynx						
1994–1995	1	1	0	0	0	0
1995–1996	3	3	0	0	0	0
1996–1997	0	0	0	0	0	0
1997–1998	0	0	0	0	0	0
1998–1999	0	0	0	0	0	0
1999–2000	6	6	0	0	0	0
2000–2001	8	8	0	0	0	0
2001–2002	71	70	0	0	1	0
2002–2003	33	33	0	0	0	0
2003-2004	36	36	0	0	0	0
2004-2005	4	4	0	0	0	0
2005-2006	2	2	0	0	0	0
Otter						
1994–1995	6	6	0	0	0	0
1995–1996	0	0	0	0	0	0
1996–1997	7	7	0	0	0	0
1997–1998	10	9	0	0	0	1
1998–1999	7	5	0	0	2	0
1999–2000	9	7	0	0	0	2
2000–2001	9	8	0	0	0	1
2001–2002	5	5	0	0	0	0
2002–2003	10	10	0	0	0	0
2003-2004	3	3	0	0	0	0
2004-2005	1	1	0	0	0	0
2005-2006	1	1	0	0	0	0
Wolverine						
1994–1995	15	15	0	0	0	0
1995–1996	29	28	0	1	0	0
1996–1997	40	37	0	1	2	0
1997–1998	19	18	0	1	0	0
1998–1999	12	9	0	1	2	1
1999–2000	31	26	0	0	0	5
2000–2001	39	38	1	0	0	0
2001–2002	29	26	0	1	0	2
2002–2003	19	19	0	0	0	0
2003-2004	44	42	0	2	0	0
2004-2005	15	14	1	0	0	0
2005-2006	3	2	0	1	0	0

WILDLIFE MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 PO Box 115526
Juneau, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006[1]

LOCATION

GAME MANAGEMENT UNIT: 24 (26,055 mi^2)

GEOGRAPHIC DESCRIPTION: Koyukuk River drainage above the Dulbi River

BACKGROUND

Furbearers have traditionally been an important resource in Unit 24. They supply food, clothing, and trade items. Fur populations have always been sufficient to meet local needs but are subject to cycles of abundance or scarcity. The innumerable lakes, rivers, and streams found in Unit 24 support a large number of water-dependent furbearers, such as beaver, mink, river otter, and muskrat. The following species found in Unit 24 are listed in the order of their economic importance: marten, wolf, beaver, lynx, wolverine, red fox, mink, river otter, and muskrat. Coyotes and arctic fox are rare. Wolves are discussed in detail in a separate management report. Weasels and red squirrels are common but not usually targeted by trappers.

MANAGEMENT DIRECTION

MANAGEMENT GOALS

- Protect, maintain, and enhance the furbearer populations and their habitats in concert with other components of the ecosystem.
- Provide for continued use of furbearers by local Alaska residents who have customarily and traditionally depended on these populations.

MANAGEMENT OBJECTIVE

- Maintain populations of furbearers that will support a minimum level of harvest equal to the mean of the harvest of each species over the last 10 regulatory years.

MANAGEMENT ACTIVITIES

- Monitor harvest through fur-sealing records, fur acquisition reports, and fur export permits.

[1] At the discretion of the reporting biologist, this unit report may contain data collected outside the report period.

- Monitor furbearer populations by reconnaissance surveys, trapper questionnaires, and trapper interviews.

METHODS

We monitored harvest through sealing records, fur export reports, fur acquisition reports, and personal interviews. Harvest data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY03 = 1 Jul 2003 through 30 Jun 2004). We interviewed trappers about furbearer abundance and harvest, reviewed trapper questionnaires, and gathered incidental data during surveys of other species and other field activities. Beaver cache surveys were conducted in the fall by the Kanuti National Wildlife Refuge (NWR) staff to determine the relative number of active lodges on the Kanuti Refuge.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

Beaver were plentiful throughout Unit 24 during RY03–RY05. Beaver cache surveys conducted on the Kanuti NWR in 2002 and 2003 estimated 1135 (± 112.5, 90% CI) and 1337 (± 184.3, 90% CI) active caches respectively, over a 2168-mi^2 area (Kanuti NWR, unpublished data, Fairbanks). By multiplying each active cache by an average of 5 beavers per cache, Kanuti staff estimated there were 5675 beavers on the Kanuti NWR in 2002 and 6685 in 2003. Beaver cache surveys conducted by Koyukuk NWR (southwest portion of Unit 24) staff in 1991 and 2000 found 291 active caches (0.9/mi^2) and 351 active caches (1.1/mi^2; Koyukuk NWR, unpublished data, Galena), respectively.

Muskrat numbers remained low during RY03–RY05. Possible explanations for the long-term decline are loss of habitat due to low water levels, pike predation, or possibly disease. None of the suggested explanations have been investigated. Huslia trappers in the southernmost portion of Unit 24, and Allakaket trappers to the north, reported increasing numbers of muskrats during RY03–RY05.

The 10-year lynx cycle peaked during RY00. Especially high numbers of lynx were reported in the southern slopes of the Brooks Range, where snowshoe hare population swings appeared to peak at a much higher relative magnitude than the low-lying areas in the remainder of Unit 24. Lynx numbers began declining unitwide in RY02. During RY03–RY05 the lynx cycle continued to decrease and is expected to reach its low during RY06.

Red fox populations were moderately high throughout the unit. Arctic fox occasionally ranged from the Arctic Slope into the unit. Coyotes were rare in Unit 24, but based on trapper reports and incidental sightings appeared to increase slightly every year. In the RY04 statewide trapper questionnaire, 3 coyotes were reported being caught.

River otter numbers were likely stable throughout RY03–RY05 based on incidental sightings, trapper reports, and harvest. River otter tracks were frequently observed during early-winter aerial moose surveys. Marten populations were moderately high throughout the unit. Marten

tracks were particularly abundant in old burns west of the Koyukuk River in the lower Alatna River drainage (1999 moose survey observations, ADF&G files, Galena) and in the Huslia River drainage (2000 wolf survey observations, ADF&G files, Galena). Wolverine abundance was moderate and stable. Mink and weasel were stable at low numbers throughout the area.

Small mammal prey populations varied in Unit 24 during RY03–RY05. Microtine species, which are important prey species to furbearers such as marten, weasels, and fox, were moderate to abundant. Snowshoe hare populations declined after peaks in RY99–RY00. The hare cycle may have stabilized at the low end of the cycle during RY03 and RY04 and could be showing signs of a slight increase in RY05. Spruce and ruffed grouse densities continued to be moderate to low, while willow ptarmigan abundance has remained relatively low.

Distribution and Movements

No studies were conducted to monitor furbearer distribution and movements in Unit 24 during RY03–RY05.

MORTALITY

Harvest

Trapping Seasons and Bag Limits during RY03–RY05.

Species	Season	Bag limit
Arctic fox		
(season began in RY04)	1 Nov–28 Feb	No limit
Beaver	1 Nov–10 Jun	No limit
Coyote	1 Nov–31 Mar	No limit
Lynx	1 Nov–28 Feb	No limit
Marten	1 Nov–28 Feb	No limit
Mink and Weasel	1 Nov–28 Feb	No limit
Muskrat	1 Nov–10 Jun	No limit
Red fox	1 Nov–28 Feb	No limit
River otter	1 Nov–15 Apr	No limit
Wolverine	1 Nov–31 Mar	No limit

Hunting Seasons and Bag Limits during RY03–RY05.

Species	Season	Bag limit
Arctic fox		
(season began in RY04)	1 Sep–15 Mar	2
Coyote	10 Aug–30 Apr	10
Lynx	1 Nov–28 Feb	2
Red fox	1 Sep–15 Mar	10
Wolverine	1 Sep–31 Mar	1

Alaska Board of Game Actions and Emergency Orders. Beginning in RY92 the Alaska Board of Game changed the bag limit for beaver from 50 per year to no limit. In RY96 the beaver season

was extended to 10 June. In 2002 the board changed the hunting season for coyotes to open on 10 August instead of 1 September and dropped the limit of 2 coyotes before 1 October. Also in RY02 the requirement for sealing beaver was eliminated. In 2004 the Alaska Board of Game also added an arctic fox season to account for incidental take of arctic fox that extend to the extreme southern portion of their range. During the past 16 years, trapping seasons and bag limits remained the same for marten, lynx, fox, mink, muskrat, river otter, and wolverine.

Trapper Harvest.

Beaver — The beaver sealing requirement was eliminated in RY02, precluding harvest comparisons with previous years (Tables 1 and 2). Prices have typically determined beaver harvest more than bag limits and the RY03–RY05 average price for beaver was $21–$33 (North American Fur Auction website, accessed July 2007), offering little incentive to area trappers. In Unit 24, harvest of beaver is often for food, so even when prices are low there is still a consistent harvest. Beaver kit harvest was low, mainly because of trapping techniques (Table 3). Experienced trappers used snares with large-diameter openings and placed their sets outside food caches away from lodges. Most beaver harvest occurred in the spring, although some trappers took them in November (Table 4) because beaver carcasses are effective bait for other furbearer species.

Lynx — Harvest data supported field observations that lynx reached a high point in their 10-year cycle in RY00 and have experienced a continuous decline since then (Table 1). Percent kittens in the harvest (Table 3) decreased from 4% in RY03 to zero in RY04 and RY05. Decreasing harvest levels, decreased percentage of kittens in the harvest, comments by trappers, and incidental observations indicated the lynx population was decreasing in most areas during RY03–RY05. Pelt prices were moderate for lynx ($150–$180), but still low compared to prices during the late 1970s and 1980s ($300–$500; North American Fur Auction website, accessed July 2007). Most lynx harvest occurred during January and February (Table 4).

River Otter — River otters were abundant. However, there is little local interest for river otters, resulting in minimal trapping effort and harvest (Tables 1 and 3). River otters were usually taken incidentally in late-season beaver sets (Table 4).

Wolverine — Wolverine harvest varied during the reporting period (Table 1). Actual harvest may be higher by 10 animals per year (G. Stout, ADF&G, personal communication) because furs used for subsistence purposes were seldom sealed (Table 3). Few wolverines were trapped in November but throughout the remainder of the season no harvest chronology pattern was readily discernible. Access is more difficult for trappers in November because many of the rivers are not entirely frozen, preventing use of snowmachines and dog teams (Table 4).

Other Species — Based on trapper and fur acquisition reports, marten harvest increased during RY03–RY05 because prices for marten pelts significantly increased. During RY05 marten pelts were worth $100 in the fur market compared to $40 during RY03. Increased trapping effort for marten probably resulted in increased harvest of other species that are susceptible in marten sets such as mink, ermine, and red squirrel. Red fox populations were high, but low prices elicited little trapper interest (Table 2). Arctic fox season was added to the regulations in RY04 to allow for the incidental catch of arctic foxes that range south of the Brooks Range into Unit 24. No

arctic foxes were known to be caught during the report period. Coyotes were scarce in Unit 24, resulting in low harvest.

Harvest and Transportation Methods. The most frequently used method of take for all sealed species during RY03–RY05 was traps and snares, followed by ground shooting (Table 3). The transportation type most used by trappers in Unit 24 was snowmachines (80% of trappers) followed by airplanes and dog teams (6% each) (Blejwas 2006).

Trapping Conditions — Weather was moderate for the 3 years of the reporting period. Snowfall was normal and access was not limited. Overall, trapping conditions were adequate for most trappers.

CONCLUSIONS AND RECOMMENDATIONS

Results from trapper questionnaires and harvest results indicate that most furbearer populations were abundant and stable or increasing. The one exception was the lynx population, which likely reached a cyclic low and is expected to begin increasing in RY06, coincident with the increase in snowshoe hares. Furbearer harvest was well below sustainable harvest levels, and the situation is not likely to change significantly given the low density of trappers, difficult access, and comparatively low fur prices.

As is the trend throughout the Interior, the age of trappers in Unit 24 was increasing and few young trappers were recruited. In the future this may play an important role in deciding whether trapping can be a practical population regulation tool for some species. I recommend continuing the present seasons and bag limits. Population trend information for furbearer species can continue to be gathered from trapper questionnaires, discussions with local Fish and Game advisory committees, and trapper interviews.

Unit 24 furbearer goals and objectives were met during RY03–RY05. Mean harvest during the report period fluctuated, but none of the furbearer populations declined to levels that would not allow for those minimal levels of harvest.

LITERATURE CITED

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PREPARED BY:

Anthony L. Hollis
Wildlife Biologist I

SUBMITTED BY:

Doreen I. Parker McNeill
Assistant Management Coordinator

REVIEWED BY:

Craig L. Gardner
Wildlife Biologist III

Laura A. McCarthy
Publications Technician II

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TABLE 1 Unit 24 estimated harvest of sealed furbearer species, regulatory years 1992–1993 through 2005–2006

	Species			
Regulatory year	Beaver	Lynx	River otter	Wolverine
1992–1993	78	111	6	8
1993–1994	320	123	19	29
1994–1995	140	35	11	29
1995–1996	234	30	18	26
1996–1997	654	25	41	27
1997–1998	433	36	22	28
1998–1999	221	40	3	31
1999–2000	192	102	9	29
2000–2001	206	286	23	19
2001–2002	221	212	9	21
2002–2003[a]	50	63	8	25
2003–2004	92	26	9	22
2004–2005	5	19	20	16
2005–2006	22	10	12	20

[a] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

TABLE 2 Unit 24 estimated harvest[a] of unsealed furbearer species, regulatory years 1992–1993 through 2005–2006

Regulatory year	Species					
	Beaver	Coyote	Marten	Mink	Muskrat	Red fox
1992–1993	--	0	252	6	2	2
1993–1994	--	0	609	3	1	6
1994–1995	--	0	97	1	0	4
1995–1996	--	0	161	16	0	3
1996–1997	--	0	1339	93	14	148
1997–1998	--	0	169	1	0	4
1998–1999	--	0	41	0	0	2
1999–2000	--	0	422	0	0	8
2000–2001	--	0	832	27	1	76
2001–2002	--	0	450	10	4	10
2002–2003	114[b]	0	438	2	0	14
2003–2004	120	0	191	0	0	2
2004–2005	106	3	248	1	0	19
2005–2006	16	0	222	1	1	4

[a] Estimates derived from Fur Acquisition Reports and Fur Export Permits.
[b] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

TABLE 3 Unit 24 beaver, lynx, river otter, and wolverine harvest, regulatory years 1992–1993 through 2005–2006

Regulatory year	Reported harvest: Sex M	F	Unk	Age: Juv[a]	Adults	Unk	Estimated harvest: Unreported	Illegal	Method of take: Trap/Snare	Shot	L&S	Unk	Total harvest	Successful trappers/ hunters
Beaver														
1992–1993	--	--	--	13	65	0	0	0	76	0	--	2	78	10
1993–1994	--	--	--	22	298	0	0	0	320	0	--	0	320	30
1994–1995	--	--	--	5	135	0	0	0	136	0		4	140	11
1995–1996	--	--	--	32	202	0	0	0	234	0		0	234	19
1996–1997	--	--	--	14	634	6	0	0	654	0		0	654	42
1997–1998	--	--	--	18	384	31	0	0	432	0		1	433	57
1998–1999	--	--	--	12	208	1	0	0	221	0		0	221	28
1999–2000	--	--	--	14	178	0	0	0	165	0		27	192	25
2000–2001	--	--	--	4	185	17	0	0	188	0		18	206	16
2001–2002	--	--	--	21	194	6	0	0	219	0		2	221	16
2002–2003[b]	--	--	--	12	38	0	0	0	50	0		0	50	1
2003–2004	--	--	--	16	76	0	0	0	92	0		0	92	1
2004–2005	--	--	--	0	5	0	0	0	5	0		0	5	2
2005–2006	--	--	--	7	15	0	0	0	22	0		0	22	2
Lynx														
1992–1993	--	--	--	1	110	0	0	0	111	0		0	111	22
1993–1994	--	--	--	6	117	0	0	0	123	0		0	123	35
1994–1995	--	--	--	1	33	1	0	0	34	1		0	35	13
1995–1996	--	--	--	1	29	0	0	0	29	1		0	30	18
1996–1997	--	--	--	0	24	1	0	0	22	1		2	25	14
1997–1998	--	--	--	0	36	0	0	0	36	0		0	36	18
1998–1999	--	--	--	0	40	0	0	0	40	0		0	40	13
1999–2000	--	--	--	0	101	1	0	0	100	2		0	102	30
2000–2001	--	--	--	24	244	18	0	0	260	2		24	286	31
2001–2002	--	--	--	25	184	3	0	0	207	5		0	212	24
2002–2003	--	--	--	2	60	1	0	0	63	0		0	63	16
2003–2004	--	--	--	1	25	0	0	0	26	0		0	26	10
2004–2005	--	--	--	0	19	0	0	0	19	0		0	19	8
2005–2006	--	--	--	0	10	0	0	0	9	1		0	10	6

Regulatory year	Reported harvest						Estimated harvest		Method of take				Total harvest	Successful trappers/ hunters
	Sex			Age										
	M	F	Unk	Juv[a]	Adults	Unk	Unreported	Illegal	Trap/Snare	Shot	L&S	Unk		
River Otter														
1992–1993	0	3	3	--	--	--	0	0	6	0	--	0	6	4
1993–1994	2	2	15	--	--	--	0	0	5	0	--	14	19	9
1994–1995	2	1	8	--	--	--	0	0	11	0	--	0	11	5
1995–1996	5	3	10	--	--	--	0	0	17	1	--	0	18	8
1996–1997	11	26	4	--	--	--	0	0	40	0	--	1	41	15
1997–1998	7	5	10	--	--	--	0	0	21	0	--	1	22	12
1998–1999	0	1	2	--	--	--	0	0	3	0	--	0	3	2
1999–2000	3	0	6	--	--	--	0	0	9	0	--	0	9	5
2000–2001	11	5	7	--	--	--	0	0	23	0	--	0	23	10
2001–2002	3	0	6	--	--	--	0	0	8	0	--	1	9	5
2002–2003	1	3	4	--	--	--	0	0	8	0	--	0	8	3
2003–2004	8	0	1	--	--	--	0	0	7	0	--	2	9	4
2004–2005	8	3	9	--	--	--	0	0	18	2	--	0	20	9
2005–2006	4	6	2	--	--	--	0	0	12	0	--	0	12	4
Wolverine														
1992–1993	3	5	0	--	--	--	10	0	7	1	--	0	18	5
1993–1994	16	9	4	--	--	--	10	0	27	0	--	2	39	15
1994–1995	17	12	0	--	--	--	10	0	26	2	--	1	39	14
1995–1996	17	7	2	--	--	--	10	0	22	4	--	0	36	15
1996–1997	17	10	0	--	--	--	10	0	25	2	--	0	37	19
1997–1998	20	8	0	--	--	--	10	0	25	3	--	0	38	20
1998–1999	13	17	1	--	--	--	10	0	30	1	--	0	41	15
1999–2000	21	7	1	--	--	--	10	0	26	1	--	2	39	18
2000–2001	13	5	1	--	--	--	10	0	19	0	--	0	29	9
2001–2002	19	2	0	--	--	--	10	0	18	3	--	0	31	10
2002–2003	15	8	2	--	--	--	10	0	25	0	--	0	35	8
2003–2004	12	8	2	--	--	--	10	0	20	2	--	0	32	10
2004–2005	12	3	1	--	--	--	10	0	16	0	--	0	26	9
2005–2006	10	5	5	--	--	--	10	0	17	3	--	0	30	6

[a] Juveniles: beavers <52" (length+width); lynx <34" in length.

[b] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

TABLE 4 Unit 24 beaver, lynx, river otter, and wolverine harvest chronology by month, regulatory years 1992–1993 through 2005–2006

Regulatory year	Harvest periods							
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Beaver								
1992–1993	8	12	0	20	31	0	--	--
1993–1994	2	7	56	88	167	0	--	--
1994–1995	3	1	27	17	85	0	--	--
1995–1996	11	0	3	51	153	0	--	--
1996–1997	13	24	63	219	305	8	0	0
1997–1998	7	7	20	112	237	30	20	0
1998–1999	9	1	1	18	124	0	40	0
1999–2000	7	0	12	74	27	3	42	0
2000–2001	0	5	6	121	56	0	0	--
2001–2002	5	1	15	78	51	0	47	--
2002–2003[a]	0	0	0	0	0	0	50	--
2003–2004	12	0	0	0	0	0	80	--
2004–2005	3	0	2	0	0	0	0	0
2005–2006	19	2	0	1	0	0	0	0
Lynx								
1992–1993	28	32	24	25	--	--	--	--
1993–1994	12	28	45	37	1	--	--	--
1994–1995	6	8	12	9	0	--	--	--
1995–1996	3	7	8	12	0	--	--	--
1996–1997	3	7	8	6	0	--	--	--
1997–1998	1	9	9	17	0	--	--	--
1998–1999	3	17	4	14	0	--	--	--
1999–2000	3	29	31	37	2	--	--	--
2000–2001	32	101	76	71	0	--	--	--
2001–2002	16	42	80	74	0	--	--	--
2002–2003	7	17	27	12	0	--	--	--
2003–2004	0	5	10	11	0	--	--	--
2004–2005	0	5	5	8	1	--	--	--
2005–2006	3	0	1	6	0	--	--	--
River Otter								
1992–1993	0	1	0	2	3	0	--	--
1993–1994	8	0	1	8	2	0	--	--
1994–1995	0	0	0	1	2	0	--	--
1995–1996	2	3	2	2	9	0	--	--
1996–1997	6	3	6	14	12	0	--	--
1997–1998	0	3	1	7	11	0	--	--
1998–1999	0	0	1	0	2	0	--	--
1999–2000	0	1	0	7	1	0	--	--
2000–2001	0	2	7	12	2	0	--	--
2001–2002	0	2	0	3	2	0	--	--
2002–2003	2	1	4	0	1	0	--	--
2003–2004	1	0	1	4	2	1	--	--
2004–2005	1	4	1	5	9	0	--	--
2005–2006	2	0	1	3	2	4	--	--

Regulatory year	Harvest periods							
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Wolverine								
1992–1993	3	1	0	2	1	--	--	--
1993–1994	2	3	7	10	6	--	--	--
1994–1995	1	7	7	5	8	--	--	--
1995–1996	3	5	5	4	5	--	--	--
1996–1997	3	6	5	8	4	--	--	--
1997–1998	1	9	7	3	7	1	--	--
1998–1999	3	6	9	8	5	0	--	--
1999–2000	2	6	6	9	4	0	--	--
2000–2001	3	4	9	2	1	0	--	--
2001–2002	1	8	4	5	3	0	--	--
2002–2003	3	6	4	8	4	0	--	--
2003-2004	0	3	5	5	8	0	--	--
2004-2005	0	2	2	8	4	0	--	--
2005-2006	2	4	6	7	1	0	--	--

[a] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

WILDLIFE MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 PO Box 115526
Juneau, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006[1]

LOCATION

GAME MANAGEMENT UNITS: 25A, 25B, 25D, 26B, and 26C (75,000 mi^2)

GEOGRAPHIC DESCRIPTION: Eastern Interior, Eastern Brooks Range, and Central and Eastern Arctic Slope

BACKGROUND

The upper Yukon River valley in eastern Interior Alaska is one of Alaska's most productive furbearer habitats. Diverse and abundant habitats include wetlands, riparian, and upland seral vegetation communities. The area supports extensive populations of a variety of furbearers, especially beaver, lynx, and fox. Information about furbearer abundance and species composition on the Arctic Slope is limited. Wolves, wolverines, and foxes are the most important species for trappers in this area.

Information on furbearers comes from pelt sealing records for beavers, lynx, river otters, and wolverines; fur acquisition reports; export reports; and trapper questionnaires. Beaver populations have been surveyed periodically in the Yukon Flats National Wildlife Refuge (NWR) since 1982 (McLean 1986; Yukon Flats NWR, unpublished data). Limited surveys of other furbearers were conducted in the 1980s (Golden 1987).

Lynx trapping seasons were changed during the 1980s. There was concern about the effects of trapping during the low phase of the lynx population cycle. Before 1985 the season dates were 1 November–15 March. The Alaska Board of Game reduced the regulatory year (RY) 1985 season in Units 25A, 25B, and 25D to 1 November–28 February (RY = 1 July–30 June, e.g., RY85 = 1 July 1985 through 30 June 1986). The RY86 season was further reduced to 1 December–31 January. As lynx numbers began to recover, the season was again lengthened to 1 November–28 February in RY88. In contrast to more populated areas, trapping pressure was relatively light, especially following recent declines in fur prices. A tracking harvest strategy is not necessary in this area under present conditions.

[1] At the discretion of the reporting biologist, this unit report may contain data collected outside the report period.

Beaver trapping regulations were changed in RY95 to allow beavers to be taken by shooting during 16 April–1 June in Units 25A, 25B, and 25D, with a bag limit of 1 per day. The bag limit was changed to a 2 per day in RY96, and the meat of beavers taken by shooting must be salvaged for human consumption. A decline in trapping effort and harvest of beavers led the Alaska Board of Game to eliminate the requirement to seal beavers beginning in RY02.

MANAGEMENT DIRECTION

MANAGEMENT GOALS

- Protect, maintain, and enhance furbearer populations in concert with other components of the ecosystem to assure their capability of providing sustained opportunities for commercial use of furbearers.

- Provide people with sustained opportunities to participate in hunting, subsistence use, viewing, and photographing of furbearers.

MANAGEMENT OBJECTIVE

The management objective for furbearers is to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses.

Activities

- Seal furs of harvested wolverine, lynx, and river otter to monitor harvest levels and trends.

- Conduct trapper questionnaires and interviews to determine the status of various furbearer populations.

- Monitor furbearer population trends and annual harvest using sealing documents, fur acquisition reports, and fur export reports.

METHODS

We analyzed harvest data from sealing certificates, fur acquisition reports, and fur export reports. Reports from trappers were evaluated. Yukon Flats NWR biologists previously conducted annual beaver lodge and food cache surveys in the area but terminated this effort during 2002. Therefore, no population survey data was collected for beavers during RY03–RY05. During February–March 2006, we estimated wolverine distribution, extent and area of occupancy in a portion of Unit 25B and in Unit 25D using absence/presence survey methods and modeling (Mackenzie 2005; Sargeant et al. 2005; Magoun et al. 2007).

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

Beavers, martens, and lynx are common and sometimes occur in high numbers on the Yukon Flats. Aerial surveys of beaver lodges and food caches conducted prior to 2002 indicated that beaver activity fluctuated from year to year. During RY00–RY02, the number of active lodges in some areas was below the long-term average. The decline in beaver populations appeared to be greatest in lake systems; however, the number of active lodges in riparian areas has remained near or above the long-term average (Yukon Flats NWR, unpublished data).

Trapper reports and harvest data indicated that lynx numbers were high during the late 1980s and early 1990s. Lynx numbers and harvest increased during RY03–RY05 after declines observed during RY00–RY02 (Fig. 1).

Trappers reported that mink, muskrats, red squirrels, and wolverines were moderately abundant in Unit 25 during RY03–RY05. Muskrats had declined following cold winters and dry summers in the mid 1990s, but some increase was apparent by the late 1990s and continued through RY00–RY03. However, trappers noted a declining trend in abundance during RY03–RY05. Wolverines were reportedly common in Units 25A and 25B, but scarce in Unit 25D during each year of this reporting period (RY03–RY05). Wolverine surveys conducted during February–March 2006 indicated that wolverine are distributed throughout Units 25B and 25D, with the lowest occurrence probabilities indicating less usage in an area bordered by Fort Yukon, Chalkyitsik, and Central.

Trapper questionnaire responses indicated that arctic foxes and coyotes were not present in Unit 25 during this reporting period. Ermine, red foxes, and river otters were generally scarce, although otters are widely distributed on the Yukon Flats. Red and arctic foxes continued to be common in Units 26B and 26C, and wolverines were found at low density throughout the area. Wolverine tracks were commonly observed during a March 2004 moose survey.

MORTALITY

Harvest

Hunting Seasons and Bag Limits during RY03–RY05.

Unit/Species	Bag limit	Resident season	Nonresident season
Unit 25:			
Coyote	10 coyotes	10 Aug–30 Apr	10 Aug–30 Apr
Arctic fox[a]	2 foxes	1 Sep–30 Apr	1 Sep–30 Apr
Red fox	2 foxes	1 Sep–30 Sep	1 Sep–30 Sep
	10 foxes	1 Oct–15 Mar	1 Oct–15 Mar
Lynx	2 lynx	1 Nov–28 Feb	1 Nov–28 Feb
Wolverine	1 wolverine	1 Sep–31 Mar	1 Sep–31 Mar

Unit/Species	Bag limit	Resident season	Nonresident season
Unit 26:			
Coyote	10 coyotes	10 Aug–30 Apr	10 Aug–30 Apr
Arctic fox	2 foxes	1 Sep–30 Apr	1 Sep–30 Apr
Red fox	2 foxes	1 Sep–30 Sep	1 Sep–30 Sep
	10 foxes	1 Oct–15 Mar	1 Oct–15 Mar
Lynx	2 lynx	1 Nov–15 Apr	1 Nov–15 Apr
Wolverine	1 wolverine	1 Sep–31 Mar	1 Sep–31 Mar

[a] Season established in RY04.

Trapping Seasons and Bag Limits during RY03–RY05.

Unit/Species	Bag limit	Resident season
Unit 25:		
Beaver	50 beavers	1 Nov–15 Apr
	2 beavers/day by shooting	16 Apr–1 Jun
Coyote	No limit	1 Nov–31 Mar
Arctic fox[a]	No limit	1 Nov–15 Apr
Red fox	No limit	1 Nov–28 Feb
Lynx	No limit	1 Nov–28 Feb
Marten	No limit	1 Nov–28 Feb
Mink and Weasel	No limit	1 Nov–28 Feb
Muskrat	No limit	1 Nov–10 Jun
River otter	No limit	1 Nov–15 Apr
Wolverine	No limit	1 Nov–31 Mar
Unit 26:		
Beaver	No season	No season
Coyote	No limit	1 Nov–15 Apr
Arctic fox	No limit	1 Nov–15 Apr
Red Fox	No limit	1 Nov–15 Apr
Lynx	No limit	1 Nov–15 Apr
Marten	No limit	1 Nov–15 Apr
Mink and Weasel	No limit	1 Nov–31 Jan
Muskrat	No limit	1 Nov–10 Jun
River otter	No limit	1 Nov–15 Apr
Wolverine	No limit	1 Nov–15 Apr

[a] Season established in RY04.

Alaska Board of Game Actions and Emergency Orders. In 2004 the board established hunting and trapping seasons for arctic fox in Units 24 and 25. Small numbers of arctic foxes periodically disperse southward into these areas.

Hunter/Trapper Harvest.

Lynx — Lynx harvest increased from about 200 annually in RY95 to more than 700 annually in RY96 and RY97 (Table 1, Fig. 1). Harvest subsequently declined to about 200–400 lynx annually during RY99–RY02. Numbers of lynx harvested annually increased dramatically to an average of 687 lynx during RY03–RY05, and more than 1000 in RY05, primarily due to harvest in Unit 25D. Harvest occurred over an extensive area, but was greatest in the Chandalar, Christian, Black, Little Black, Porcupine, Sheenjek, Hodzana, Beaver Creek, and Birch Creek drainages. During this recent high cycle, lynx pelt prices ranged from 133 to 158 U.S. dollars, compared to 40 to 119 U.S. dollars during the population low (RY99–RY02; Table 2).

Snowshoe hares are the primary prey of lynx. Production and survival of lynx kittens is highly dependent on the abundance of this cyclic prey species. The proportion of kittens in the harvest was relatively high at 22–24% during RY95–RY97, declined to 3–7% during RY00–RY02, and increased from 10% in RY03 to 23% in RY05 (Table 3). These observations agreed with trapper reports indicating that snowshoe hares declined after the late 1990s, although they continued to be common during RY00–RY02. During the low phase of the hare cycle, the proportion of kittens in the harvest can be as low as 3% (Stephenson and Karczmarczyk 1989).

River Otter and Wolverine — River otter harvest was low despite relatively high fur prices during the report period ($\bar{x}$ = 118 U.S. dollars; Table 2). Seven river otters were harvested in Units 25 (6) and 26 (1) between RY03 and RY05 (Table 1). The low river otter harvest may be associated with low numbers (trappers generally reported that river otters were scarce) and reduced trapping effort for beaver during the last few years.

Most of the wolverine harvest was in Unit 25 (Table 1), in the Porcupine, Sheenjek, Chandalar, Little Black, Black, Hodzana, Colville, Beaver Creek and Birch Creek drainages. Areawide harvest was relatively stable, ranging from 32 to 73 during the past 10 years. However, harvest in Unit 25D increased from 7 during RY97–RY99 to 33 during RY00–RY02 and 57 during RY03–RY05. Harvest was concentrated along the Yukon River and several major creeks and was primarily (74%) male. Krebs et al. (2004) found that refugia are important in maintaining sustainable harvest of wolverines. The area where harvest occurred was small relative to the area of quality refugia and our surveys found high occurrence probabilities for wolverines in most of Unit 25D, so this additional harvest is not likely to be excessive.

Unsealed species — The estimated harvest of most species of unsealed furbearers has gradually declined in Unit 25 since the late 1980s. Fur prices declined to relatively low levels for most species during RY98–RY00, and probably accounted for much of the decline in trapping effort and harvest (Table 2). Temporary declines in furbearer populations also may have contributed to an unknown degree to the gradual declines in harvest. Fur prices increased substantially for marten in RY04 and RY05 and also increased for mink and beaver, which likely resulted in greater trapper effort, particularly for marten.

Sealing data for beavers was not available during RY03–RY05 because the Board of Game terminated beaver sealing requirements in 2002. During the previous reporting period, beavers were most commonly taken in and near major drainages such as the Black, Little Black, Coleen, Hodzana, Chandalar, and Christian Rivers, and Birch and Beaver Creeks. Beaver harvest in Unit

25 during that period was relatively low compared to the late 1980s (Table 1), and was probably related to lower pelt values and consequent reduction in trapper effort. Harvest of beavers during RY03–RY05, estimated from fur acquisition and export reports, ranged from 26 to 64 (Table 4). Some caution should be used in interpreting fur acquisition and export report data, however; their value relative to sealing data is limited because many trappers retain pelts for personal use.

Muskrats were historically taken in large numbers and declines in harvest may be attributed to a drying trend. Many lakes and ponds have diminished in size or disappeared, reducing the amount of muskrat habitat. Unusually cold winters and low snowfall, resulting in thick ice, also may have contributed to declines in muskrat populations. Estimated harvest fluctuated widely and averaged 376 per year during RY93–RY02, but remained low at 40 per year during the reporting period (Table 4).

While estimated harvest of weasels and squirrels in Unit 25 remained stable at low levels during RY93–RY05, harvests of red fox, mink, and marten fluctuated during that same time period (Table 4, Figs. 1–3). Harvest of these 3 species peaked during 1996, coincident with a peak in reported lynx harvest (Table 1). Some observers speculate that marten populations decline during the high phase of the lynx–hare cycle, possibly due to predation by lynx (B. Thomas, Council of Athabascan Tribal Governments, personal communication), owls, and goshawks (A. Magoun, personal communication). Both marten and lynx harvests increased during RY03–RY05. Lynx numbers were high during RY03–RY05, but we have no data on marten abundance. Marten harvest may have increased due to higher populations or the substantial increase in marten fur prices.

Trapper Success. Among sealed species, lynx and wolverines were the most commonly harvested furbearers (Table 1). Numerically and economically, martens were once the most important furbearer for most trappers. However, lynx were more important during the last few years. The number of successful trappers in Unit 25 who reported during RY03–RY05 ranged from 11 to 42 (Table 3). Numbers of trappers who harvested lynx have remained stable, while those who harvested wolverines increased during the reporting period. Comments on trapper questionnaires indicated that Unit 25 furbearer populations were moderate, and trapping conditions were good during RY03–RY05. Major deterrents to higher harvests during years of poor fur prices are severe weather or poor trail conditions and transportation costs.

Harvest Chronology. Lynx were harvested primarily in December, January and February, corresponding to when lynx pelts were at their prime (Table 5). Compared to the previous reporting period, less effort occurred in December and more effort occurred in February during RY03–RY05. The harvest of river otters and wolverines was distributed over a broader period, but in Unit 25 most were harvested in December, January, and February, when trapping activity for other species was greatest and river travel was safer than earlier in the season. The small harvest of wolverines in Units 26B and 26C occurred primarily in early winter (Table 6).

Harvest and Transport Methods. Traps and snares were the predominant method for harvesting furbearers in Unit 25 (Table 3). Firearms were used to take a few lynx and wolverines, particularly wolverines in Unit 26. Snowmachines were the most common method of transportation (Table 7); they were used for taking more than 80% of the furbearers in most years. A few were taken with the aid of aircraft, dogsled, skis, snowshoes, or highway vehicles.

In Unit 26B, highway vehicles were used by trappers on the Dalton Highway and were used in connection with most of the reported harvest of wolverines (Table 8).

CONCLUSIONS AND RECOMMENDATIONS

Although we lack quantitative data on furbearer population status in the upper Yukon and eastern Arctic, harvest data and anecdotal reports from trappers indicate that furbearer populations were not adversely affected by current harvest. The management objective to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses was met. Present seasons and bag limits provide reasonable trapping and hunting opportunity, while also providing for the conservation of furbearer populations.

Continued communication with local trappers and efforts to increase the number of fur sealing agents in the area is recommended. This includes continued personal contact with trappers and efforts to communicate through the trapper questionnaire.

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PREPARED BY:

Michele M. Szepanski
Graduate Intern II

SUBMITTED BY:

Doreen I. Parker McNeill
Assistant Management Coordinator

REVIEWED BY:

Craig L. Gardner
Wildlife Biologist III

Laura A. McCarthy
Publications Technician II

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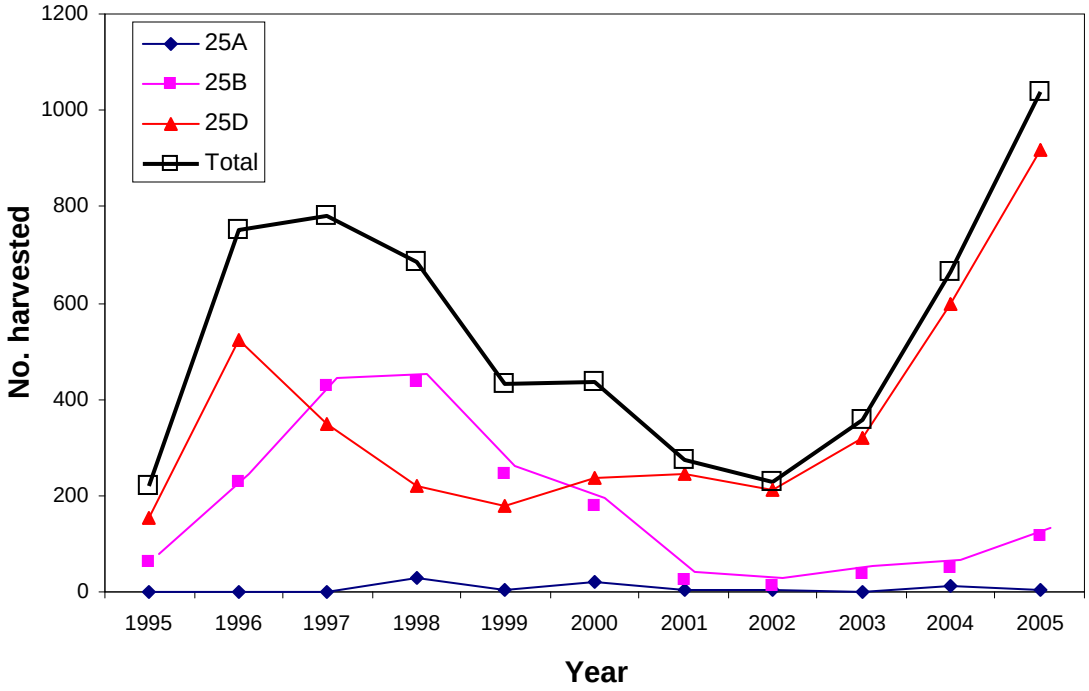

FIGURE 1 Lynx harvest in Unit 25 by Unit, 1995–2005

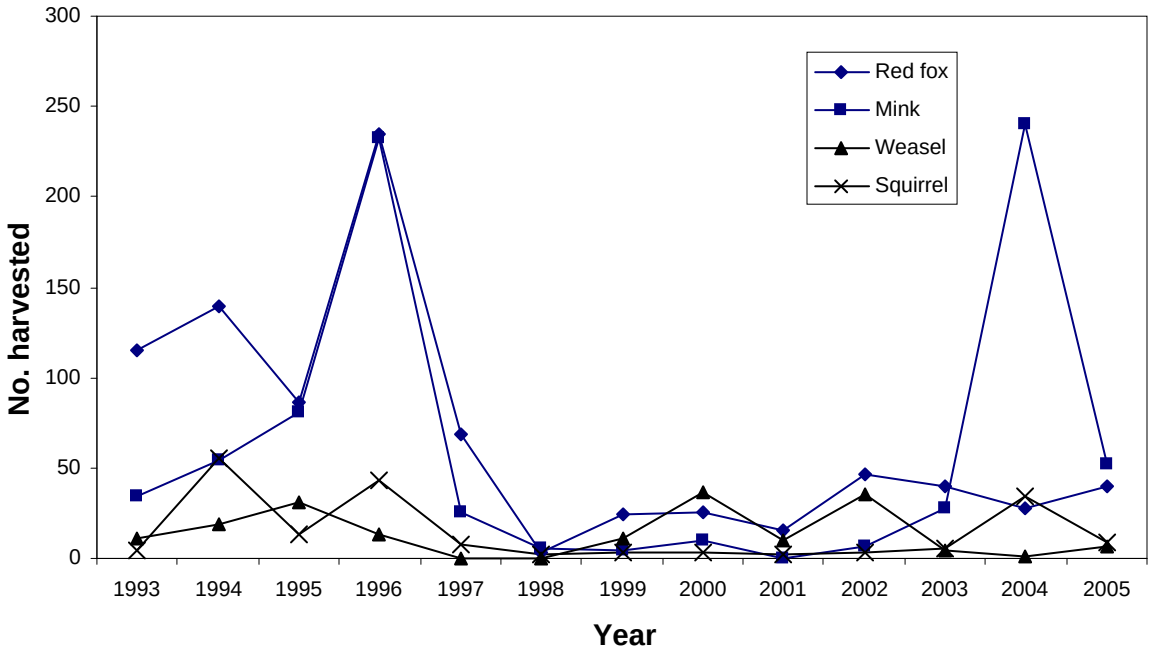

FIGURE 2 Estimated harvest of fox, mink, weasel, and squirrel based on acquisition and export reports, Unit 25, 1993–2005

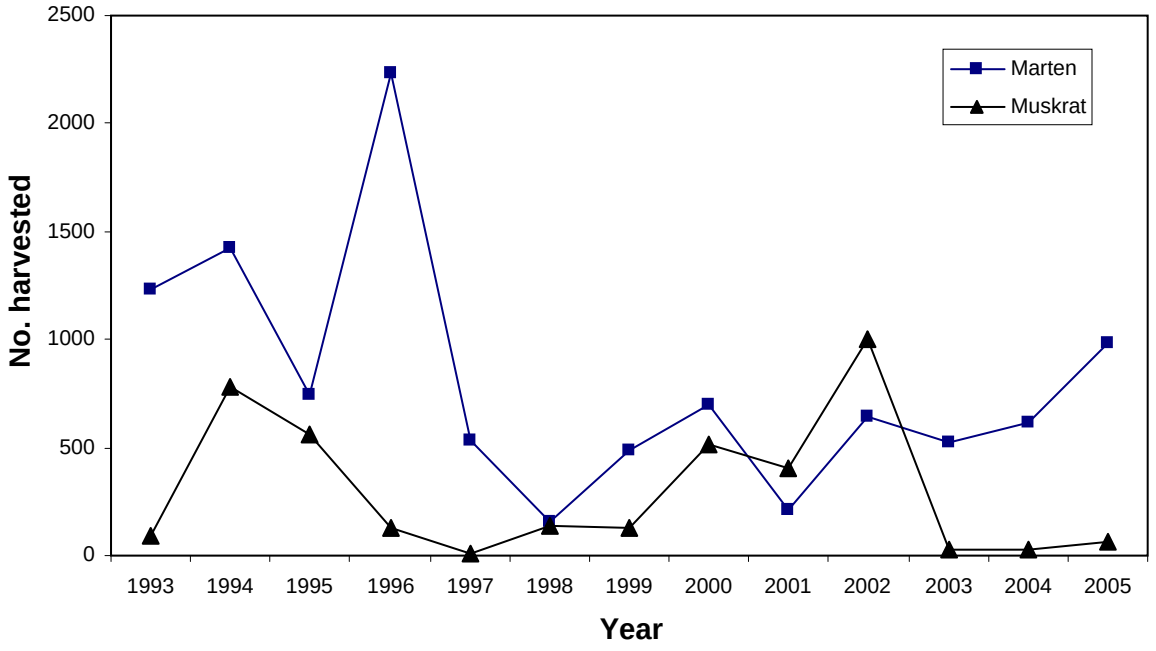

FIGURE 3 Estimated harvest of marten and muskrat based on acquisition and export reports, Unit 25, 1993–2005

TABLE 1 Units 25A, 25B, 25D, 26B, and 26C furbearer harvest, regulatory years 1995–1996 through 2005–2006

Species/	Unit					
Regulatory year	25A	25B	25D	26B	26C	Total
Beaver						
1995–1996	2	20	66	0	0	88
1996–1997	14	10	164	0	0	188
1997–1998	20	36	62	0	0	118
1998–1999	1	13	32	0	0	46
1999–2000	9	10	102	0	0	121
2000–2001	4	14	86	0	0	104
2001–2002[a]	4	20	93	0	0	117
Lynx						
1995–1996	1	62	155	0	0	218
1996–1997	0	227	524	0	0	751
1997–1998	0	429	350	0	0	779
1998–1999	31	434	219	0	0	684
1999–2000	5	247	179	0	0	431
2000–2001	19	180	236	0	0	435
2001–2002	4	26	243	3	1	277
2002–2003	3	13	213	0	0	229
2003–2004	1	38	320	0	0	359
2004–2005	13	51	599	0	0	663
2005–2006	4	115	917	3	0	1039
River Otter						
1995–1996	1	2	6	0	0	9
1996–1997	1	0	4	0	0	5
1997–1998	0	1	2	0	0	3
1998–1999	2	1	0	0	0	3
1999–2000	2	0	0	0	0	2
2000–2001	7	1	0	0	0	8
2001–2002	1	0	1	0	0	2
2002–2003	1	1	0	0	0	2
2003–2004	1	0	0	1	0	2
2004–2005	0	0	0	0	0	0
2005–2006	1	0	4	0	0	5
Wolverine						
1995–1996	7	5	5	6	1	24
1996–1997	14	14	7	11	0	46
1997–1998	13	10	1	8	0	32
1998–1999	11	11	3	8	2	35
1999–2000	23	10	3	19	4	59
2000–2001	25	11	7	7	0	50
2001–2002	22	7	4	8	2	43
2002–2003	13	4	22	6	1	46
2003–2004	10	12	20	6	0	48
2004–2005	16	19	26	12	0	73
2005–2006	18	7	11	3	1	40

[a] Beginning in regulatory year 2002–2003, beaver sealing was no longer required.

TABLE 2 Average North American furbearer pelt prices (U.S. dollars), regulatory years 1997–1998 through 2005–2006

Species	Regulatory year								
	1997–98	1998–99[a]	1999–00[b]	2000–01[c]	2001–02[d]	2002–03[e]	2003–04[f]	2004–05[f]	2005–06[f]
Beaver Good quality large brown	35	22	18	17	19	18	19	17	31
Marten Large I–II dark brown	66	22	32	29	38	33	38	46	92
Mink Large–medium I–II dark brown North	23	10	14	15	11	10	15	15	32
Red fox XL–large I–II Northwest	34	10	17	23	32	29	22	20	26
Lynx Large–medium I–II first color	95	58	48	40	76	119	158	133	158
River otter XL–large I–II dark brown	86	43	64	61	72	114	104	107	143
Wolverine XL I–II brown	249[d]	n/a	187	136	256	n/a	165	155	158

[a] Beaver and marten from 12 Feb 1999 sale; lynx from 11 Mar 1999 sale; mink, fox, and river otter from 27 May sale.
[b] Prices from 25 Feb 2000 sale.
[c] Prices from 11 Jan 2001 sale.
[d] Prices from 17 Feb 2002 sale.
[e] Prices from 19 Jun 2003 sale.
[f] Prices compiled from North American Fur Auction, Jan and Feb sales.

TABLE 3 Units 25A, 25B, 25D, 26B, and 26C beaver, lynx, river otter, and wolverine sex, age, and method of take, regulatory years 1995–1996 through 2005–2006

Units/Species/ Regulatory year	Reported harvest						Method of take				Total harvest	Successful trappers and hunters
	M	F	Unk sex	Juv[a]	Adults	Unk age	Trap/snare	Shot	(L&S)[b]	Unk		
Units 25A, 25B, and 25D:												
Beaver												
1995–1996			88	25	62	1	88	0	0	0	88	15
1996–1997			188	51	137	0	168	20	0	0	188	18
1997–1998			118	33	85	0	110	6	0	2	118	19
1998–1999			46	8	38	0	45	1	0	0	46	11
1999–2000			121	27	94	0	112	9	0	0	121	13
2000–2001			104	23	68	13	104	0	0	0	104	14
2001–2002[c]			117	22	95	0	110	7	0	0	117	17
Lynx												
1995–1996			218	48	169	1	216	2	0	0	218	44
1996–1997			751	177	574	0	744	0	0	7	751	83
1997–1998			779	177	594	8	779	0	0	0	779	55
1998–1999			684	112	565	7	681	1	0	2	684	42
1999–2000[c]			431	48	297	86	431	0	0	0	431	26
2000–2001			435	29	398	8	434	1	0	0	435	36
2001–2002			273	16	252	5	271	1	0	1	273	32
2002–2003			229	6	217	6	207	0	0	22	229	31
2003–2004			359	34	322	3	310	0	0	49	359	33
2004–2005			663	84	561	18	657	2	0	4	663	46
2005–2006			1036	235	789	12	998	0	0	38	1036	45
River Otter												
1995–1996	4	4	1	--	--	9	9	0	0	0	9	8
1996–1997	3	1	1	--	--	5	5	0	0	0	5	5
1997–1998	1	1	1	--	--	3	3	0	0	0	3	3

Units/Species/ Regulatory year	Reported harvest						Method of take				Total harvest	Successful trappers and hunters
	M	F	Unk sex	Juv[a]	Adults	Unk age	Trap/snare	Shot	(L&S)[b]	Unk		
1998–1999	0	0	3	--	--	3	3	0	0	0	3	2
1999–2000	1	1	0	--	--	2	2	0	0	0	2	1
2000–2001	5	3	0	--	--	8	8	0	0	0	8	2
2001–2002	1	0	1	--	--	2	2	0	0	0	2	2
2002–2003	1	1	0	--	--	2	2	0	0	0	2	2
2003–2004	2	0	0	--	--	2	1	0	0	0	2	2
2004–2005	0	0	0	--	--	0	0	0	0	0	0	0
2005–2006	1	1	3	--	--	5	5	0	0	0	5	4
Wolverine												
1995–1996	11	6	0	--	--	17	15	2	0	0	17	11
1996–1997	23	10	2	--	--	35	33	2	0	0	35	19
1997–1998	18	4	2	--	--	24	22	2	0	0	24	13
1998–1999	13	8	4	--	--	25	24	1	0	0	25	13
1999–2000	21	12	3	--	--	36	36	0	0	0	36	11
2000–2001	30	12	1	--	--	43	39	4	0	0	43	18
2001–2002	24	7	2	--	--	33	24	9	0	0	33	12
2002–2003	26	10	3	--	--	39	37	2	0	0	39	16
2003–2004	26	13	3	--	--	42	39	3	0	0	42	25
2004–2005	42	11	8	--	--	61	60	1	0	0	61	27
2005–2006	21	14	1	--	--	36	36	0	0	0	36	14
Units 26B and 26C:												
Lynx												
1995–1996			0	0	0	0	0	0	0	0	0	0
1996–1997			0	0	0	0	0	0	0	0	0	0
1997–1998			0	0	0	0	0	0	0	0	0	0
1998–1999			0	0	0	0	0	0	0	0	0	0
1999–2000			0	0	0	0	0	0	0	0	0	0
2000–2001			0	0	0	0	0	0	0	0	0	0

Units/Species/ Regulatory year	Reported harvest						Method of take				Total harvest	Successful trappers and hunters
	M	F	Unk sex	Juv[a]	Adults	Unk age	Trap/snare	Shot	(L&S)[b]	Unk		
2001–2002			4	0	3	1	3	1	0	0	4	2
2002–2003			0	0	0	0	0	0	0	0	0	0
2003–2004			0	0	0	0	0	0	0	0	0	0
2004–2005			0	0	0	0	0	0	0	0	0	0
2005–2006			3	0	3	0	3	0	0	0	3	1
Wolverine												
1995–1996	4	3	0	--	--	7	1	6	0	0	7	7
1996–1997	8	3	0	--	--	11	8	2	1	0	11	6
1997–1998	7	1	0	--	--	8	3	5	0	0	8	6
1998–1999	9	1	0	--	--	10	8	2	0	0	10	7
1999–2000	14	8	1	--	--	23	15	5	0	3	23	10
2000–2001	3	4	0	--	--	7	2	5	0	0	7	7
2001–2002	7	2	1	--	--	10	7	3	0	0	10	6
2002–2003	6	1	0	--	--	7	3	4	0	0	7	3
2003–2004	0	0	6	--	--	6	4	2	0	0	6	2
2004–2005	9	2	1	--	--	12	8	4	0	0	12	7
2005–2006	3	1	0	--	--	4	2	2	0	0	4	3

[a] Beavers ≤52" for length and width; lynx ≤34" in length.

[b] L&S (land-and-shoot) refers to animals taken by hunters the same day hunters were airborne.

[c] Beginning regulatory year 2002–2003, beaver sealing was no longer required.

TABLE 4 Unit 25 estimated harvest[a] of unsealed furbearer species, regulatory years 1993–1994 through 2005–2006

	Regulatory year[b]												
Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Arctic fox	5	7	0	0	0	1	0	0	3	0	0	0	0
Beaver[c]											27	64	26
Coyote	2	1	0	1	0	0	0	0	1	0	0	0	1
Marten	1234	1422	748	2233	536	152	490	700	209	642	524	620	980
Mink	34	54	81	232	26	6	4	10	0	7	28	240	52
Muskrat	92	784	558	126	9	138	131	519	403	999	29	23	67
Red fox	115	139	86	235	69	3	24	25	16	47	40	28	40
Squirrel	4	55	13	43	8	2	3	3	2	3	6	34	9
Weasel	11	19	31	13	0	0	11	36	10	35	4	1	7

[a] Estimates calculated by combining fur acquisition reports and fur export permits.

[b] Regulatory year = 1 July through 30 June, e.g., regulatory year 1993 = 1 July 1993 through 30 June 1994.

[c] Beaver were sealed prior to regulatory year 2002–2003.

TABLE 5 Units 25A, 25B, and 25D beaver, lynx, river otter, and wolverine harvest chronology by month, regulatory years 1995–1996 through 2005–2006

Species/ Regulatory year	Harvest chronology by month							
	Aug/Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Beaver								
1995–1996	0	3	13	0	25	35	12	
1996–1997	0	0	15	1	31	100	15	14
1997–1998	0	16	3	10	41	39	0	6
1998–1999	0	6	5	5	4	25	0	1
1999–2000	0	19	3	3	20	64	4	7
2000–2001	1	22	8	7	27	36	2	0
2001–2002[a]	5	0	8	7	21	53	16	5
Lynx								
1995–1996	0	5	86	55	69	0	0	
1996–1997	0	13	231	87	20	0	0	
1997–1998	0	91	188	59	41	0	0	
1998–1999	0	15	208	23	38	0	0	
1999–2000	0	6	178	58	89	0	0	
2000–2001	0	24	184	30	84	13	0	
2001–2002	0	19	140	65	48	0	0	
2002–2003	0	35	40	17	17	1	0	
2003–2004	3	60	91	79	13	3	0	
2004–2005	0	55	192	72	32	0	0	
2005–2006	0	33	268	42	40	13	0	
River Otter								
1995–1996	0	1	4	0	4	0	0	
1996–1997	0	0	1	2	1	0	1	
1997–1998	0	0	1	1	1	0	0	
1998–1999	0	2	1	0	0	0	0	
1999–2000	0	0	0	1	0	0	1	
2000–2001	0	2	2	0	1	3	0	
2001–2002	0	0	0	1	1	0	0	
2002–2003	0	0	2	0	0	0	0	
2003–2004	0	0	0	0	1	0	0	
2004–2005	0	0	0	0	0	0	0	
2005–2006	0	2	1	0	1	1	0	
Wolverine								
1995–1996	0	2	6	1	7	1	0	
1996–1997	2	1	5	9	11	7	0	
1997–1998	1	1	6	6	6	4	0	
1998–1999	0	2	6	7	7	3	0	
1999–2000	0	3	2	11	12	1	7	
2000–2001	2	6	17	6	8	4	0	

Species/ Regulatory year	Harvest chronology by month							
	Aug/Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
2001–2002	0	5	10	6	11	1	0	
2002–2003	1	1	14	12	6	5	0	
2003–2004	4	3	6	14	11	3	0	
2004–2005	1	4	13	16	21	6	0	
2005–2006	0	2	5	20	7	2	0	

[a] Beginning in regulatory year 2002, beaver sealing was no longer required.

TABLE 6 Units 26B and 26C lynx and wolverine harvest chronology by month, regulatory years 1995–1996 through 2005–2006

Species/	Harvest chronology by month						
Regulatory year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr
Lynx							
1995–1996	0	0	0	0	0	0	0
1996–1997	0	0	0	0	0	0	0
1997–1998	0	0	0	0	0	0	0
1998–1999	0	0	0	0	0	0	0
1999–2000	0	0	0	0	0	0	0
2000–2001	0	0	0	0	0	0	0
2001–2002	0	0	0	3	0	0	1
2002–2003	0	0	0	0	0	0	0
2003–2004	0	0	0	0	0	0	0
2004–2005	0	0	0	0	0	0	0
2005–2006	0	0	0	0	0	0	3
Wolverine							
1995–1996	1	0	0	0	0	3	3
1996–1997	1	2	0	0	5	1	2
1997–1998	1	0	0	3	2	2	0
1998–1999	0	0	1	0	3	4	2
1999–2000	1	0	3	4	8	4	3
2000–2001	0	1	1	1	1	1	2
2001–2002	0	1	2	1	4	2	0
2002–2003	1	0	2	0	1	3	0
2003–2004	0	4	2	0	0	0	0
2004–2005	2	1	3	2	2	2	0
2005–2006	0	1	1	0	1	1	0

TABLE 7 Units 25A, 25B, and 25D beaver, lynx, river otter, and wolverine harvest percent by transport method, regulatory years 1995–1996 through 2005–2006

Species/ Regulatory year	Harvest percent by transport method							
	Airplane	Dogsled, Skis, or Snowshoes	Boat	3- or 4-Wheeler	Snowmachine	ORV	Highway vehicle	Unknown
Beaver								
1995–1996	0	9	0	0	89	0	0	2
1996–1997	0	1	11	0	88	0	0	0
1997–1998	0	6	0	0	87	0	5	2
1998–1999	0	13	0	0	83	0	0	4
1999–2000	0	21	1	0	76	0	2	0
2000–2001	0	17	0	0	82	0	0	1
2001–2002[a]	5	8	6	0	71	0	0	10
Lynx								
1995–1996	4	4	0	0	90	0	0	3
1996–1997	4	7	1	0	87	0	0	1
1997–1998	7	8	0	<1	84	0	<1	<1
1998–1999	<1	16	<1	<1	82	0	<1	<1
1999–2000	15	9	0	0	77	0	0	0
2000–2001	2	14	0	0	82	0	2	<1
2001–2002	0	5	0	0	90	0	<1	4
2002–2003	0	6	0	0	62	0	1	31
2003–2004	1	6	0	0	74	0	0	19
2004–2005	2	2	0	1	88	0	0	7
2005–2006	<1	3	0	0	91	0	0	6
River Otter								
1995–1996	0	0	0	0	100	0	0	0
1996–1997	0	0	0	0	100	0	0	0
1997–1998	0	0	0	0	100	0	0	0
1998–1999	0	67	0	0	33	0	0	0

Species/ Regulatory year	Harvest percent by transport method							
	Airplane	Dogsled, Skis, or Snowshoes	Boat	3- or 4-Wheeler	Snowmachine	ORV	Highway vehicle	Unknown
1999–2000	0	0	0	0	100	0	0	0
2000–2001	0	25	0	0	75	0	0	0
2001–2002	0	0	0	0	100	0	0	0
2002–2003	0	50	0	0	50	0	0	0
2003–2004	0	0	0	0	100	0	0	0
2004–2005	0	0	0	0	0	0	0	0
2005–2006	0	20	0	0	80	0	0	0
Wolverine								
1995–1996	0	0	14	0	71	0	14	0
1996–1997	14	0	3	0	71	0	0	11
1997–1998	4	33	0	0	63	0	0	0
1998–1999	0	20	0	0	60	0	0	20
1999–2000	8	6	0	0	86	0	0	0
2000–2001	2	28	0	0	67	0	2	0
2001–2002	0	12	0	0	85	0	3	0
2002–2003	3	20	0	0	77	0	0	0
2003–2004	5	5	5	0	71	0	5	9
2004–2005	8	11	0	0	75	0	2	3
2005–2006	5	17	0	0	78	0	0	0

[a] Beginning in regulatory year 2002–2003, beaver sealing was no longer required.

TABLE 8 Units 26B and 26C lynx and wolverine harvest percent by transport method, regulatory years 1995–1996 through 2005–2006

Species/ Regulatory year	Harvest percent by transport method							
	Airplane	Dogsled, Skis, or Snowshoes	Boat	3- or 4-Wheeler	Snowmachine	ORV	Highway vehicle	Unknown
Lynx								
1995–1996	0	0	0	0	0	0	0	0
1996–1997	0	0	0	0	0	0	0	0
1997–1998	0	0	0	0	0	0	0	0
1998–1999	0	0	0	0	0	0	0	0
1999–2000	0	0	0	0	0	0	0	0
2000–2001	0	0	0	0	0	0	0	0
2001–2002	0	0	0	0	100	0	0	0
2002–2003	0	0	0	0	0	0	0	0
2003–2004	0	0	0	0	0	0	0	0
2004–2005	0	0	0	0	0	0	0	0
2005–2006	0	0	0	0	0	0	100	0
Wolverine								
1995–1996	0	0	14	0	71	0	14	0
1996–1997	0	0	0	0	45	0	55	0
1997–1998	0	25	0	0	50	0	25	0
1998–1999	0	20	0	0	50	0	30	0
1999–2000	4	9	0	0	48	0	26	13
2000–2001	0	0	0	0	71	0	29	0
2001–2002	10	0	0	0	60	0	30	0
2002–2003	14	0	0	0	57	0	29	0
2003–2004	0	0	0	0	0	0	100	0
2004–2005	0	8	0	0	33	0	58	0
2005–2006	0	0	0	0	25	0	75	0

WILDLIFE

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
(907) 465-4190 P.O. BOX 115526
JUNEAU, AK 99811-5526

FURBEARER MANAGEMENT REPORT

From: 1 July 2003
To: 30 June 2006

LOCATION

GAME MANAGEMENT UNIT: 26A (56,000 mi^2)

GEOGRAPHIC DESCRIPTION: Western North Slope

BACKGROUND

Red fox, arctic fox, and wolverine are commonly found in Unit 26A. Lynx expanded their range into Unit 26A during the late 1990s, following a snowshoe hare irruption in the Colville River drainage. River otters can be found on some tributaries of the Colville River. Because of limited habitat, boreal forest species such as marten and coyote are rare and found only in the southern portion of the unit. Furbearers are harvested on the North Slope primarily for the domestic manufacture of garments. In addition, some furs are used to produce handicrafts, and some are sold on the commercial fur market (Carroll 2001).

Rabid furbearers, particularly arctic foxes, continue to be a problem around human settlements. We work with the North Slope Borough to educate people on dealing with rabid animals and having their pets immunized. Arctic foxes that appear to be rabid are killed and tested for rabies when they are reported near villages.

MANAGEMENT DIRECTION

MANAGEMENT GOALS

The management goal for furbearers is to maintain populations capable of sustained-yield harvests, recognizing that populations fluctuate in response to environmental factors.

MANAGEMENT OBJECTIVES

Population management objectives established for furbearers in Unit 26A are to:

- Maintain productive populations and allow for sustained-yield harvest.
- Seal furs and maintain accurate harvest records to evaluate harvest patterns.
- Provide for subsistence, commercial, and recreational uses of furbearers.

- Minimize adverse interactions between furbearers and the public.

METHODS

We did not conduct specific furbearer population surveys; however, we did record incidental furbearer observations during surveys conducted for other species. We summarized harvest data from sealing certificate records.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size, Composition, and Distribution and Movements

No quantitative population information is available for lynx, red foxes, arctic foxes, river otters, or coyotes in Unit 26A. Lynx were at low, but increasing density in the unit. Red foxes were fairly abundant in interior regions of Unit 26A. Before 2005 red foxes were only seen in interior areas, but now are being seen more often as far north as Barrow. Arctic foxes were abundant along the coastal plain in Unit 26A. River otters were seen in low, but increasing, numbers along the Colville River and some of its tributaries. Coyotes were occasionally seen along the southern border of Unit 26A.

Magoun (1984) estimated a fall population size of 821 wolverines for Unit 26A, assuming an overall density of 1 wolverine/54 mi^2 for the entire unit. There have been no recent population surveys.

While conducting spring moose counts in Unit 26A, we saw the following numbers of wolverines and lynx:

Year	Hours Flown	Wolverine	#/Hour	Lynx	#/Hour
1984	35	11	.31		
1991	39	12	.31		
1994	32	5	.16		
1995	34	6	.18		
1998	9	3	.33		
1999	24	5	.21		
2000	12	3	.31		
2001	13	4	.31		

Year	Hours Flown	Wolverine	#/Hour	Lynx	#/Hour
2002	16	7	.44	3	.19
2003	12	4	.33	2	.17
2004	13	2	.15	0	
2005	20	5	.25	0	
2006	12	1	.08	0	

We did not see any lynx during the spring surveys in 2005 and 2006, but we saw multiple sets of lynx tracks, indicating that lynx were present, but were difficult to spot from the airplane.

During the 2005 survey, and again during our 2007 survey, we observed incidents of a wolverine killing a moose.

MORTALITY

Harvest

Hunting Seasons and Bag Limits.

Unit 26A: *2000–2001, 2001–2002, 2002–2003*

Species	Season	Bag Limit
Coyote	1 Sep–30 Apr	2 coyotes
Fox, Arctic	1 Sep–30 Apr	2 foxes
Fox, Red	1 Sep–15 Mar	10 foxes
Lynx	1 Nov–15 Apr	2 lynx
Wolverine	1 Sep–31 Mar	1 wolverine

Trapping Seasons and Bag Limits.

Unit 26A: *2000–2001, 2001–2002, 2002–2003*

Species	Season	Bag Limit
Coyote	1 Nov–15 Apr	No limit
Fox, Arctic	1 Nov–15 Apr	No limit
Fox, Red	1 Nov–15 Apr	No limit
Lynx	1 Nov–15 Apr	No limit
Wolverine	1 Nov–15 Apr	No limit

Board of Game Actions and Emergency Orders. There were no Board of Game actions or emergency orders during the reporting period.

Human-Induced Harvest, Harvest Chronology, Transport Methods.
Lynx — Snowshoe hares immigrated to and became plentiful in the Colville River drainage during the 1990s. Only occasional lynx sightings were made through 2000, but numbers increased in 2001–2002 and lynx were seen as far north as Wainwright and Barrow. Three lynx were sealed in Unit 26A during 2003–2004. Two were male and 1 was female. Two were trapped and 1 was ground shot. Snowmachines were used for transportation for all of them. All 3 were taken during March. Both trappers were residents of the unit.

Four lynx were sealed in Unit 26A during 2004–2005. One was male and 3 were female. One was trapped and 3 were ground shot. Snowmachines were used for transportation of 3 and a 4-wheeler for 1. Two were taken during March, 1 in October, and 1 in April. All 4 trappers were residents of the unit.

Six lynx were sealed in Unit 26A during 2005-2006. All 6 were males. Five were trapped and 1 was ground shot. Snowmachines were used for transportation for all of them. Five were taken during January and 1 in April. Both trappers were residents of the unit.

Arctic and red foxes — Local hunters and trappers harvested arctic and red foxes. Because there is no sealing requirement for these species, harvest information was not obtained. Low fur prices resulted in relatively few foxes being trapped.

Coyote — No coyote harvests were reported during this period. There is no sealing requirement for coyotes, so harvest information was not obtained. Because coyotes only occur in the southern portion of the unit, only residents from Anaktuvuk Pass have opportunity to harvest them.

Wolverine —Twenty wolverines were sealed during 2003–2004. Two were females and 18 were males. Seventeen were ground shot and 3 were trapped. (Table 1). Trappers used snowmachines for transportation for 19 wolverines, and 1 used aircraft. One was taken in September, 2 in November, 1 in February, and 16 in March (Table 2). Eight trappers were residents of the unit and 2 were nonlocal residents

Seven wolverines were sealed during 2004–2005. One was a female and 6 were males. Six were ground shot and 1 was trapped (Table 1). Snowmachines were used for transportation for all 7. One was taken during November, 1 in February, and 5 during March (Table 2). All 5 trappers were residents of the unit.

Twenty-seven wolverines were sealed during 2005–2006. Nine were females and 18 were males. Sixteen were ground shot and 11 were trapped (Table 1). Trappers used snowmachines as transportation for 25 and a boat for 2. Two were taken during September, 2 during February, 21 during March, and 2 in April (Table 2). All 11 trappers were residents of the unit.

The department fur sealing system underreports harvest for the following reasons: 1) there are no fur sealing agents in most of the villages because there is little financial incentive for anyone to act as a fur sealer; 2) many residents are not aware of sealing requirements; 3) many people are

reluctant to comply with state regulations; and, 4) most hides are used locally. Most rural residents have their hides sealed only if they are selling them to fur buyers or sending them out for commercial tanning.

According to results obtained from a North Slope census, at least 42 wolverines were harvested in Unit 26A during calendar year 1992 (Fuller and George, 1997). This compares to 2 wolverines sealed during 1991–1992 and 11 sealed during 1992–1993. According to the North Slope Borough Harvest Documentation study, 8, 10, 7, and 3 wolverines were harvested in Nuiqsut, Atqasuk, Barrow, and Anaktuvuk Pass during 1994–1995 (Brower and Opie, 1996 and 1997; Hepa and Brower, 1997). Eight of these animals were sealed.

The reported harvests of 20, 7, and 27 wolverines during the last 3 years were generally greater than the reported harvests since 1991 (Table 1). This is probably an indication of increasing wolverine numbers, but could also be a result of increased hunting effort and possibly a higher percentage of people reporting their harvest. Magoun (1984) estimated that Unit 26A could sustain an annual harvest of 300 wolverines if less than 90 females were harvested and if the reproductive rate observed at the Driftwood study area was applicable to the entire unit. Even though the harvest is underreported, overharvesting is probably not occurring in Unit 26A. Trappers reported that the harvest was reduced in 2004–2005 because there was a great deal of seismic petroleum exploration that winter, which drove wolves and wolverines out of areas where people normally hunt.

Permit Hunts. No special permits were required to trap or hunt furbearers in Unit 26A during the reporting period.

Hunter Residency and Success. All harvests of all furbearer species were by residents. There were no estimates or measures of hunter/trapper success in Unit 26A during the reporting period.

Other Mortality

We have no estimates or observations of other mortality affecting furbearers in Unit 26A.

HABITAT

Assessment

We did no habitat assessment projects in Unit 26A during the reporting period. It was apparent that the migration and increasing population of snowshoe hares in Unit 26A expanded the prey base and resulted in an increase in numbers of lynx, wolverines, and foxes.

Enhancement

We did no habitat enhancement projects in Unit 26A during the reporting period.

NONREGULATORY MANAGEMENT PROBLEMS/NEEDS

Trappers reported that harvest was reduced in 2002–2003 and 2004–2005 because there was a great deal of seismic petroleum exploration that drove wolves and wolverines out of areas where people normally hunt. The effect of seismic exploration on furbearer distribution should be further investigated.

CONCLUSIONS AND RECOMMENDATIONS

It would be useful to obtain more accurate population information for furbearers, particularly wolverines. A track intercept technique has been used to estimate wolverine density in other areas of Alaska (Becker 1991) and may be useful for evaluating population trends in portions of Unit 26A. However, it would be expensive and is not a high priority at this time.

It also would be useful to obtain more accurate harvest information. The department fur sealing system underreports harvest because there are no sealing agents in most of the villages and because most rural residents have their hides sealed only if they are sending them out for commercial tanning. In order to obtain more accurate harvest information we worked with the North Slope Borough to develop and implement a village harvest monitor program. Village residents have been hired to interview hunters and document harvest for several species of animals.

To minimize adverse interactions between furbearers and the public, we work with the North Slope Borough Public Health Department to educate people on dealing with rabid animals and having their pets immunized. We also destroy foxes that appear to be rabid and collect specimens so they can be tested for rabies.

The reported number of wolverines harvested has fluctuated, but has generally increased since the early 1990s, with the largest number harvested being 27 in 2005–2006. However, Magoun (1984) estimated that Unit 26A could sustain an annual harvest of 300 wolverines, if less than 90 females were harvested. Even though there is considerable underreporting, and reported harvest has recently increased, the harvest appears to be well under Magoun's estimated sustainable annual harvest. We recommend no changes in seasons and bag limits at this time. Trappers reported that harvest was reduced in 2002–2003 and 2004-2005 because there was a great deal of seismic petroleum exploration during those years that drove wolves and wolverines out of areas where people normally hunt. There should be an investigation of the effect of seismic exploration on furbearing animals.

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PREPARED BY:

Geoff Carroll
Wildlife Biologist III

SUBMITTED BY:

Peter Bente
Survey-Inventory Coordinator

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TABLE 1 Total reported harvest, sex composition, and method of take for wolverines sealed in Unit 26A, 1991–1992 through 2005–2006

Year	Total Reported Harvest	Males (%)	Method of take			
			Shot	Trapped	Snared	Unknown
1991–1992	2	50	2	0	0	0
1992–1993	11	80	8	2	0	1
1993–1994	14	57	12	1	0	1
1994–1995	16	63	12	2	1	1
1995–1996	21	67	20	1	0	0
1996–1997	11	64	5	6	0	0
1997–1998	20	70	19	1	0	0
1998–1999	26	73	25	1	0	0
1999–2000	19	53	9	5	3	2
2000–2001	23	83	16	7	0	0
2001–2002	26	62	25	1	0	0
2002–2003	11	73	11	0	0	0
2003-2004	20	90	17	3	0	0
2004-2005	7	86	6	1	0	0
2005-2006	27	67	16	11	0	0

TABLE 2 Chronology for reported wolverine harvest in Unit 26A, 1991–1992 through 2005–2006

Year	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unkn	Total
1991–1992	1						1			2
1992–1993	3		1				6		1	11
1993–1994			4				5	4	1	14
1994–1995	4		3	2	1	3	2		1	16
1995–1996	4		3	2	1	4	6		1	21
1996–1997			4	2	1	2	1	1		11
1997–1998	1	1	2	5	3	1	6	1		20
1998–1999			1	4	1	7	3	10		26
1999–2000			1	1		2	1	12	2	19
2000–2001	1	1	1	1	3	5	10	1	0	23
2001–2002	0	0	4	5	0	3	14	0	0	26
2002–2003	1	0	0	0	0	0	10	0	0	11
2003-2004	1	0	2	0	0	1	16	0	0	20
2004-2005	0	0	1	0	0	1	5	0	0	7
2005-2006	2	0	0	0	0	2	21	2	0	27

The Federal Aid in Wildlife Restoration Program consists of funds from a 10% to 11% manufacturer's excise tax collected from the sales of handguns, sporting rifles, shotguns, ammunition and archery equipment. The Federal Aid program allots funds back to states through a formula based on each state's geographic area and number of paid hunting license holders. Alaska receives a maximum 5% of revenues collected each year. The Alaska Department of Fish and Game uses federal aid funds to help restore, conserve and manage wild birds and mammals to benefit the public. These funds are also used to educate hunters to develop the skills, knowledge and attitudes for responsible hunting.

Photo by Boyd Porter, ADF&G